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SPENT

Sex, Evolution, and Consumer Behavior

VIKING

6

Flaunting Fitness

SINCE ABOUT 1990, there have been two bloodless but momentous revolutions in human affairs: the collapse of communism in politics, and the rise of signaling theory in biology. Both depended on the same insight: individuals work hard mostly because they want to show off to others, not for the good of the group. This tendency holds true in both organic evolution and human economics. Bowerbirds build elaborate nests to attract mates for themselves, not to improve the public aesthetics of their New Guinea habitat. Likewise, Ukrainian farmers will work harder to buy status symbols for themselves than they will to feed starving neighbors.

The basic insight of signaling theory is that animals make a lot of noise about themselves, but they don't communicate much news about the world. We've known ever since Darwin that animals are basically machines for survival and reproduction; now we also know that animals achieve much of their survival and reproductive success through self-advertisement, self-marketing, and self-promotion. Narcissism is nothing new; it is the evolutionary norm, as every peacock strives to be the brand most favored by peahens.

Almost all animal signals—birdsong, firefly lights, pheromones, courtship dances—convey self-promoting information about the signaler, not helpful information about the environment. Instead, most animal signals convey little more than the individual's type (species, sex, age) and quality (fitness, health, status, fertility). They do not include the sort of detailed product specifications favored by 1950s car ads. They just say what kind of beastie you are, and how good you are at being your sort of beastie. Animals send such signals to just a few different audiences for just a few reasons—mainly to solicit care

or food from parents, to threaten rivals, and to attract mates. This is accomplished not by conversing about topics of mutual interest, but by sending credible claims about one's own needs ("Gimme food!") or qualities ("I've got great genes, so you should mate with me").

It's easy to claim that one is helplessly hungry or awesomely fit; the challenge is to make such claims credibly. This is precisely what signaling theory addresses: how animals can back up their claims, how they can send reliable, hard-to-fake signals that will be believed. In 1975 the Israeli biologist Amotz Zahavi proposed that high cost could guarantee the reliability of quality signals. His "handicap principle" suggested that only high-quality animals could afford to waste a lot of time, energy, and resources on issuing costly signals, which he called handicaps. A sickly, starving, parasite-ridden, brain-damaged pigeon can't repeat the "mate with me" song a few thousand times an hour; therefore, any pigeon who can repeat the song must not be sickly, starving, or otherwise impaired. The song's cost guarantees the singer's quality. This theory remained controversial until around 1990, when biologists understood it clearly enough to develop mathematical models demonstrating that it works. Since then, Zahavi's handicap principle has expanded into modern "costly signaling theory," which is a foundation of modern research on animal communication, sexual selection, social interaction, and human behavior.

When animals use physical traits or behaviors to show off, we can call these handicaps, or costly signals, or sexual ornaments, or fitness indicators, the term I prefer. As we saw in chapter 5, fitness indicators function as both advertisements and warranties: they not only proclaim quality, but guarantee it. Indicators attract attention if they are costly, hard to produce, and hard to fake. They are ignored if they are too cheap, simple, and easy to counterfeit.

The peacock's tail is the classic example of a fitness indicator. It has no survival function, and plays no necessary role in fertilization. It simply attracts peahens by showing off the peacock's health and fitness, the quality of its genes, and its ability to find seeds and insects, and to escape from tigers. Other obvious fitness indicators include the

lion's mane, the elk's antlers, and the humpback whale's song. Human bodies are also full of fitness indicators that reveal reliable information about health and fertility, and that were shaped in part by sexual selection to attract mates. These bodily signals of quality include our faces, voices, hair, skin, gait, and height—plus female breasts, buttocks, and waists, and male beards, penises, and upper-body muscle mass. Many human mental traits may have also evolved as fitness indicators, including our capacities for language, humor, art, music, creativity, intelligence, and kindness.

Signaling theory applies equally to nature and culture. Nature produced peacock tails: large, symmetrical, colorful, costly, awkward, high-maintenance, hard-to-fake fitness indicators. Human culture produces luxury goods like the Hummer H1, which is also large, symmetrical, colorful, costly, awkward, and high-maintenance. These qualities likewise make it hard to fake as a wealth indicator—even if you could steal an H1, you probably couldn't afford its gas or insurance.

Counterfeiting

Signaling theory becomes clearer when you think about counterfeiting money. Counterfeiting became much easier in the 1990s with digital color copiers, printers, scanners, and computer graphic software—technology that challenged the U.S. Bureau of Printing and Engraving to include stronger anticounterfeiting features in the next-generation redesign of U.S. currency. The $20 bill is an especially popular counterfeiting target, since it's the highest-denomination bill commonly accepted by cashiers without close inspection. Thus, the upgraded Series 2004 $20 bill included several new security features such as a broader range of ink colors, watermarks and microprinting that are very hard to copy or scan, color-shifting ink that is hard to imitate, security threads with microprinting that glow different colors under UV light, and highly detailed, enlarged, off-center portraits that are easy to recognize but hard to imitate.

The common denominators in these security devices are conspicuous cost and conspicuous precision. The bureau's high-speed, sheet-fed rotary Intaglio printing presses are just too expensive for the typical counterfeiter—although once the bureau is equipped, the marginal (unit) cost of printing each $20 bill is only four cents. As for conspicuous precision, the microprinting, security threads, watermarks, and detailed portraits are very complex, detailed, and hard to imitate accurately. When the European Central Bank released 14.5 billion new bills of euro currency on January 1, 2002, they included similar anticounterfeiting features, plus even harder-to-fake iridescent ink and a hologram foil stripe or patch.

To understand the costly signaling theory that explains much of consumption, it's easiest to consider how we distinguish "real" products from "fake" products—and why we care about the difference. Conspicuous cost and conspicuous precision are the two basic features of hard-to-fake signals. Zahavi's handicap principle focused on production cost, and the money printers focus on production precision, but most credible signals—and luxury goods—include high levels of both, and it is both that cheap imitators try to fake.

Consider gold necklaces, for example: their value depends on the weight and purity of their gold and the quality of their workmanship. Gold-plated and hollow-gold necklaces seem fake compared with solid-gold ones simply because they contain fewer atoms of gold. Likewise, 10k necklaces (41.7 percent gold—the minimum allowed to be labeled "real gold" in the United States) seem fake compared with 18k necklaces (75 percent—the minimum for France and Italy). Also, necklaces cast with pits, bubbles, rough edges, uneven color, and poor soldering seem fake compared with well-made necklaces. In each case, the fakery can be detected easily by professionals. Gold content can be assessed by the magnet test (gold isn't magnetic; many base metals such as iron are), the heaviness test (gold is dense, about twice as heavy as base metals), and the acid test (gold does not react to pure nitric acid, but will react to aqua regia—a mixture of nitric and hydrochloric acid). Casting flaws are easily discernible through a 10x triplet loupe. For a cheap thrill, go to your local mall's jewelry chain store with a magnet, a

$15 loupe, and $5 bottles of nitric acid and aqua regia, and ask to test their alleged 14k gold jewelry. This is just the sort of testing we do when trying to discern whether a potential mate or friend is, metaphorically, pure gold or merely gold-plated. We don't use magnets and loupes, but we unconsciously draw upon even more potent means to assess their quality: our evolved capacities for conversation, face perception, and personality inference.

As another example, consider fake Rolex watches. Computer-controlled machine tools, Swiss movements, and cheap sapphire crystals have enabled small-scale East Asian manufacturers to flood the online market with ever better, cheaper imitations of luxury-brand watches. This leads to a signaling arms race: Rolex adds more and more anticounterfeiting features, and the Rolex-imitators learn better and better ways to replicate them. For example, a high-quality $1,200 replica of the Rolex President watch from Replicagod.com is rather hard to distinguish from the original (which costs about $30,000), because both include a waterproof, shock-resistant Swiss ETA 25-jewel movement, a micro-laser-etched crown on the dial, a quad-wrapped 18k gold forged case, a scratchproof sapphire crystal, a 2.5x date magnifying viewer, unique serial and model numbers between the lugs, Luminox hour markers, a black Triplock O-ring seal on the winding crown tube, and a Rolex brand hologram sticker. Unless you read the expert Rolex identifying guides by Richard Brown or John Brozek, it's very hard to tell a real from a fake Rolex—or indeed to justify spending the extra $28,800 for a real one. Similar replica problems afflict all the other luxury watch companies, including Breitling, IWC, Omega, Patek Phillipe, and TAG Heuer. (Surprisingly, a similar problem is emerging in the auto industry: Shuanghuan Automobile in China has been able to produce and sell cheaper vehicles that bear very close similarities to the Honda CR-V, the SmartCar, and the BMW X5.) Likewise, over the course of human evolution, as our capacities for judging others have improved, our capacities for deceiving others have improved in turn, in a never-ending arms race of social judgment and social pretense.

The arms race between real and fake has also undercut the De Beers diamond cartel for more than a century, as ever-better imitation diamonds have been developed: titanium dioxide (synthetic rutile) in the 1940s, synthetic strontium titanate (Fabulite) in the 1950s, yttrium aluminum garnet (YAG) in the 1960s, gadolinium gallium garnet (GGG) in the 1970s, cubic zirconia (CZ) in the 1980s, and silicon carbide (Moissanite) in the 1990s. CZ makes an excellent imitation diamond; I've made a necklace for my daughter from a perfect, three-carat, brilliant-cut CZ bought for $4 from a local gem and mineral shop. Moissanite, introduced in 1998, is even closer to diamond, with a similar hardness, density, and luster, yet more brilliance (a higher refraction index) and more "fire" (a higher dispersion index). Moissanite's manufacturer, Charles & Colvard, advertise it as "not a diamond substitute" but as "an entirely new option in affordable luxury," which "offers the value, quality, and fashion that self-purchasing women demand, without the emotional heft of diamond." That is, women can buy themselves Moissanite rings without having to deal with engagement to "emotionally hefty" men. Casual observers can't tell them apart, nor can most pawnshop owners using the standard thermal conductivity tests for distinguishing CZ from diamond. Only experts may notice the subtle double refractions (birefringence) caused by Moissanite's hexagonal crystal structure. Synthetic corundum is even more annoying to jewelers, since it is exactly the same aluminum oxide as real rubies and sapphires, but it can be made larger, purer (free of "inclusions," also known as dirt), and more evenly colored. Thus, "real" rubies are inferior to synthetic rubies by any rational measure, though they cost a thousand times as much, because their rarity makes them more desirable to some. These advances in gem production raise the possibility that in biological evolution, too, traits that began as fake alternatives to certain signals of quality may have evolved to be more useful and even more desirable than the original traits ever were. For example, verbal humor may have originated as a way for subordinate youths to imitate and mock older, more physically dominant sexual rivals—until eventually, humor became even more attractive than

dominance, just as Moissanite achieved higher brilliance and fire than diamonds.

Finally, consider the problem of provenance in art history. Rembrandt painted about 700 pictures, of which only 3,000 are still in existence. . . . Uncannily, Rembrandts continue to proliferate like rabbits, long after his death. Suppose you buy an alleged Rembrandt original for a few million dollars, and very much enjoy showing it off at dinner parties, and discussing its subtleties of form and shade. Then your insurance company's experts determine that it was produced by a talented nineteenth-century forger. The painting has not changed as a physical object—its subtleties of form and shade should remain equally laudable—but its value may have dropped a thousandfold. Why? Because it is no longer "real," no longer in the small category of Canvases Actually Painted by Rembrandt van Rijn, born 1606. Value depends on supply and demand; there is a much larger supply of fake than real paintings by Dutch Old Masters, and a much smaller demand. (Provenance also matters in mate choice: given two possible spouses of equal apparent quality, we generally prefer the one who comes from a higher-quality family, meaning a family full of more successful and desirable blood relatives. Those relatives carry some of the same genes as the potential mate, so we assess them unconsciously as a genetic guarantee of the mate's true quality.)

For every kind of high-value product—paper money, gold necklaces, luxury watches, diamonds, Rembrandt paintings—there is an endless struggle between the real and the fake, the genuinely valuable and the counterfeit. The real products tend to include ever more conspicuous costs (in raw materials, equipment, time, energy, and innovation) and ever more conspicuous precision (symmetry, regularity, complexity, fit, and finish). In response, manufacturers of fake products find ways to substitute cheaper materials and equipment, to minimize production time and energy costs, and to emulate the precision and branding of high-quality goods. The fake ultimately illuminates and challenges the real, as consumers begin to question why they should pay the "real" product's premium. Why bother with a real $8,000 3-carat diamond

for an engagement ring, when a $4 CZ stone is indistinguishable to most people? Why bother with a real Rembrandt for $10 million when you can download a high-resolution digital image of one and commission your local FedEx Office store to make a visually indistinguishable full-size giclée print of it (with computer-printed color ink on real canvas) for about $200? The fakes reveal what a high proportion of the real products cost: a luxury brand markup, a pure profit premium, a con. The irony is that, with regard to purely pragmatic value, the "real" version of the product is a bigger rip-off than the "fake" version.

Signaling theory is best understood by thinking about these issues of counterfeiting, cost, precision, and luxury branding. If you look at any costly signal, any fitness indicator, you're always looking at a snapshot of ongoing coevolution between the real and the fake. The peacock's tail, the lion's mane, the $20 bill, and the Rolex are not static designs. They grow ever more costly, precise, and elaborate over time as imitators try to reap the social, sexual, and status benefits of such displays without possessing the underlying qualities being displayed (fitness, health, wealth, or taste).

Signaling, Branding, and Profit

If you want to make a decent profit, your product must have a special signaling value beyond its nominal function. If a product appeals to everyone, it cannot signal anything about the consumer, so consumers will simply comparison shop for it on the basis of features and/or price. Neoclassical economics assumes this is what consumers do, but it is the last thing that real businesses want from consumers, because it drives profits toward zero.

In actual capitalism, corporations strive mightily to avoid competition based on mere objective product performance. Instead, they use advertising to create signaling systems—psychological links between brands and the aspirational traits that consumers would like to display. Although these signaling links must be commonly understood by the consumer's socially relevant peer group, they need not involve the

actual product at all. The typical *Vogue* magazine ad shows just two things: a brand name, and an attractive person. It is irrelevant whether the person is wearing any of the brand's clothing. Mere clothing can be copied within a few weeks by any coastal Chinese sweat shop. Often, the ad contains no text other than the brand name, no price information, no product features, no retailer locations—seemingly nothing that could guide a rational consumption decision.

However, there is a hidden rationality at work—the rationality of costly signaling. What matters in most advertising is the learned association between the consumer's aspirational trait and the company's trademarked brand name—the fountainhead of all profitability.

Often, celebrity endorsements are the easiest way to create such an association: the celebrity's traits can be linked to the product brand without the traits themselves needing to be identified explicitly. For example, Mont Blanc pen ads that feature Johnny Depp or Julianne Moore can create a mental link between the Mont Blanc pen and these actors' widely recognized and admired traits (coolness, attractiveness, intelligence, sense of humor, emotional authenticity)—without having to name those traits as such. These ads also mention Mont Blanc's support of the Entertainment Industry Foundation's National Arts Education Initiative, so a further association with generosity and creativity is established. A similar logic drives the Burberry ads featuring Kate Moss and its contributions to the Breast Cancer Research Foundation. In short, celebrities are portrayed in ads not just for their name recognition, but for the distinctive traits they are believed to have, and these become associated, through the symbolic magic of classical conditioning, with the product itself. Since celebrities are not widely known for their generosity, reinforcement of the status signal by the flying buttress of corporate philanthropy helps consumers feel better about conspicuous consumption.

The ad viewer himself need not believe that the brand has any logical or statistical link to the aspirational trait he wants to display. He must simply believe that other ad viewers from his social circle will perceive such a link. If I want to look tough, I don't need to believe

that the Hummer H1 really looks tough; I need only believe that more gullible onlookers will think it looks tough, and will credit me with toughness for owning it. Thus, all ads effectively have two audiences: potential product buyers, and potential product viewers who will credit the product owners with various desirable traits. The more expensive and exclusive the product, the more the latter will outnumber the former. Thus, most BMW ads are not really aimed so much at potential BMW buyers as they are at potential BMW coveters, to induce respect for the tiny minority who can afford the cars. This explains why BMW sometimes advertises in mass-circulation magazines: it is an inefficient way to reach their target market of potential BMW buyers but it is a very efficient way to reach the BMW coveters who might respect the BMW buyers. Their true target market recognizes this fact, because they, too, sometimes read mass-circulation magazines, and see that their less-successful peers are being educated to understand the semiotic power of the BMW 550i. This is how any signal bootstraps its way from arbitrary association into common knowledge.

Advertisers can make errors when they do not understand this signaling logic. De Beers has recently begun advertising diamond rings for single professional women, by trying to introduce a new social convention: whereas traditional engagement rings are for the left hand, these single-woman rings are "right-hand rings." At first, this sounds great: men used to buy diamond rings for their fiancées when they got engaged, but today there are many wealthy working women who are not engaged, and who might nonetheless like a diamond ring. However, signaling theory suggests this campaign may be counterproductive. If unengaged women start buying themselves diamond rings, and observers don't bother distinguishing right from left ring-fingers, then diamond rings will no longer reliably display that a loving man has spent two months' salary on a woman. The diamond's signaling power will evaporate; it will no longer advertise a woman's attractiveness, agreeableness, happiness, and faithfulness, but only her earning power. Worse, the new synthetic gem Moissanite is also advertising to single women as an inexpensive, undetectable alternative to diamond,

and Moissanite marketers aren't even encouraging women to wear their rings only on the right hand. If unengaged women are going around with $300 Moissanite rings indistinguishable from $30,000 diamond rings, engaged couples will question the signaling value of the diamond ring. They may switch to opal nose studs.

Why Bother Signaling?

Costly signaling theory became important in biology not just because it solved some technical problems about how signals can stay reliable over evolutionary time. It also became significant because it clarified the diverse and profound benefits of signaling across many species. It showed not only how signaling could work, but, more important, why it's worth doing. If an animal can credibly signal its individual qualities to others, that can bring several key benefits.

First, one's quality signals can solicit parental care. Young animals that credibly signal their prospects for surviving and reproducing can solicit more parental care, feeding, and protection. This benefits the young animal by reducing its chances of dying young, and promoting its healthy, safe development, and it benefits the parents by allowing them to allocate their limited time, energy, and food to offspring that are most likely to pass on their genes. This pattern, called "discriminative parental solicitude," has a dark side, in that parents tend to neglect or even kill young animals that display conspicuous cues of genetic inbreeding, birth defects, stunted growth, poor health, or behavioral incompetence. Perhaps this is why human children try to display their physical and mental competencies by doing difficult things while screeching "Hey, Mom, look what I can do!" They evolved to act as if they knew that such displays may be rewarded by fitness-promoting forms of parental investment, such as cookies. Children whose physical or mental defects preclude such conspicuous quality signals—those with Down syndrome, autism, or congenital blindness, for example—are subject to much higher rates of parental abuse, neglect, and homicide. Since human maturation is especially slow, and human

parents live especially long, parental investment often continues to be important throughout young and even middle adulthood. Thus, offspring continue to display their qualities unconsciously to their parents, by graduating from college, marrying well, becoming law-firm partners, having cute, healthy children of their own, and baking them cookies. Children who showed early promise, but who subsequently betrayed their reproductive prospects by becoming death-row inmates, often provoke some withdrawal of parental affection and investment, however unfair and discriminatory such decisions may be.

Quality signals can also be used to solicit care and investment from other genetic relatives. Because relatives share overlapping sets of genes, they are shaped by evolution to act as if they have overlapping interests. This is called kin selection, and just as parents have incentives to allocate their parental solicitude to the most "deserving" offspring (those most able to convert parental care into future reproductive success), relatives allocate their familial solicitude to the most deserving kin. (Indeed, to theoretical biologists, discriminative parental investment is just a special case of kin selection.) Thus, the healthiest, most attractive individuals in an extended-family clan tend to elicit the greatest attention and fondness from their relatives. They get more cookies from grandmothers and more job offers from uncles. From this viewpoint, family reunions can be seen as periodic rituals for mutual quality displays among genetic relatives: each individual tries to display his or her physical and mental traits in the best light to potential familial benefactors, and at the same time tries to assess which relatives are worthy of receiving his or her generosity. Poor families may have public-park barbecues while rich families congregate at estates in Kennebunkport or Balmoral, but in each case, similar social functions are served. Privileges, hopes, expectations, and resources are redistributed according to quality inspections of newborns, marital-prospect assessments of juveniles, and longevity assessments of the elderly. We all want to look worthy to our relatives, to the extent that they can do anything for us.

Moreover, quality signals can also be used to solicit social support,

alliances, and friendships from nonrelatives. This is an important tactic for all animals who live in social groups larger than their kin group, who can recognize individuals, and who can support or ignore them discriminatively based on previous quality assessments and interactions. Among social primates like us, such relationships are critical for individual survival and reproduction. Popular apes live long and prosper; ostracized apes end up dead and childless. So, we have evolved irrepressible instincts to display our individual qualities to any potential supporters, allies, or friends who can offer us social benefits. This is the most ancient form of charisma-based politics, and the root of cliqueishness and clubbiness. Sometimes its benefits are abstract, delayed, and indirect: young-adult popularity yields midlife business contacts. But often, especially in prehistory, its benefits were dramatic, immediate, and direct: local celebrities are first protected and last abandoned under conditions of warfare, starvation, or illness. Even Achilles was better defended by his fierce Myrmidons than by his allegedly invulnerable skin.

Finally, quality signals can attract and retain sexual partners—the very gateways to reproductive success. This is a key factor for all species in which females or males have some power of mate choice. Mate choice can have profound effects in shaping quality signals, but for now, suffice it to say that if the opposite sex is choosy about its sexual partners, then one has extreme incentives to display one's qualities both to opposite-sex potential mates and to same-sex rivals. Those who display most impressively will attract the highest quality and quantity of mates, and deter the highest quality and quantity of rivals. This quality-signaling process is absolutely central to evolution in most sexually reproducing species, including our own. Even if one survives to a ripe old age through signaling one's excellence to parents, kin, and friends, one is an evolutionary dead-end if one does not attract at least one sexual partner.

These four modes of signaling often overlap: the same traits that show off one's physical and mental health to parents and kin can also attract friends and mates. Beauty and sanity are broadly valued.

Beyond these four modes of signaling, an individual animal can also benefit from quality displays by using them to deter potential predators from chasing it, to deter potential parasites from attacking it, and to deter rival groups from attacking one's own group. In each case, one doesn't have to convince the predator, parasite, or hostile group that one could never be overcome, only that some other victim would be an easier target. Quality signaling to predators and parasites is not a central concern for modern humans in developed nations, since we rarely encounter packs of wild hyenas, baboons, or mosquitoes. However, collective quality signaling to potentially hostile groups is the essence of gang warfare, interethnic rivalry, and international politics. Conspicuous consumption at this collective level plays a central role in quality signaling between human groups. Nations compete to show off their socioeconomic strength through wasteful public "investments" in Olympic facilities, aircraft carriers, manned space flight, or skyscrapers. While such prestige goods may sometimes work to attract foreign investment and tourism, and to deter military encroachment, it can also turn irrational. For instance, the United States' determination to signal its military and economic superiority through a $3 trillion war in Iraq seems to have induced a massive recession that threatens its long-term status as a superpower.

The four main reasons for displaying individual qualities—to solicit parental care, kin investment, social friends, and sexual partners—favor many of the same traits. Your parents, kin, friends, and mates all attend to your physical and mental health, because this influences the likelihood that you will survive into the future to yield the fitness benefits of their attentiveness. They all care about your physical attractiveness, because they unconsciously realize this influences the likelihood that you will attract good mates to pass along their genes (if parents or kin), or make them look good by association (if friends), or pass along their attractiveness to your joint offspring (if mates). They all care about your intelligence, because this influences your prospects of both survival and reproduction; your social value as a relative, friend, or mate; and your genetic value as a mother or father. They all care about

your personality traits and moral virtues, because these influence your likelihood of being kind, fair, and conscientious in any social role you play. So, most traits that are valued in one type of social relationship are also valued in other types, and this is why we strive to display those traits consistently to different social audiences.

Signals of Body and Mind

My analysis focuses on products that signal the key human traits—bodily traits of health, fitness, fertility, youth, and attractiveness, and mental traits of intelligence and personality. In some ways, these two different classes of traits represent different levels of description for the same human phenotype, the same individual organism. The body is the physical phenotype as it appears to others perceptually—through vision, hearing, touch, taste, and smell. We use products such as clothing, makeup, cosmetic surgery, and exercise equipment to modify the body's appearance so it seems healthier, younger, fitter, more fertile, and more desirable. At a higher level of abstraction, the mind is just what the body does with itself—the behavioral phenotype as it appears to others, who will make judgments about our intelligence and personality. Just as we aspire to make our physical phenotypes (bodies) look better, we do the same for our behavioral phenotypes (minds, personalities), by spending money on education, charity, travel, hobbies, and bumper stickers to appear smarter, kinder, more outgoing, and more open-minded than we may really be. At a still higher level of description, an individual's status, prestige, position, popularity, fame, and wealth constitute his social phenotype as it is perceived by others, and as it emerges through a lifetime of socializing, conversing, trading, friend making, coalition building, and status seeking. We spend money on luxuries and status symbols to appear more reputable, popular, and rich, but because these social traits emerge fairly directly from our physical and mental traits, *Spent* will consider them in the context of the first two levels.

For both physical and mental traits, we have an interest in flaunting our fitness—in overstating our true, stable, personal qualities—so others will treat us better as friends, lovers, relatives, or colleagues. We rarely admit to this, yet we almost always notice when others are doing it. If you're a Columbia graduate like me, you may think of yourself as a serious, hardworking, socially conscious, urbane intellectual. But if your sexual rival went to Harvard, you may dismiss him as a pretentious, social-climbing, hypocritical, narcissistic fake. And vice versa. When we flaunt our own traits, we're just playing the self-presentation game effectively. But when we realize we've been duped by fake signals from others—would-be lovers, friends, politicians—we view them as cheats and liars. Deep, wide, and thick is our self-deception about signaling.

This self-deception makes it hard to be a fully conscious consumer. We're seldom honest with ourselves about why we buy things, and advertising euphemisms don't help. Which slogan sounds better: "L'Oréal: Because you're worth it," or "L'Oréal: Because you want to look younger than the skanky Starbucks barrista who's always flirting with your husband"? How about these: "The 2006 BMW 550i: Poised for performance," or "The 2006 BMW 550i: Poised to leave burning tire smoke in the spotty faces of those Subaru WRX-driving punks who threaten your masculinity as a divorced 47-year-old orthodontist." The true emotions and aspirations behind such purchases must not be revealed, lest we realize that we're trying to buy things that can't be bought—or that aren't worth the cost. Consider: the 2006 BMW 550i goes from 0 to 60 mph in 5.4 seconds and retails for $57,400; the Subaru WRX STI goes 0 to 60 mph in 4.7 seconds and retails for $32,445. Is the BMW badge really worth $25,000? You could buy a replacement BMW badge for $16 from Autopartswarehouse.com, glue it to your Subaru, outrace the other orthodontists, and still cover your divorce lawyer's fees. Or, you could cover three years of weekly psychotherapy for self-esteem and anger-management issues.

By now it should be clear that you'll be most comfortable with my arguments if you fully accept yourself as a fitness-flaunting consumer narcissist who has been deluded, throughout your whole life, into

irrational spending habits by advertising euphemisms and peer pressure. In other words, you'll probably feel uneasy for much of the time you're reading it. The truth is, science sometimes hurts.

Conspicuous Consumption as Fitness Signaling

People have radically diverse responses to the very idea of conspicuous consumption. Some folks consider it blindingly obvious that most human economic behavior is driven by status seeking, social signaling, and sexual solicitation. These include most Marxists, marketers, working-class fundamentalists, and divorced women. Other folks consider this an outrageously cynical view, and argue that most consumption is for individual pleasure ("utility") and family prosperity ("security"). Those folks include most capitalists, economists, upper-class fundamentalists, and soon-to-be-divorced men. Such differences of opinion can rarely be resolved by trading examples or anecdotes, or arguing from first principles. It more often helps to apply some psychology. So, inspired by costly signaling theory, my colleagues Vladas Griskevicius, Josh Tybur, and others ran a series of four experiments whose goal was to see how people's consumption decisions might shift as the potential mating benefits of costly signaling became more or less salient.

In the first experiment, college students came to the lab in small groups. Each was randomly assigned to one of two conditions: "mating" or "nonmating." The mating subjects looked at three photographs of attractive opposite-sex people on a computer screen, picked which one they thought was most desirable, and spent a few minutes writing about an ideal first date with that person. The nonmating subjects looked at a street scene photograph and spent the same amount of time writing about the ideal weather for walking around and looking at the buildings it featured. Then, all subjects were asked to imagine that they had a modest windfall of money (such as a lottery win of a few thousand dollars), and to choose which of several conspicuous luxuries they would want to buy (such as a new watch, European vacation, or new car), as opposed to saving the money in a bank account.

They were then asked to imagine that they had some extra time available per week, and were asked to choose how many hours they would spend volunteering (such as working at a homeless shelter or helping at a children's hospital). The results were dramatic: men in the mating condition said they would spend much more money than men in the nonmating condition (for example, they might take the European vacation rather than saving that money), but there was no mating effect on women's consumption decisions. On the other hand, women in the mating condition said they would spend much more time volunteering than women in the nonmating condition, but there was no mating effect on men's volunteering. This study confirmed that conspicuous consumption (for men) and conspicuous charity (for women) can be increased by thinking about mating opportunities, and so can function strategically as a form of mating display.

Because costly signaling theory suggests that signals must be conspicuous and publicly observable in order to attract friends or mates, my colleagues wanted to see whether this mating effect applied especially to conspicuous rather than inconspicuous consumption and volunteering. In a second experiment, another set of college students were randomly assigned to similar mating or nonmating conditions. Then, subjects indicated how much money they would want to spend on the same conspicuous consumption luxuries (new watch, European vacation) from study 1, or on some new "inconspicuous" necessities (such as basic toiletries, kitchen staples, household cleaning products). Finally, subjects indicated how much time they would want to spend on the same conspicuous volunteering from study 1, or on some inconspicuous but socially helpful activities (such as picking up trash alone in a park or taking shorter showers to conserve water). The results here were equally clear: men in the mating condition, compared with the nonmating condition, said they would spend more money on the conspicuous luxuries, and that they would actually spend less on the inconspicuous necessities (household cleaning products); there was no effect on female consumption decisions. By contrast, women in the mating condition, compared with those in the nonmating condition,

said they would spend more time on conspicuous pro-social volunteering (such as working at the children's hospital), but no more time on inconspicuous pro-social activities (such as taking shorter showers); there was no effect on male volunteering. So, thinking about mating does not simply increase overall consumer spending or pro-social volunteering; it only increases conspicuous consumption or conspicuous charity—the behaviors that work best as public, costly displays.

It was a bit surprising that in both studies, the mating-primed men did not act more conspicuously benevolent, and the mating-primed women did not spend more on conspicuous consumption. Maybe mating-primed men only favor conspicuously heroic forms of benevolence (such as saving strangers from drowning), and mating-primed women only favor conspicuously generous forms of spending (such as bidding high at charity auctions). So, in study 3, another set of students followed the same routine as in study 2, except that they could choose to spend money on the original forms of conspicuous consumption (such as the new watch or car), or on more generous forms of conspicuous spending (such as donating to natural disaster victims at an on-campus booth, bidding high at a public auction to raise money for sick children). Also, they could choose to spend time and energy on the original forms of conspicuous charity (such as working in a homeless shelter), or on some more heroic activities (such as running into a burning building to save someone trapped, distracting a grizzly bear from attacking a stranger). As predicted, mating-primed women compared with control-condition women said they would spend more on generosity-signaling conspicuous spending; mating-primed men did the same. Also, mating-primed men compared with control-condition men said they would do more heroic helping, but not more nonheroic helping; there was no effect of mating condition on female heroic helping. Moreover, men who were most interested in promiscuous, short-term sexual liaisons showed the largest increase after the mating prime in both generosity-signaling conspicuous spending and in heroic benevolence. This is especially strong evidence that men are using these behaviors as costly mating signals.

If thinking about mating can increase men's heroic benevolence, perhaps other kinds of male benevolence might be boosted by mating motives—not just heroic acts, but charitable activities that also allow men to display their dominance or leadership. In study 4, a final set of students, mating-primed or not, indicated how willing they would be to do helpful things that were either low-status (the original five activities from study 1), or socially prestigious (volunteering with Hollywood celebrities in the Make a Wish Foundation for terminally ill children, or coordinating meetings between charities and White House officials), or socially dominant (giving a speech for a good cause to a hostile crowd, or leading a risky public protest). Both sexes showed a marginally higher interest in socially prestigious pro-social behaviors when they were mating-primed. However, only the men showed a higher interest in the socially dominant pro-social behaviors when they were mating-primed, and this effect was carried mostly by the highly promiscuous men who are most motivated by mating effort.

A fascinating recent paper by Jill Sundie, Vladas Griskevicius, and their colleagues replicated these effects in four further studies. Inspired by this finding that highly promiscuous men are most influenced by mating primes, they measured interest in short-term mating using a scale called the "sociosexuality inventory." Study 1 showed that high-promiscuity men were more willing to borrow fashionable clothing from a friend to impress a potential mate rather than a new boss, whereas low-promiscuity men would rather impress the boss, and women showed no difference. Study 2 showed that high-promiscuity men who looked at photos of eight attractive women, compared with those who looked at photos of eight attractive buildings, said they would spend more money on items that were rated by other students as examples of conspicuous consumption (such as designer sunglasses or an elaborate car stereo) rather than inconspicuous products (such as low-cost jeans or a toaster oven). There was no mating-prime shift for low-promiscuity men or for women, and the standard questionnaire for measuring "materialism" did not predict conspicuous consumption. Study 3 showed that the mating-prime effect on

conspicuous consumption only works when the potential mating situation is a short-term hookup rather than a long-term relationship—and even then, it only works for the high-promiscuity men. Study 4 showed that women rated a man driving a Porsche Boxster as more attractive for a short-term sexual relationship than a man driving a Honda Civic, but the Porsche did not make the man more attractive as a possible marriage partner. Men rating women were uninfluenced by the type of car she drove. This last study is especially intriguing, since it suggests that women are attracted to conspicuously consuming men for their good genes (which can be obtained from a single copulation) rather than their good resources (their wealth as it would be relevant in a long-term marriage).

A final study by the evolutionary psychologists Margo Wilson and Martin Daly confirmed that mating primes influence economic behavior more strongly among males than females. They were interested in people's "discount rates," which determine how patient people are given a choice between a certain number of dollars tomorrow, or a larger number of dollars a larger number of days into the future. First they measured the discount rate for about two hundred subjects, using standard economic-choice measures. Then they asked people to look at photographs of potential mates or cars that were previously rated as highly attractive or unattractive. Finally, they remeasured each person's discount rate to see if it had changed after looking at the photographs. They found that men who looked at the highly attractive photographs of women (from Hotornot.com) switched to a much higher discount rate—they became much less patient about money. Looking at cars had no effect on men's discount rates, and looking at men had no effect on women's discount rates. (However, women looking at highly attractive cars actually developed a lower discount rate—a more economically rational attitude better suited to saving up the money for buying such a car.) In short, men who saw attractive women became much more motivated to get whatever money they could in the short term, presumably so they could spend it on conspicuous consumption to attract mates.

These nine studies nicely support my key point: much of human economic behavior, whether consumption or charity, is engendered by motives of costly signaling to display our personal qualities to potential mates and other social partners. These motives are finely tuned and very specific. They show systematic sex differences, and are influenced by apparent mating opportunities. Among mating-primed people, they especially provoke conspicuous rather than inconspicuous behaviors. Among mating-primed women, they especially provoke charitable spending rather than luxury spending. Among mating-primed men, especially promiscuous men, they provoke heroic, socially prestigious, and socially dominant forms of pro-social behavior. Such finely patterned behaviors seem unlikely to arise as a side effect of general excitement or arousal. They reveal a human display psychology with intricate design features shaped over millennia of evolution, to attract mates and friends through certain kinds of costly, risky behaviors that reliably signal certain desirable traits.