ROUTLEDGE

EVOLUTION AND GENDER

Why It Matters for Contemporary Life

ROSEMARY L. HOPCROFT

EVOLUTION AND GENDER

Offering new research and analysis on the relation between gender and evolution, this book explains conflict between the sexes and the frequent emergence and stubborn continuation of patriarchal regimes that serve to control the behavior of women in societies around the world, both past and present. Women and men are different, on average. But that does not mean they are unequal. Indeed, understanding average differences is key to the full realization of equality in healthcare and other dimensions of social life.

Rosemary L. Hopcroft is Professor of Sociology at the University of North Carolina at Charlotte. She has published widely in the areas of evolutionary sociology and comparative and historical sociology in journals that include the *American Sociological Review*, *American Journal of Sociology*, *Social Forces*, *Evolution and Human Behavior*, and *Human Nature*. She is the author of *Sociology: A Biosocial Introduction* (Paradigm 2010).

"A timely and important book. In an age of political correctness, this work represents a bold challenge to comfortable prejudices with a systematic and comprehensive review of the scientific evidence on the extent to which aspects of gender have a biological basis. Even the fiercest of critics will have difficulty ignoring this rich, compelling, and balanced analysis of what underlies the differences between males and females."

Alexandra Maryanski, Professor of Sociology,
University of California at Riverside

"*Evolution and Gender* is a breath of fresh air in a field all too inclined to obfuscation and sterile incantations of 'patriarchy'. Rosemary Hopcroft actually explains, without excusing it, the ubiquitous tendency toward control and oppression of women in human societies. With this book she provides a scientific basis and necessary corrective for any serious understanding of gender differences and gender relations."

François Nielsen, Professor of Sociology, University of North Carolina-Chapel Hill

"In a down-to-earth way, Hopcroft's book walks readers through a dazzling variety of both old and especially new scientific evidence of how males and females behave in different ways (on average, of course). Her book pushes scientific understanding of the sexes, especially regarding behavior, to new heights."

Lee Ellis, Professor of Sociology, University of Malaya

"The sociologist Rosemary Hopcroft has compiled and analyzed an expansive body of thought and evidence about gender differences, their origins, and how they affect our lives. The skill with which she weaves together social scientific and biological knowledge about female–male differences and presents it in a highly accessible manner makes this book the envy of any serious scholar who is committed to advancing our understanding of one of the most important suite of traits that makes us human. In fact, this kind of knowledge might even help guide us in constructing more just and equitable societies in which all humans deserve to live."

Richard Machalek, Professor of Sociology, University of Wyoming

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Rosemary L. Hopcroft

Routledge
Taylor & Francis Group
NEW YORK AND LONDON

First published 2016
by Routledge
711 Third Avenue, New York, NY 10017

and by Routledge
2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Routledge is an imprint of the Taylor & Francis Group, an informa business

Library of Congress Cataloging in Publication Data
Hopcroft, Rosemary L. (Rosemary Lynn), 1962–
Evolution and Gender : Why it Matters for Contemporary Life /
Rosemary L. Hopcroft.
pages cm
1. Sex differences (Psychology) 2. Sex role. 3. Women–Evolution.
4. Human evolution. I. Title.
BF692.2.H66 2016
155.3’3–dc23
2015020698

ISBN: 978-1-61205-852-8 (hbk)
ISBN: 978-1-138-95616-2 (pbk)
ISBN: 978-1-315-66583-2 (ebk)

Typeset in Times New Roman and Copperplate
by Florence Production Ltd, Stoodleigh, Devon, UK

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PREFACE

This book began as discussions with female students in my statistics classes. I often teach statistics to undergraduate sociology majors (a majority of whom are female), and to limit the size of the cross-tabulations I present in class I often use sex as a variable. Sometimes these presentations would lead tangentially to discussions of sex differences more generally, and I would find myself telling my students the evolutionary reasons for some sex differences. They were very interested, and surprisingly had not heard any of what I had to say. Yet as Dobzhansky famously said, "nothing in biology makes sense except in light of evolution," and sex differences are just the same. As a veterinarian-turned-doctor's daughter, I had grown up with evolutionary explanations. Yet these students who, I assume, had been taught about evolution seemingly knew none of its power to explain. I felt strongly that young female students ought to know at least some of this—if only to help them better understand themselves and the people around them.

Right now, the prevailing wisdom in social science seems to be that men and women are pretty much the same, except for a few body parts and the fact that women tend to be smaller. But women are not little men, and assuming they are can have negative consequences, as well illustrated in the long-standing bias in medical research. Until recently, most subjects in medical research were men, the underlying assumption being that women's bodies and brains were just simply smaller versions of men's bodies and brains. But men's and women's bodies and brains

behave and respond to medical interventions very differently, and probably as a result of this bias toward male subjects, women are more likely to experience drug reactions and other negative effects when given medical treatment. So to clear away myths and misunderstandings, I decided to teach a course on the subject that came to be called evolution and gender. This course was a discussion of a variety of sex differences in physiology, preferences, and behavior, and the evolutionary reasons for them.

At first, I planned this book to mirror the course I taught. But as I put together the research presented in this book—research from a variety of disciplines, including sociology, evolutionary psychology, evolutionary biology, behavioral ecology, medicine, and psychiatry—it became clear to me that many of the various evolutionary arguments that had been made for sex differences could be subsumed under a single theme. Sex differences exist, ultimately, because of the sex difference in fixed biological investment in offspring (Trivers 1972). This fundamental difference meant that in the environment(s) of evolution, some adaptive problems were more important for men to solve than for women, and vice versa. For men, the most important adaptive problem to solve was that of finding a mate. For women, the most important adaptive problem to solve was that of successfully bearing and raising children.

This single factor underlies all the differences described in the book, including sex differences in physiology, mate preferences, cognition, aggression, status striving, and emotional experience. It can also help explain the differential treatment of children by parents, the differential success of boys and girls in modern schools, and sex differences in style of communication. Last, it can help explain conflict between the sexes and the frequent emergence of patriarchal regimes in societies around the world, both past and present, that serve to control the behavior of women. Although some of this argument has been anticipated by others (e.g. Daly and Wilson 1988; Geary 1998, 2010; Low 2005), to the best of my knowledge it has not been made before in its entirety.

I want to stress that the evolved differences between the sexes described in this book are often (although not always) small differences.

Yet even small sex differences can still have a noticeable effect on the aggregate patterns we see in society. I also want to stress that the sex differences I describe are *average* differences—not all men and women fit the trend. There is always substantial overlap in the distribution of most traits for men and women. So, for example, for evolutionary reasons, women are shorter than men, on average, but this does not mean that all women are shorter than all men.

Further, while the central theme of this book is that evolved traits influence human behavior and the social patterns and trends that result, this does not mean that cultural and social factors are not important. Far from it. All social behavior is a result of the interaction between both evolved traits and contextual factors, including culture and group norms. It is best to think that causality goes both ways, evolved traits influence social processes, and social processes influence how evolved traits are expressed. It is always both. Humans evolved to be social animals.

This being said, assuming that all sex differences are a result of social processes alone is misguided, because it can lead to decisions that can be detrimental to men and women. A comparison with homosexuality is useful here. If homosexuality is supposed to be a result primarily of socialization or social processes, then it could be advocated that the best way to deal with the person's homosexuality is to have the person resocialized to rid the person of their homosexual impulses. Yet if homosexuals are just born a little different from heterosexuals, then resocialization may just be experienced as cruel punishment. With regard to gender differences, one of the primary gender differences is in parental investment, with women in all societies doing more for their offspring than men, on average. If some misguided policy sought to deny women that ability, it would be experienced as highly detrimental by almost all women.

This is not to argue for discriminatory, patronizing policies toward women. Women experience those every day! There is much evidence that discrimination against women occurs in the workplace and in many other areas of life. Some of this is statistical discrimination, based on the real average differences between the sexes as described in this book. For example, a particular woman may be assumed to have less upper-

body strength than a particular man and not given some job or other opportunity, because, on average, women do have less upper-body strength than men. But many individuals do not fit the average for their gender, and this particular woman may have more upper-body strength than this particular man. So if she is denied the job or opportunity and it is given instead to the man, she has been discriminated against. Statistical discrimination is still discrimination.

Yet discrimination against women is also based on myths about differences between women and men, and it is important to destroy the myths on which that discrimination rests. Also, as I explain in this book, there is reason to believe that discriminatory attitudes themselves have roots in our evolved psyches, and so it is likely that much discrimination against women is unconscious. So even the best intentioned among us need to be aware of our unconscious tendencies in order to correct them.

I had major misgivings about writing this book, because prevailing thinking in sociology and gender studies is that all sex differences are a result of societal pressures and the differential socialization of males and females. The idea that gender is a social construction is sacrosanct. But I argue that anyone who is seriously interested in attaining equality between the sexes (meaning equality of opportunity, not necessarily the obtaining of identical outcomes) must acknowledge the fact that innate differences between the sexes exist. Some of them exist even before males and females are born, and thus cannot possibly be entirely due to socialization. Insisting that they are all due to socialization is simply wrong, and counterproductive for any area that calls itself a social science.

The first part of the text examines evolutionary theory, common misunderstandings about evolutionary theory, and why evolutionary theory has been regarded with suspicion by social scientists for so long. As a colleague of mine once remarked, when many sociologists hear the words “evolution” or “biology,” they envision death camps. Yet, as I argue in the next chapter, the evolutionary premise that all humans are a product of the same evolutionary process and recipients of the same evolutionary legacy is consistent with a view of all people as equal in their humanity. This in itself is entirely consistent with the most moral of human goals.

The second part of the text examines what evolutionary theory says about sex differences in mate preferences and behavior, and the empirical evidence for average sex differences in mate preferences and behavior across cultures. Men and women look for slightly different things in a long-term mate, and their actual marriage choices reflect this. Men and women also have a fundamentally different approach to casual sex.

The third part of the book deals with other evolved sex differences between men and women, in physiology and neural circuitry, longevity, endurance, physical strength, aggressive behavior, and in emotional experience. Much of this section derives from research in medicine, psychology, and psychiatry. The primary aim of this section is to dispel common myths about men's and women's bodies and minds, and to sort out fact from fiction.

In this section of the book, I also deal with the question of why control and oppression of women is so common across human societies. This is important, because the impetus for the control of women (easily explained by evolutionary theory) is behind the very real social pressures that women and men are exposed to, as well as some of the myth-making that goes on about sex differences. This myth-making often has deleterious consequences for women. To return to the medical example, the myth that women are more emotional (and hysterical) than men has meant that women's symptoms are more likely to be diagnosed as due to psychiatric issues than men's symptoms, with the upshot being that men are more likely to be treated than women. Myths about women's supposed weaker constitution have been used in the past to prevent women from entering certain occupations, becoming educated, voting, and so on.

The last part of the book details the implications of evolved sex differences for a number of social processes—parental investment in children, children's behavior in school, conflict between men and women, and communication between men and women.

These processes are behind several contemporary social problems; for example, the lack of schooling of girls in less-developed countries, domestic violence, and the poor performance of boys in schools in modern industrialized countries. Understanding the evolved reasons

why such problems reoccur repeatedly across very different cultural contexts is, I argue, important to enable us to better deal with these problems.

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Part I
Introduction

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1
Evolutionary Theory and the Sociology of Gender
A Bad Beginning

> Intelligent life on a planet comes of age when it first works out the reason for its own existence. If superior creatures from space ever visit earth, the first question they will ask, in order to assess the level of our civilization, is: "Have they discovered evolution yet?"
>
> Richard Dawkins, *The Selfish Gene*

This book is an evolutionary approach to gender. It suggests that there are some evolved differences between men and women, besides the obvious physical ones. This does not sit well with some people, including my younger self. I remember overhearing a conversation between my friend's parents while we were riding in a car—I must have been about 14 or 15 at the time. They were talking about how men and women were equal, but not the same. They were talking about men's and women's minds more than anything. I remember sitting in the back seat and saying to myself: that is not true, they are equal and the same! At that age, I was determined to escape the typical adult gender roles I saw about me, and I felt that the idea that men and women were different supported those traditional gender roles. We all grow up, and I did change my youthful ideas. This book is about what I have found

out about men and women in my career as a social scientist. Now I would have to say that my friend's parents were more right than I was at the time. Men and women are equal, but they are not quite the same, in their minds as well as their bodies. Evolutionary theory tells us why. While this does nothing to mandate the traditional gender roles I was so anxious to escape, it can help explain why they exist as they do.

Evolutionary Theory

Evolutionary theory assumes that human beings, like all living things, are the product of evolution by natural selection. That is, our bodies are collections of adaptations that helped our ancestors survive and reproduce in the evolutionary environment. Modern humans evolved in Africa, so the evolutionary environment for humans was Africa in the Pleistocene—the period from around 2 million years ago to about 10,000 years ago when sedentary farming began. Behaviorally modern humans (Homo sapiens sapiens) left Africa about 50,000 years ago. When humans spread out over the world, there was some small-scale, local evolution for things such as skin color and nose shape, but these things account for a tiny fraction of the human genotype. Humans share the vast majority of their genetic material, and there are larger genetic differences within racial groups than between racial groups (Witherspoon et al. 2007). The largest amount of genetic diversity exists in Africa, which is what you would expect if only a small group left during the diaspora.

Not only was the human body shaped by natural selection, but also the brain and the mind it creates. That is, humans not only all have the same general body shape and size, but also a common emotional make-up (Turner and Maryanski 2008). Closely tied to our emotional makeup are predispositions toward certain behaviors and preferences that all humans share. What I am saying is that there is a human nature, and it is universal.

Humans have the emotions and associated predispositions they do because they were adaptive in the evolutionary environment, that is, they helped individuals survive and reproduce in that environment. As we saw above, the evolutionary environment for humans was Africa

(most likely East Africa) during the Pleistocene, and it is to that environment that humans are adapted. So what was it like in Africa back then? It was the Stone Age, so people were hunting, gathering, and fishing. We don't know what these groups were like, but we can infer some of their characteristics from the anthropological studies of hunting and gathering groups that survived into more modern times. Our Stone Age ancestors were most likely living in small nomadic groups no larger than about 150 or so people. Like all hunters and gatherers, they would have followed wild game around as it moved from place to place. They would have also gone to where other wild foods (fish, roots, nuts, berries, eggs) were most abundant. These groups were likely highly egalitarian. People would have had few possessions, and there would have been no permanent houses, given that people moved around a great deal of the time. There would have been no way to store food, and so all fresh food (particularly meat that can spoil) was likely shared among all the members of the group, as is common in groups of hunters and gatherers studied in recent times.

It is to this environment that our bodies and brains are adapted. A good example of an adaptation is the one that produces the universal taste for sweets, fats, and salts. People in all cultures enjoy these things, although often in different forms. In East Africa in the Pleistocene, a predisposition that encouraged the consumption of sweets, fats, and salts was adaptive because these things were scarce. Sweets and fats come packaged with other nutrients that are essential for survival. Sugars come in fruits that contain vitamins and minerals essential for our health; fats come in meats that contain proteins essential for growth and well-being. Those individuals who had a taste for sweets, fats, and salts, and who consumed as many of these things as possible when they were available, were more likely to be healthy. They were also more likely to endure periods of famine, scarcity, and sickness, so they were more likely to survive and reproduce than those who didn't. This meant that those people with an inbuilt taste for sweets and fats were more likely to have children, and hence pass on their inbuilt takes for sweets and fats to their descendants—that is, to us. That is why we all like sweets, fats, and salts so much. Of course, in a modern environment where these things are no longer scarce, this is something of a problem. Tastes that

once were healthful are unfortunately no longer so. It is important to remember that for about 90 percent of human history, people were living as hunters and gatherers. We have only lived in modern industrial societies for the blink of an eye in evolutionary terms—there has been no time for evolution to catch up.

Another example of an adaptation is a predisposition to fear of snakes. Most children quickly develop a fear of snakes, although of course there is variation from child to child. This is not surprising, as throughout evolutionary history, snakes were a real threat to humans. Fear is an adaptive response as it promotes withdrawal from any snake, hopefully out of harm's way. Throughout evolutionary history, such fear likely saved the lives of many people, thus ensuring that the predisposition toward fear of snakes was passed on to future generations. Because of this predisposition, children today quickly learn to fear snakes, although most children in modern urban environments are unlikely ever to be threatened by a snake. Cars are much more of a danger to children in the modern environment, but most children do not quickly develop a fear of cars. Once again, we have lived in a modern environment where cars are more of a threat than snakes for just a blink of an eye in evolutionary terms, and there has not been time for evolution to catch up. This means there has not been long enough for selection of traits, such as fear of cars, and for those traits to spread throughout the population.

It is important to note that many evolved predispositions, such as the taste for sweets, fats, and salts or fear of snakes, are not necessarily currently adaptive or even advantageous to humans in the modern world. Predispositions such as the ones that promote a love of sweets, fats, and salts or fear of snakes are often unconscious. That is, we don't choose to like sweets, fats, and salts and fear snakes; we just do. People often are not aware of their own predispositions, and only know of them when they are in the situation that activates that predisposition—for example, they are confronted with a large, luscious slice of chocolate cake; or perhaps the sight of a snake in the backyard. People are also often aware of the emotions that predispositions promote—for example, longing or fear.

Evolved Predispositions versus the Blank Slate View of Human Nature

The evolutionary view of human nature, as sketched out above, is very different from the view of human nature as a malleable substance that is given the entirety of its form by the culture an individual is brought up in. The evolutionary view of human nature is that the culture does shape human nature, but it is has to work with the material given, and this cannot be shaped into just anything. This means that cultures are not infinitely variable, and there are true universals and common patterns across human societies. These include things such as the fact that, with a few rare exceptions, humans live in groups, that is, we are a social species. All societies have some sort of social hierarchy where people in the group are ranked in some sort of way. Besides sociality, there are a large number of other human universals. For example, all humans have language. There are universal facial expressions—all humans recognize the smile, for example. Incest taboos are universal. The predisposition to favor the use of one hand (usually the right hand) is universal. The list goes on (Brown 1991).

So rather than being a blank slate, or a computer that can be programmed to do anything, human nature is best seen as a computer that comes bundled with software (predispositions). This software was designed to solve problems faced by our ancestors in the evolutionary environment. Those problems can be grouped into five general types of problems that our ancestors needed to solve in the evolutionary environment if they were to leave genetic descendants:

1. Problems of survival
   These are the problems of getting enough food to eat, defending oneself against human and nonhuman predators, and avoiding disease and accidental death. Individuals who did not manage to do this were unlikely to leave descendants.
2. Problems of mating
   These are the problems of finding and keeping a mate and doing what was necessary for successful reproduction in the evolutionary environment.

3. Problems of parenting
   The problems of helping offspring survive, grow, and reproduce.
4. Problems of aiding genetic relatives, not just children.
   The problems of helping others who carry copies of our genes. Even if an individual does not successfully reproduce, they can still leave descendants if they help other people who are genetically related to them. The more relatives an individual helps, the greater the number of genetic descendants he or she is likely to leave.
5. Problems of group living
   This is solving problems in relationships with others, learning group rules or culture, and earning status within the group. In early human groups, these problems had to be solved in order to successfully solve the first four problems. In the environment of evolution, a solitary individual was unlikely to survive very long and, by definition, would not have a mate.

Individuals who did not solve these problems in the evolutionary environment were less likely to survive and leave genetic descendants. Individuals who successfully solved these problems were more likely to survive and leave genetic descendants. This means that genes for predispositions for traits that helped individuals solve these problems repeatedly over evolutionary time were selected for, and have become universal in, the human population. Alternatively, you can think that individuals without genes for such predispositions were less likely to solve those problems and thus less likely to leave genetic descendants. Thus, an evolved predisposition exists in the form it does because it repeatedly helped solve a specific problem of survival or reproduction over evolutionary history.

We don't have predispositions for things that did not solve problems in our evolutionary history. For example, in our evolutionary history, sweets, fats, and salts were scarce, but fiber was not. There was no scarcity of fiber, and obtaining enough fiber in the diet was not a problem our ancestors faced, so liking fiber has not emerged as an evolved predisposition. So even though having fiber in our diet is

crucial, we do not have the spontaneous liking of fiber to match our spontaneous liking of sweets, fats, and salts. Once again, this is a problem in a modern environment where the abundance of foodstuffs means we can avoid fiber if we want, to our detriment.

Another predisposition we don't have is a strong desire to have children, even though for obvious evolutionary reasons we have a strong predisposition to desire sex. As Richard Dawkins (2013, p. 165) puts it: "It isn't difficult for a biologist to explain why nervous systems evolved in such a way as to make sexual congress one of the consistently greatest experiences life has to offer." In the evolutionary environment, there was no effective contraception, so having children was not a problem, given the strong desire for sex. People had sex and children naturally followed. In the modern era, the comparative lack of desire for children (coupled with the modern environment and lifestyle) and the availability of effective contraception means people can have sex and no children, with the result being a very low birth rate. Note that this doesn't mean people don't want children, just that the desire to have children is not as strong or as universal as our evolved drive to have sex.

Predispositions and Actual Behavior

The existence of predispositions does not mean that people have no choice in what they do. Think of the evolved predisposition for liking sweets, fats, and salts. Then think of a situation where we are confronted with a large piece of chocolate cake. We find that it looks good, and we want to eat it. But we don't have to eat it! We may decide not to eat it because we don't want to spoil our appetite for dinner, or because we are trying to lose weight or trying not to gain weight, or because we have been told that the cake is poisoned. Alternatively, think of a situation where we have been told by our doctor to include more fiber in our diet. We know we ought to buy the high-fiber bread, but we prefer the taste of the white (low-fiber) bread. But, given what the doctor has said, we go ahead and buy the high-fiber bread and eat it.

That is, actual behavior is always a result of a decision-making process that includes input from predispositions as well as the context

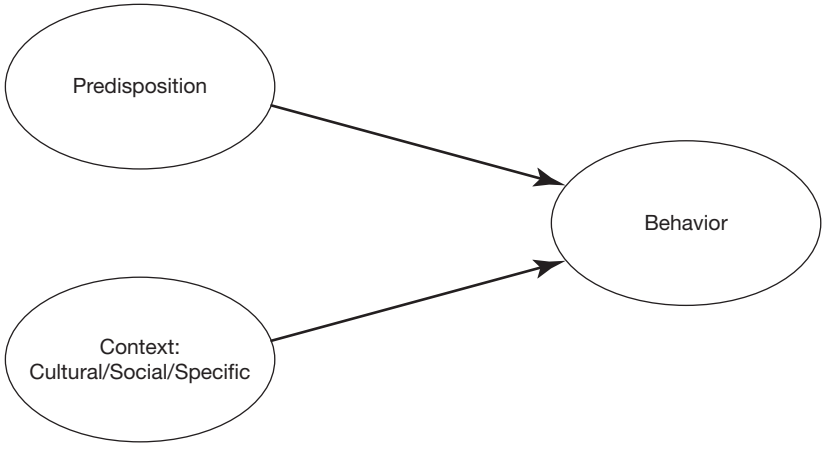

Figure 1.1 Determinants of behavior—an evolutionary view

of the individual. Context includes the *cultural* context, e.g. whether gaining weight and being heavy is regarded as high status or low status in the culture; the *social* context, e.g. other people are all being polite and not taking the last piece of cake so you feel you cannot take it; and the *specific* context, e.g. you have been told that particular cake is poisoned. Predispositions are just one factor in behavior; they are not the only one, and often they are not the most important ones. But the point is they are always a factor.

Common Misunderstandings about Evolutionary Theory

There are several common misunderstandings of evolutionary theory.

1. Genes determine our behaviour
   Evolved predispositions exist in our genetic makeup as humans, but this does not mean that everything we do is determined by them. As noted above, predispositions are just one factor among many that determine what an individual decides to do. Each individual reacts to their own particular situation. Behavior is always a product of a particular predisposition and the environment of the individual at the same time.

Individuals can consciously override their predispositions. For example, the predisposition to like sweets, fats, and salts is real, but individuals can consciously avoid these substances when they go on a diet.

2. If it's evolved, we can't change it
   This is simply not true. As just noted, we can override any particular predisposition, although we might find it difficult! In fact, often knowing that we have the predispositions we do can help us override them. For example, knowing that we crave sweets, fats, and salts because of an evolved predisposition, and not because our body currently needs them, can make dieting easier.
3. Predispositions are optimally designed
   Our predispositions were designed in the evolutionary environment, but that does not mean they were optimal at that time. Evolution is a tinkerer—it always works with what it has. The predispositions we have were the best available solutions in the environment of evolution—this does not mean they were the optimal solutions in that environment. Richard Dawkins (2009) gives the example of the recurrent laryngeal nerve. This nerve connects the brain and the larynx, but rather than going directly from the brain to the larynx it first takes a detour and loops around a large artery in the chest. This is because in our fish ancestors, the shortest route for the nerve was to the back of the fish equivalent of that artery. When our fish ancestors left the sea and developed necks, the artery moved backwards relative to the head and into the chest, but the nerve stayed behind it. Hence the detour the nerve now takes from the brain to the larynx. In the case of a modern giraffe, the diverted route is several meters long. So this evolved physiology is not optimal, but it does work. Nor are predispositions necessarily optimal (or even adaptive) in the contemporary world. For example, we have seen that the predisposition to like sweets, fats, and salts can be highly detrimental to people living in the modern world.

Evolutionary theorists commonly warn against the *naturalistic fallacy*—that is, if it is natural, it has to be good. This is just plain wrong.

It is natural to crave sweets, fats, and salts, but clearly indulging that taste to the point of obesity is not good for anyone. Some of our evolved predispositions we do regard as good. For example, it is natural for people to love and care for their children, and we generally think that is a good thing. The point is, the predisposition, and the moral judgment of the associated behavior, are two completely different things. One behavior we may judge as bad, one we may judge as good. But in and of themselves, predispositions are neither good nor bad; they are just part of our makeup as humans.

Evolutionary Theory and the Study of Gender: A Bad Beginning

Given the importance of reproduction to the evolutionary process, it would be surprising if people did not have any predispositions regarding sex. Clearly, most people do have the desire to have sex, as we discussed above. Further, given the different roles of men and women in the reproductive process, it would also be surprising if there were no sex differences in evolved predispositions regarding sex. Those differences are discussed in the chapters that follow, as well as other evolved differences between men and women.

Unfortunately, ideas about sex differences have been used to justify inequities between men and women in the past. For example, women were thought to be constitutionally unfit for serious scholarship, or to be allowed into professional and graduate schools. So until about 100 years ago, women were forbidden from attending professional and graduate schools. Women were supposed to be unfit to vote, so women were denied the vote until early in the last century. Women were supposed to be too fragile physically to be able to participate in competitive sports. In fact, women were thought to be so helpless and inept that they needed a caregiver in the form of a father or husband to take care of them at all times.

We now view those claims as outrageous. Yet in arguing against such discriminatory ideas, the idea that there were any innate differences between men and women was discarded entirely. Any differences between men and women, it has been argued, were just a social

construction or a product of the inequalities between men and women built into our societies. Men and women's bodies may have evolved to be different, but their minds and brains were identical. Anybody who suggests differently was hurting women.

Clearly, this is a sensitive topic. Nobody wants to go back to the days when women were regarded as male property, and incapable of doing or thinking anything for themselves. Yet there is evidence that some innate differences between men and women, in their brains and in their predispositions toward certain behaviors, do exist. These differences are generally average differences, that is, they do not apply to all men and all women. The differences are often small, they vary from individual to individual, and there is almost always a great deal of overlap between men and women. I hasten to add that none of these differences justify any of the discriminatory claims mentioned above. But there are differences nevertheless. I argue that people are better off knowing what they are, rather than denying that they exist, and worse, allowing myths about the differences to flourish.

Further, the view discussed above that men and women are more or less identical, except for a few biological details, can actually hurt women. The idea that women are essentially smaller men, for instance, has meant that many clinical trials on drugs have only been performed on men. Yet many drugs work very differently in men and women, and prescribing drugs for women that have only been tested on men can cause serious problems. This may be one reason why adverse drug reactions, including seizures, are reported twice as often for women as for men (Ciccone and Holdcroft 1999; Hales 1999, p. 99). At the other extreme, there is no evidence that men and women are totally different. As mentioned before, even the average differences between men and women that do exist are small, and there is always a large overlap between the sexes. Think of a sex-linked trait such as height. Clearly, men on average are taller than women on average. But many individual women are taller than many individual men. The take-home lesson is always that it is better to treat men and women as individuals rather than as categories.

From this perspective, putting anyone in a category and arguing that they fit the average characteristics of that category is always

discriminatory. I argue that evolutionary theory can explain why women are so often put in a category and given attributes that may or may not correspond to average female characteristics. I argue that certain predispositions regarding sexual behavior (particularly on the part of men) can help to explain attitudes that discriminate against women and promote the creation of cultures and institutions that serve to imbed inequalities between men and women into society, both in the past and in the present. Understanding those predispositions can help us free ourselves from their effects.

Is Evolutionary Theory a Moral Theory?

We have seen that biology has been used in the past to justify prejudice and discrimination against women. It has also been used to justify prejudice and discrimination against racial and ethnic groups, with certain groups being said to be biologically superior to others. So it is legitimate to ask whether evolutionary theory is a moral theory or not. Is it compatible with morality? First of all, it is important to note what evolutionary theory says. First, it notes that all humans (of whatever racial and ethnic group) share all their genes and there is more variety on alleles (gene variants) within groups than between groups (Witherspoon et al. 2007). We are all more similar than different! This view is entirely compatible with a variety of statements of morality; for example, the statement in the U.S. Constitution that "all men are created equal," or the United Nations Declaration of Human Rights. Article 1 of this declaration states: "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience . . ." Another famous statement of morality is given by John Rawls in his theory of justice. Rawls suggests that fair social rules should be created behind a veil of ignorance of one's own social standing (including class, race, and gender). This is based on the premise of human equality, as the actor "behind the veil" is asked to imagine they could be anyone. Morality expressed in many religious codes is also blind to social differences (race, class, gender). For example, in Christianity, "There is no longer Jew nor Greek, there is no longer slave nor free, there is no longer male and female; for all of you are one in Christ Jesus" (Galatians 3:28–29).