EVOLUTIONARY BIOLOGY AND FEMINISM

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Evolutionary biology and feminism share a variety of philosophical and practical concerns. I have tried to describe how a perspective from both evolutionary biology and feminism can accelerate the achievement of goals for both feminists and evolutionary biologists. In an early section of this paper I discuss the importance of variation to the disciplines of evolutionary biology and feminism. In the section entitled "Control of Female Reproduction" I demonstrate how insight provided by participation in life as woman and also as a feminist suggests testable hypotheses about the evolution of social behavior—hypotheses that are applicable to our investigations of the evolution of social behavior in nonhuman animals. In the section on "Deceit, Self-deception, and Patriarchal Reversals" I have overtly conceded that evolutionary biology, a scientific discipline, also represents a human cultural practice that, like other human cultural practices, may in parts and at times be characterized by deceit and self-deception. In the section on "Femininity" I have indicated how questions cast and answered and hypotheses tested from an evolutionary perspective can serve women and men struggling with sexist oppression.

KEY WORDS: **Evolutionary biology; Feminism; Sexual selection; Deceit; Self-deception; Femininity.**

"Helped
are those who love and actively support the diversity of life; they
shall be secure in their differentness."
from "The Gospel According to Shug" (Alice Walker 1989)

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Evolutionary biology and feminism have much in common. It is my purpose in this essay to point out several fundamental, overlapping ideas and themes shared by thinkers informed by these two disciplines. I stress areas in which I think theory influenced by both evolutionary and feminist ideas can be particularly productive. I discuss perspectives of evolutionary biologists and feminists on variation and variability, control of female reproduction, deceit and self-deception, and femininity. By describing parallels, correspondences, and opportunities I hope to encourage more feminists to entertain the insights of evolutionary biology and more evolutionary biologists to recognize and respect feminist insight.

My ultimate goal is to stimulate more open and constructive dialogue between evolutionary biologists and feminists, something that historically has seemed difficult. One reason for this lack of dialogue is the perception that examination of human behavior from an evolutionary perspective is by definition genetically deterministic. I believe that this need not be the case; in fact, I hope to illustrate to skeptical feminist readers that an appreciation for contingent, historical, and even dialectical processes can be easily and profitably incorporated into evolutionary models explaining the diversity of animal (including human) social systems.

For this essay I assume that evolutionary biologists include both women and men and feminists include both men and women. I specifically modify many phrases with "our" and "we" because I am attempting arguments from an inclusive perspective. However, my perspectives on feminism (and on evolutionary biology) are necessarily particular, bounded by my experiences as a white, upper middle-class, college-educated, western woman. I believe that my perspectives on evolutionary biology and feminism are profoundly affected by these standpoints and therefore cannot be taken as representative of other—especially other feminist—perspectives that are illuminated by standpoints different from my own.

WHAT IS FEMINISM? WHAT IS EVOLUTIONARY BIOLOGY?

Feminism is a movement to end sexist oppression (Hooks 1984). Feminist theorists are concerned with how gender (which is the social construction of characteristics associated with sex) affects individuals' access to control of their own and others' lives, power, and resources. Feminist theorists, through women's studies programs, have reached into all academic disciplines (see, for example, Tuana 1989), exploring

and exposing how gendered perspectives function in the maintenance of power of men over women (and some men) and the control of economic resources in patriarchal societies. The feminist critique of women's oppression in sexist contemporary society has demonstrated that many aspects of social life are governed by gender. The following is a recent process-oriented definition of feminism:

> . . . feminism raises issues that concern personal autonomy and freedom—with constant reference to basic issues of societal organization, which center in Western societies, on long standing debate over the family and its relationship to the state, and on the historically inequitable distribution of political, social, and economic power between the sexes that underlies this debate. Feminism opposes women's subordination to men in the family and society, along with men's claims to define what is best for women without consulting them; it thereby offers a frontal challenge to patriarchal thought, social organization, and control mechanisms. It seeks to destroy masculinist hierarchy but not sexual dualism. Feminism is necessarily pro-woman. However, it does not follow that it must be anti-man. . . . Feminism makes claims for a rebalancing between women and men of the social, economic, and political power within a given society, on behalf of both sexes in the name of their common humanity, but with respect for their differences. . . . The challenge is fundamentally a humanistic one that raises concerns about individual freedom and responsibility, the collective responsibility of individuals to others in society and modes of dealing with others. Even so, feminism has been, and remains today, a political challenge to male authority and hierarchy in the most profound sense. (Offen 1988:151–152)

There are many expressions of feminist political theory, both formal and informal. The dominant western themes have been liberal feminism, Marxist feminism, radical feminism, and socialist feminism (Jaggar 1983). My perspective in this essay is probably best described as radical feminist, though there are many socialist feminist tendencies in my thought and work. The idea that unites radical feminists and that guides radical feminist analysis is that sexist oppression is fundamental to—is "at the root" of—all other systems of oppression. Radical feminism is a grass-roots movement (some participants call themselves "cultural feminists") and unlike Marxist feminism, for example, is not identified by explicit and systematic political theory (Jagger 1983). The development of radical feminist political theory is being informed by systematic, political theories of socialist feminism and the insights of feminists from marginalized minorities (e.g., African Americans and lesbians). Gross-roots feminism is global in character, and as feminists have begun to communicate across national borders, feminism more and more is taking on an international character. In the most profound sense, feminism is still in the process of development. It is becoming

(Prigogine 1980). Feminism is evolving. It is not static, or monolithic. I prefer to label myself as "feminist," an unmodified feminist, for reasons that will be made clear later in this essay.

Evolutionary biologists seek to understand the origins and processes that result in the organization of the biotic world. Evolutionary biologists study a vast variety of life processes, but the practice of evolutionary biology is unified by the idea that evolutionary changes and biotic diversity are the result of a few processes, most prominently natural selection. Evolutionary biology applied to investigations of social behavior in sexual species covers conceptual terrain similar to feminism's focus, in that one of evolutionary biology's crown jewels is the articulation of natural selection, the force that theoretically accounts for the variation in the relationships between and among the sexes. Many evolutionary biologists study how the competitive and cooperative interactions of female and male individuals are organized into patterns of social organization. Yet evolutionary biology focuses on a different range of problems in need of solution than "simply" understanding the power relationships between the sexes. For example, evolutionary biologists study kinship systems and patterns of parental care, and some evolutionary biologists study organisms that lack sex and gendered roles altogether, investigations that may be particularly illuminating to feminists (because understanding that which is unfamiliar or rare often illuminates that which is familiar or common). Nevertheless, understanding the causes and consequences of social behavior in species in which all the social actors are female or male is one of the most prominent of the modern goals of evolutionary biology.

So, it appears to me that there are fundamental shared interests between feminists and evolutionary biologists. It seems logical that feminists and evolutionary biologists may have constructive things to say to each other. Feminism and evolutionary biology are inextricably linked along many edges. Feminists building critiques of the rules of social life that place women in subordinate positions to men and as objects of sexist oppression are confronted with questions about the nature of women and men. Thus, feminist theorists implicitly develop theories of human nature (Jaggar 1983), which I think could be aided—explicitly and implicitly—by knowledge of the diversity of the biotic world and use of the comparative method, some of which can be supplied by evolutionary biologists. Theories of human nature developed by evolutionary biologists can likewise be aided by a feminist standpoint. As Haraway (1989) has so persuasively demonstrated for primatology, knowledge is socially constructed. Sex, race, culture, and class "fundamentally determine the most intimate details of knowledge and practice." Thus, the fact that evolutionary biology is practiced

mostly by white, western men in postindustrial societies suggests that evolutionary biology is handicapped and would benefit from the inclusion of more women and people of color and those from a diversity of cultural backgrounds and even ages (particularly youngsters, who might better provide the "juvenile" perspective)—whether feminist or not—in our ranks. This diversity would yield a more inclusive evolutionary biology with the benefit of other experiential lenses, and it would provide enhanced resolution of our questions.

I now continue my exploration of commonalities by invoking a rule of pedagogic discourse from evolutionary biology to explain one of the most seriously misunderstood insights of feminism. I then describe and discuss the correspondences in other pivotal central insights of the two disciplines: the meanings of variation, the centrality of control of female reproduction, the role of deceit and self-deception in communication systems, and the meanings and abuses of femininity. I end by describing a question in a more inclusive research agenda.

"THAT'S NOT WHAT I MEANT"

Much feminist writing that describes the proximate mechanics and consequences of societywide, seemingly worldwide power asymmetries describe in detail the things men do to keep the power advantage over women. To some readers, especially some men, these descriptions feel like "male bashing." The responses I have heard from some men have occasionally struck me as poignant, especially when they say, "But, I really don't think that way." I want to short-circuit that response and persuade readers that the arguments offered by feminists may be legitimate, even if everyone doesn't think or feel "that way." Consider an alternative mechanism for the evolution of patriarchal practices that does not depend on conscious participation by individuals. This alternative argument is analogous to one that evolutionary biologists use when we remark that no consciousness is required to explain the evolution of animal behavior that appears strategically motivated and tactically executed by savvy decision-making nonhuman animals. What we explain to our students in this case is that the behavior has been subject to natural selection, a force capable of leaving individuals that appear conscious, when in fact no consciousness is required for the execution of the behavior. By analogy to these arguments from natural selection, it seems just as likely that "the conspiracy theories" that explain the subordination of women by men need not be implemented by strategically motivated, tactically savvy men, only that cultural forces that result in sexual oppression appear to be the result of individual men in con-

spiracy against women. I find this analogy liberating because it relieves individuals of inappropriate guilt and defensiveness, while simultaneously freeing them to explore how they unconsciously participate in the creation of sexist oppression, thereby providing the possibility that some will change their unconscious behavior. (Despite my caveat, some patriarchal participants do consciously conspire to oppress women, and I am not claiming that they do not.)

VARIATION

I have often been stuck by similarities in the conceptual development of the evolutionary theory of natural selection and the grass-roots expressions of feminist political theory. The development of both was associated with the recognition of the importance of variation. Variation in traits is the source of evolutionary change. Variation in women's lives, creative talents, and aspirations is the handmaiden of autonomy. Variation is an expression of our Selves (I capitalize "self" when I am referring to the Jungian archetype, which is a reference to the paradoxical and liberating idea that individuals' definitions of their lives and desires are nonessentialistic processes; cf. Daly 1975, 1978; see also Daly and Caputi 1987). I hope the points that follow will demonstrate that the importance of variation in the development of feminist practice and evolutionary biology runs along parallel trajectories and will underscore the importance of avoiding essentialism for evolutionary biologists and feminists.

Variation and Evolution

Darwin's idea about the premier mechanism of evolution, natural selection, would not have occurred to him unless he was thoroughly familiar with the variability in nature: between species and among individuals within populations. He, more than any other author, moved us beyond the typologies, archetypes, and essentialism of earlier thinkers and times (Mayr 1982). He was a keen observer of the natural world; he realized that the variation in traits that he observed everywhere in nature was the substrate on which environments worked in the process of natural selection.

I have inferred that Darwin thought the recognition of variation important, because he presented his ideas via litanies of variation (Darwin 1859, 1871). Perhaps these litanies were his defense; after all, his stress on variation went against a dominant philosophical notion of his time, essentialism (Mayr 1982). Essentialism is associated with Platonic ideals and holds that individuals or groups (e.g., a species or population) have

an essence or an intrinsic invariant nature, which serves to define their group membership. Was the idea of variation in traits among individuals of a population, or within the same individual (temporal or situation-dependent variation), difficult to understand? Probably not. Even Victorians understood themselves as individuals. So, the question becomes, why was Darwin so sensitive to alternative sources of variation besides the agencies of God, Satan, spirits, etc., and why has the significance of variation to the process of evolution become so obvious to us?

Darwin's life experiences—especially his travels—allowed him to experience natural variation firsthand, in a way that many postmoderns can enjoy, but many Victorians and pre-nineteenth century folk could not. Perhaps it is our ability to experience many worlds beyond our own doors via movies, television, and actual travel that has facilitated the "death of essentialism in evolutionary biology" (Marc Ershefsky, personal communication in a seminar at Clemson University, 1991; see also Mayr 1982 for a description of the philosophical underpinnings of essentialism's "death"), because we can see firsthand that nature is variable. No doubt part of the justification for essentialist thinking in people of earlier ages is ignorance, but for some current thinkers there must be other sources of the reluctance to fully incorporate the profound consequences of variation into their thinking. For example, to some thinkers the idea of "types" is politically useful (e.g., racists).

In the early twentieth century, after the rediscovery of Mendel's genetic rules, Fisher, Haldane, and Wright proclaimed the necessity of variation for evolution. The Neosynthetic Theory of Evolution, which they fashioned, is based on phenotypic and genotypic variation. Evolution is not possible without variation, because without variation there is no substrate on which natural selection can act. Furthermore, a central tenet of evolutionary biology holds that the rate of evolutionary change is proportional to the amount of phenotypic variation; thus, the engine of creative natural force is fueled by variation. This powerful, transformative notion changed the face of biology, so much so that "Nothing at all in biology makes sense except in the light of evolution" (Dobzhansky 1973).

Observations of animals living under natural conditions have focused attention on new models of evolutionary variation that account for behavioral variation within as well as between individuals. Variation is not just something in the process of being weeded out, it is often the trait of interest itself; for instance, biologists seem far less interested today in statistical means than in statistical variances. Within-individual variation is an important area of current study. Individuals can vary depending on different stages in their life cycles or even different substages within stages (seasonal variations, hormonal cycle variations,

etc.). And, behavioral biologists are giving more empirical attention to the biological correlates of within- as well as between-individual differences. Increasing methodological, philosophical, and statistical sophistication means that even in the subparadigm of the study of sex differences, differences between sexes are compared with differences within sexes, so similarities between the sexes can be and are observed.

Seeing beyond the prominent "typologies" and archetypes to the truer nature of life was revolutionary and critical to understanding the evolutionary mechanism of natural selection (Mayr 1982) and is still critical today in its implications for late twentieth century biologists. It is also important for understanding the causes and consequences of feminism.

Variation and Feminism

What does variation have to do with feminism? How do evolutionary notions about the importance of variation connect with feminism? Many feminists (e.g., Haraway 1989) argue that strong typological thinking serves and reflects patriarchal political agendas. One of the means by which patriarchal ideologies and institutions constrain the lives of women for the benefit of some men is through a limited definition of what women are or can be. For example, the double standard teaches us that there are only two types of women, defined in relationship to our sexual relationships to men as either "virgin mothers" or whores. (Of course, the "virgin mother" role is impossible, guaranteeing failure for any woman who tries to fit that stereotypical ideal and thereby aiding the patriarchal agenda by encouraging low self-esteem among those who fail when they try to live up to it.) These limited dual perspectives center on women's sexuality. Women's sexuality is thus socially determined; the rhythms of their days narrowly constructed, the passages of their life-histories a function of their reproductive values, mostly for the benefit of men.

This limited and limiting construct engenders resistance. Western women now often seek to define themselves not just in relation to husbands or fathers, but in their own terms, which sometimes explicitly excludes reference to men. Feminists refute the limited view of women as property by focusing on the myriad ways that women do (and do not) express their creativity in general and, in particular, their sexuality (e.g., see Hite 1987 for descriptions of women's sexuality in their own words), including ways that do not involve motherhood or men.

The many ways in which women's economic options are limited are fundamentally associated with the control of women's sexuality. Obviously, it is easier to control and exploit individuals sexually if they are

economically dependent. Limited economic options have focused feminist interest in gaining women's access to professional and employment opportunities. Economic parity is part of what women need to gain full control of their sexuality. The main ideological obstacle to economic parity and access to the varieties of professional and employment opportunities is the continued patriarchal definition of women as at least deficient or deviant, or not fully human, and therefore not capable of performing the jobs that men perform. Resistance to this limited and limiting view brings feminists to emphasize the vast varieties of female experience, aptitude, capability, creativity, and desire—in each instance at least equal to men's. As feminists, many of us respect and even celebrate, rather than fear and belittle, the differences among us, for it is these differences, these variations, that offer us collective and individual freedom from the economic, social, and personal bondage of patriarchy.

Seeing beyond "two types of women" to the truer natures of the lives of women was revolutionary and perhaps critical to understanding the mechanisms of patriarchal control of women's lives. The current western expression of feminists' efforts to achieve autonomous control for women can be characterized as being about multiplicities. There seem to be many kinds and varieties of feminism, as many kinds and varieties as there are individual feminists, with individual desires, notions, and conceptions of what we are and want. The issues have to do with the opportunities we want for ourselves; our wishes are reflections of our definitions of ourselves and our potential for control over all aspects of our lives. Central to the issue of autonomy—in our times in westernized worlds—is economic opportunity and control of our reproductive capacities, our sexuality. Our efforts mean that some women are no longer experiencing life as only mothers or whores, the roles afforded women in the limited patriarchal-controlled dramas, but more and more often as actors in leading, proactive roles centered on personal power over our own lives. When we are "free to be," we define ourselves variously. This is the most important theme—with variations—of feminism.

A corollary of feminism's nonunitary theme is that we have come to—are learning to—recognize and respect the utility in women's choices and the diversity of women's voices (Hooks 1989). Variation is assumed, a function of the standpoints of individual women, as is respect for the variations and various choices feminists (women and men) may make in our efforts to define our lives and to live our lives creatively. Yet, in recent years, feminists and feminism have gone through changes as we have forged our strength from unity in diversity (a phrase that will be familiar to every evolutionary biologist). Black feminists, lesbian feminists, religious feminists, Marxist feminists, socialist feminists, intellectual feminists, cultural feminists, feminist sex workers, individualist feminists, relational feminists, structural feminists, etc., have become,

for some, feminists unmodified (MacKinnon 1987). We are uniting around an emerging, grass-roots, feminist political theory centering on control of our sexuality. Perhaps we are all Womanist (Walker 1983). To my mind, lack of respect among feminists for the variations on the themes of feminist thought, originating from divergent standpoints, is retrograde and atavistic. Unmodified feminism does not discount these valuable perspectives, but it does focus on what unites us, our resistance to control of our sexuality by others. So, for me and I think for many others, the very stuff of feminism is our respect for each other's individuality along with the explicit recognition that the diversity of particular experience legitimates diverse standpoints.

Like the rate of genetic evolution, the rate of cultural evolution depends on variation—variation in the substrates of culture, which include imagination, practice, fad, serendipity. I suggest that one important way in which the evolutionary notion of variation connects directly with feminism is that it demonstrates the power of our imaginations as tools for struggling against sexist oppression. It seems to me that in the history of ideas, the almost simultaneous timing of the recognition of the importance of variation to evolutionary biology and to feminism is worthy of scrutiny. For me the co-occurrence of variation as central tenet has been illuminating.

CONTROL OF FEMALE REPRODUCTION

Feminist ideas about autonomy in the lives of women relate to prominent ideas in evolutionary biology. As an evolutionary biologist informed by feminist ideas, I have reacted to the existing limitations of evolutionary theory. I do not claim that evolutionary biology has got it wrong, only that the typical constructions seem incomplete. In this section, I describe *why* feminists and *how* evolutionary biologists dwell on the control of female reproductive capacities, and I describe some of these unfinished evolutionary stories in detail. I offer novel interpretations about the relationships of some ideas in evolutionary biology. My perspective on evolutionary biology is informed by my experience as a woman, as a feminist, as a field naturalist, as a behavioral ecologist, and as an evolutionist. I hope other evolutionary biologists will be able to see that this perspective is potentially informative to them as well in our efforts to explain the way the world works. I hope other feminists will be able to see that evolutionary perspectives need not be prototypically "sexist," but inclusive and empowering, suggestive of ways we can further foster our efforts for women's autonomy.

The Battles of the Sexes

Autonomy and control by women of sexuality and economic resources are central to feminism's goals. Radical feminists believe that the fundamental oppression of women by men is sexual; most western feminists take the subordination of women as their central concern, and some have concluded that the control of females is through sexualized aggression (MacKinnon 1987). Furthermore, it is the sexual, reproductive capacities of women that are the focus of male control.

The antithetical icon of autonomy for many women is rape. Marital rape and date rape and acquaintance rape and stranger rape and wife beating and degradation and humiliation and sexual harassment in the work place of women by men are dramatic evidence that some men seek to control some women. Many have argued that although rape is not psychologically a crime of sexual passion, it is a crime of aggression toward women, and it contributes to the ideology that helps to keep the control of women and their reproductive capacities in the hands of men (Brownmiller 1975; Frieze 1983). In addition, despite alternative claims, aggression against women *is* sexualized—those that do it, "get off" sexually (MacKinnon 1987). The insight that violence against women is sexy (turns men on) provides a powerful proximate analysis that explains what many of us know in our guts—sexuality is the fulcrum of subordination/domination. The horrible part is not only that violence is sexualized, but that sexual abuse is a form of terror that works proximately to create the subordination of women.

These ideas seem right-headed to me, emotionally because they are consistent with my experiences and rationally because of the data: there is at least a 26% probability that a young woman in the United States will become a victim of completed rape (forced intercourse) at some time in her life, and a 46% probability that she will become a victim of rape or attempted rape (Johnston 1980; Russell and Howell 1983). Rape is so common here and elsewhere that "To be about to be raped is to be gender female in the process of going about life as usual" (MacKinnon 1987:7). The magnitude of the problem is also indicated by the fact that only 7.8% of the women in the United States have not been sexually assaulted or harassed in their lifetime (MacKinnon 1987).

The control of women's reproductive capacities by men takes less overtly aggressive turns as well. For example, consider some of the new reproductive technologies, such as fertility drugs and artificial insemination or surrogate parenting. These reproductive technologies claim to assist women and sometimes do, but most often they do not. What many of the practitioners of these reproductive technologies func-

tionally do is use women in attempts to increase their own direct control over women's reproductive capacities (see Corea 1985 for a compelling discussion of the effects of new reproductive technologies). I stress that this is what the new reproductive technologies functionally do, not what the practitioners or patients may think or say that they are doing. In the current state of development of various reproductive technologies, desperate women who seek their "healing" functions actually offer themselves unwittingly as experimental material (Corea 1985). To alerted feminist women and men these reproductive technologies are little more than the patriarchal urge to control women's reproductive capacities (Atwood 1986)! I again stress that I am focusing on the processes and the outcomes for the vast majority of women exposed to the new reproductive technologies and for the doctors and practitioners who administer these options. Usually, in the vast majority of attempts, and finally, for the vast majority of women and men who undergo them, the technologies do not produce the desired outcomes; the women and men suffer, often horribly, and the doctors receive large premiums to get additional data for their "experiments." These are the outcomes, and from an evolutionary perspective the "benefit" that fuels the continued use of the technologies. From my feminist perspective, the new reproductive technologies are often "patriarchal reversals" (see the section on deceit and self-deception for an explicit definition).

The control of women's sexuality also provides ample reason for men to keep women economically dependent. Economic dependence seems to be the main reason women are sometimes unable to leave mentally and physically abusive relationships. In fact, "feminism fundamentally identifies sexuality as the primary social sphere of male power. The centrality of sexuality emerges . . . from feminist practice on diverse issues, including abortion, birth control, sterilization abuse, domestic battery, rape, incest, lesbianism, sexual harassment, prostitution, female sexual slavery, and pornography. In all these areas, feminist efforts confront and change women's lives concretely and experientially" (MacKinnon 1982:529). It is but a short step to imagine that an indirect method of control of women's sexuality is through economic domination.

Women are not always, everywhere, subordinated, but when they are, they resist control (just as all exploited individuals do). Resistance to control is as fundamental to the relationship between the genders as is control. Resistance to control is the essence of the current western expression of feminism, but it is my thought that women's resistance to control is an ancient, deep-seated, gynocentric, frequency-dependent force. Indeed, women's history has been the history of resistance movements (Lerner 1986), which explains why most of the written history of

women has suffered erasure and attempted erasure and is distorted (Spender 1982). Most of written history "tells the story from the viewpoint of the male half of humanity only" (Lerner 1986:4).

Reading feminist political theory as an evolutionary biologist, I am impressed by the power of the analysis, and the strength of feminist method. Feminist method is based on paying attention to the experiences of women: what comprises women's lives and, most important, what women say they feel about their experiences. Feminist political method—from grass roots to ivory tower—focuses on the "proximate" issues of what happens to women, how males get control, how males maintain control, and how women resist control. Feminism is currently developing a robust comparative method as well, as more and more of us from divergent standpoints voice our experiences. In contrast, evolutionary theory, which also centralizes female reproductive capacity, is focused on why things are as they are, i.e., the "ultimate" issues of current functionality and adaptive significance (including evolutionary history) of sex similarities and differences in behavior and variation in social systems.

Female Choice and Anti-Female Choice

Along with the insights of natural selection, Darwin taught us about the force of sexual selection, a type of natural selection having to do exclusively with reproductive competition. Reproductive competition occurs between individuals of the same sex and species. Darwin said there were two types of sexual selection: intra- and intersexual selection. He introduced the two types of sexual selection by their examples, male–male competition and female choice, and today sexual selection is best known through these two behavioral mechanisms. Darwin implicated male–male competition in the evolution of many traits, and he said that female choice was as important as male–male competition. For example, he said, "The exertion of some choice on the part of the female seems a law almost as general as the eagerness of the male" (Darwin 1871:579). As I indicate below, there are intuitive, logical, and empirical reasons to think that female choice is a more primary selective force than male–male competition and that male–male competition is derivative to other, even more primary forces in sexual selection. I further point out that there are other behavioral mechanisms of sexual selection that Darwin did not catalogue. Some may consider my points subtle. Nevertheless, I consider the long-standing theoretical primacy of male–male competition to be one of the most potentially misleading notions in evolutionary biology. It sometimes seems so misleading that I wonder

what maintains its standing. A more inclusive list of behavioral mechanisms of sexual selection seems important not only theoretically but also as an imaginative source of behavioral alternatives for people seeking an end to sexist oppression.

Female choice has been controversial throughout most of the history of evolutionary biology. Resisters to the idea that females choose their mating partners claimed that female animals lacked esthetic sensibilities, making choice behavior impossible (e.g., Huxley 1938). The secondary role that female choice has usually played in the thinking of evolutionary biologists would seem to be exceedingly fertile ground for review by feminist historians of science, something that I do not want to attempt here. Nevertheless, along with the current western expression of feminism, the past twenty years has seen a flowering of research into mechanisms of female choice (e.g., Kirkpatrick and Ryan 1991; Wade and Arnold 1980).

In one of the central tracts of modern evolutionary biology, Williams (1966) remarks at length about the selective pressures that have led to "characteristic" males and females. Because in most animals females bear the greater costs of reproduction, while males bear relatively minor costs, females should be selected to be "coy" about mating, whereas males should be selected to mate with as many females as possible. The emphasis here is on females, but relatively passive ones without the power to influence directly and pro-actively; these females were left only with the option to be "coy" or indirectly manipulative.

Six years later, Trivers (1972) published a remarkably durable paper in which he clarified the relationship between Darwin's two kinds of sexual selection and parental care. Trivers's insight is that because the reproductive output of females is limited by their intrinsic ability to produce a few offspring for which they may then care, and because the reproductive output of males is limited by their access to females, by and large, sexual selection would operate so males would compete for access to females and females would be choosy about their mating partners. Thus, Trivers says that, in general, females should emphasize choice and males should emphasize male–male competition. In its simplest form, Trivers's view of females seems to speak of choosy, self-determining females.

Female choice may often result in increased variance in reproductive success among males, because some males may be preferred over other males. Thus female choice is the behavioral mechanism of competition among males' gametes, and it is this emphasis on the *result* of female choice rather than on the *behavior* that has led to the impression that male–male competition primarily shapes and controls the mating options of females and males. In much of current evolutionary thinking,

reproductive competition is a matter among males, a conceptualization that has called forth responses from other feminists, mostly nonevolutionists (Harding 1986) but including other biologists and scientists (Bleier 1979; Hubbard 1990; Lowe and Hubbard 1979) as well as feminist evolutionary biologists (e.g., Hrdy 1981). Nevertheless, female animals are often still seen as without options in the face of male–male competitive interactions.

Some researchers seeking to understand the basis of female choice devise experimental schemes that limit the ability of males to fight and compete directly among themselves for access to females, so female choice can be observed unaffected by male–male competition. These research paradigms have been successful in exposing some of the truly remarkable variations in nature (Burley 1986; Zuk, Johnson et al. 1990; Zuk, Thornhill et al. 1990). These successes notwithstanding, male–male competition and female choice cannot be the entire story of sexual selection.

The notion that females are second-hitters in contexts of male–male competition is ironic, because among the most compelling logical arguments of evolutionary biology is the one that posits a difference between the sexes: The limiting resources for female reproduction are those that allow females to complete the physiological processes associated with the production and maintenance of offspring. The limiting resource for male reproduction is access to females. These are first principles from which hypotheses about the direction of evolution proceed. Despite the power of these logical facts, many evolutionary biologists have overlooked what might be seen as the central organizing principles of relationships between the sexes, ideas that derive directly from these logical first principles. For example, only recently has it been emphatically emphasized that there should be strong selection on males to control females' reproduction through direct coercive control of females (Smuts and Smuts 1992; Thornhill 1980). More notable is the general lack of emphasis on or even absence of the idea that there also should be strong selection on females to resist male control of essential resources and perhaps even stronger resistance to male coercive control of female reproduction and sexuality.

The points that I am stressing are twofold: (*a*) there should be strong selection on males to control females over and above all other sexually selected behavior, because females limit males' reproduction; and (*b*) in response to male efforts to control females' reproduction, *females should be selected to resist male control*. Because female reproduction depends on their access to resources and males on their access to females, it seems logical to me to expect not that males would compete among themselves for access to females and the resources females need, but primarily that

males would seek to control females, and that females would resist those efforts to be controlled. Male contests over access to females and the resources females need logically follow after males' efforts to control females *and females' efforts to resist control.* Furthermore, these selective pressures acting on females to control their own reproductive capacities through access to resources or through physical autonomy should in turn provide additional selection on males. Variation among males should track variation among females; the battles of the sexes should result in frequency dependence of "sexual" traits (Gowaty 1992). What is remarkable to me is that what seems to have been left out of evolutionary biology is a discussion of the multiplicities of strategies of females to retain reproductive autonomy. I find this ironic, because if the "battles of the sexes" have any meaning for evolution, that meaning surely resides in these contests and their frequency-dependent outcomes.

I suspect that failure to make these issues primary in evolutionary biology is the result of the patriarchal ideology that fosters deceit and self-deception even in the lives and minds of evolutionary biologists, whether these biologists are men or women. I do not mean that evolutionary or selectionist thinking is necessarily sexist, just that those who have been the most prominent contributors (including many women) have been constrained by sexist and patriarchal constructs. Failure to expose these logical defects—some seemingly simple and as plain as the noses on our faces—raises the question of whose interests the continuance of incomplete stories serves, something that I take up again later in this essay.

Male dominance over females is often seen as a by-product of intense male–male competition. In a more logically complete discussion of the relationships of female and male animals, male dominance over females would not be relegated to epiphenomena associated with male–male competition (see Smuts and Smuts 1992). Wilson (1975) provides one example of the many times it has been written that male–male competitive interactions select for dominance among males, and that the contests among males have selected for sexual dimorphism with males bigger than females. This has been taken to mean that male dominance over females is a side-effect of male–male competition. My feminist perspective suggests that the "fact" that in many animal societies all males have priority of access to resources over females may sometimes be fiction, and when it is, it should not be explained away as an epiphenomenal process ancillary to male–male competition; rather, it should be at least hypothesized as a process of sexual selection in which males compete with females for control of resources essential to female reproduction. Perhaps male–male competition is a derivative process ancillary to competition between females and males (Gowaty 1992; Smuts and Smuts 1992).

Evolutionary thinkers, whether informed by feminist ideas or not, are not surprised by one of the overwhelming facts of patriarchal cultures, namely that men (and their intergenerational supporters) seek to constrain and control the reproductive capacities of women. What is surprising is that other equally compelling, theoretically predictable evolutionary forces are at work in our cultures and in the social lives of nonhuman animals besides male–male competition and female choice: most notably, in this context, forces that oppose female choice (i.e., anti–female choice) and forces that oppose anti–female choice (i.e., resistance to male control of female reproduction). In my own effort to help make evolutionary biology more inclusive, I hope to bring these other evolutionary forces to the fore.

Sexual selection is "reproductive competition between members of the same sex and species." The currency of competition is genetic. The behavior of individuals is favored because some behavior is more successful than other behavior in getting individuals' genes into future generations. Gametic competition is difficult to see. What we are able to see is the behavior that mediates gametic contests. Behavior mediating gametic contests may take many different forms; in contrast, there are only two gametic contests: between males' genes, and between females' genes. Behavior that leads to a male attracting more females than another male is one sort of behavioral process that mediates the gametic contest between males. There are many others. Yet discussants since Darwin have focused on only two. Competition among males' genes and competition among females' genes apparently have been confounded with the behavioral processes that mediate the gametic contest for the insertion of one's genes into future generations. As Darwin pointed out, sexual selection includes within- and between-sex behavioral processes. Some of the many behavioral processes that may mediate the gametic contest include female–female competition or cooperation, male–male competition or cooperation, female choice, male choice, and other behavioral mechanisms we might call anti–female choice and anti–male choice. For example, Smuts and Smuts (1992) describe a type of sexually selected, anti–female choice behavior that they call "intersexual coercion," which is defined as "the use of force, or the threat of the use of force, by a member of one sex (A) that functions to increase the probability that a member of the other sex (B) will mate with A and/or decrease the probability that B will mate with a rival of A's." In addition, female–male contests over resources and female–male cooperative behavior could also be included as behavioral mechanisms of sexual selection. I am not saying that these behavioral mechanisms are always mechanisms in sexual selection, just that they *may* function in sexual selection. By analogy, not all male–male competition is sexually selected; for example, behavioral competition over something besides reproduc-

tion or reproductive success need not be a mechanism in sexual selection. My point is that our previous emphasis on only two of the behavioral mechanisms of sexual selection has obscured the operation of sexual selection through other behavioral means. The relationships of these behavioral mechanisms of sexual selection to each other can be argued from the perspective of which selective forces are (or were) likely to operate first.

Females' access to essential resources is fundamental, even for male reproduction. This fact implies a suite of selective forces, including female–female competition for resources; female choice of mates; anti–female choice behaviors by males, such as intersexual coercion (Smuts and Smuts 1992); resistance by females to coercive control; competition among males for coercive access to females (these male–male interactions are secondary to coercive interactions between males and females); competition between males and females for control of resources essential to reproduction; and male–male competition for resources (these male–male behaviors are secondary to female–male competition). This list of behavioral possibilities is informed both by feminist political insight and by women's experiences in patriarchal culture. What has been less obvious to feminists, and unfortunately not obvious to most evolutionary biologists, is that in the evolution of most social systems there should be selection for males with multiple, conditional strategies; the variation among males should occur in proportion to the variation among females. Females should be variable in their tactics for retaining control of or resisting male control over their reproduction and in their tactics for retaining control of essential resources for their reproduction.

For example, one scenario from this logic provides for the evolution of varieties of males or for individual males with multiple, conditionally expressed strategies, each a function of the variety of females. One type is behaviorally nonaggressive toward females (and perhaps also toward males), in which males may be sexually selected through female choice to emphasize sperm competition; the second is behaviorally aggressive, in which males may be sexually selected through anti–female choice to control females directly and coercively or through intersexual and intrasexual contests for the control of resources. A society with at least these conditional strategies for males or varieties of phenotypically fixed males should evolve whenever females' abilities to resist direct coercive control are variable. In this scenario I have imagined only two conditional strategies for females, those able to resist control and those not able to resist control (keep in mind, however, that more than two conditional strategies are possible and probable). Male strategies should co-evolve in response to females' abilities to resist coercive control, so that coercing males will increase when females are less able to resist coercive

control; noncoercing males will track females more resistant to coercive control.

My arguments, which I express graphically and mathematically elsewhere (Gowaty 1992), hinge on females' abilities to (*a*) resist direct coercive control attempts, such as rape or forced copulation; and (*b*) garner access to essential limiting resources for reproduction. Variation in females' abilities could select for more intensive cooperative interactions between females and males so that pairs would compete with the most able individual females for essential resources. Increased opportunities for cooperation also increase opportunities for males to exert control over females, which in turn will select for females that resist control. These multiple selective pressures acting on females and males simultaneously mean that at any given time there will be several kinds of co-evolving females (or even more likely, females that facultatively exhibit conditional strategies given variation in the environments in which they find themselves) and thus multiple kinds of males, also co-evolving with females. In terms of variation in human societies, this selective regime could provide for male tacticians we might call "sexy," selected by the existence of "competent" females able to garner essential resources alone; "rapists," selected by the existence of "highly physically vulnerable" females unable to resist forcible coercion; "cooperative partners," selected by the existence of "less competent females" unable to compete successfully with "competent females" more able at garnering essential resources alone; "resource-holders," who trade access to resources for access to females' reproductive capacities; and "patriarchs," who directly coercively control females (and others) through their totalitarian control of resources. The point is that there should seldom be only one avenue for reproductive competition for males, because there should seldom be only one avenue for access to essential resources for females; there should be several varieties of males within most animal populations, or several conditional strategies that individual males might adopt, depending directly on strong selection on females to retain control of their own reproduction and essential resources for reproduction.

The ideas presented above are subject to empirical investigation. There are as yet few answers to the questions this perspective suggests. What is clear is that theoretically prominent notions have canalized the attention of male and female evolutionary biologists on conveniently discerned, limited types, rather than on the ranges of variation that are more likely to exist among both females and males in sexually reproducing populations.

One immediate positive value of this suggested perspective is that it encourages new questions. For example, several behavioral ecologists

have mentioned to me that they see no evidence in the species they study of males' tendencies to control females directly and coercively. In response, I have asked them if there are intrinsic characteristics of females relative to males or of the habitats in which females and males live that make coercion by males impossible or unnecessary. That strikes me as a new question worth examining.

Control of female reproduction has been an issue in evolutionary biology, as it is in feminism. Feminism has reminded me that resistance to males' efforts to control females' reproduction might also logically be a part of evolutionary biology. Feminists and evolutionary biologists obviously have much to say to each other about this issue. Did the issue of control of female reproduction and the idea that females should be strongly selected to resist come late to evolutionary biology because until very recently there have been so few women in our discipline (Hrdy 1986), or has the blindness to this logical idea served patriarchal agendas directly? Why until recently (Borgia 1979; Maynard Smith 1977) have the co-evolutionary battles between the sexes received considerably less emphasis in evolutionary biology than the co-evolutionary battles within each sex? This question implies reference to deceptive aspects of dominant political ideologies and to evolutionary analyses of the function(s) of deceit and self-deception in communication systems, which I take up in the next section.

DECEIT, SELF-DECEPTION, AND PATRIARCHAL REVERSALS

Feminists have realized that patriarchal ideology is deceptive in that its primary function is to mold women to the purposes of the patriarchs; that is, patriarchal ideology functions in the control of women by men and their intergenerational supporters. Ideology is a way of seeing and being in the world, a system of perception engrained through communication systems. Mary Daly argues these points in her demystifying book *Gyn/Ecology: The Metaethics of Radical Feminism*, a book I consider important for evolutionary biologists interested in sexually selected behavior in people. She says that deceptive perceptions are implanted through language," the all-pervasive language of myth, conveyed overtly and subliminally through religion, 'great art,' literature, the dogmas of professionalism, the media, grammar. Indeed, deception is embedded in the very texture of words" (Daly 1978:3).

Daly and other feminists (e.g., Woolf 1938; Penelope 1990) before and since show that patriarchal ideology serves the interests of some men at the expense of most women. Ideology is not necessarily created by

conscious conspiracy, but as I discussed above, the outcome of the individual and collective behavior of patriarchal men and women appears conspiratorial (and sometimes is). Whether we like it or not, whether we are conscious of it or not, each of us has probably at some time in her or his life unconsciously participated (maybe consciously too) in the politics or practices that foster patriarchy. I also anticipate that most readers of this essay would characterize themselves as nonsexist and in favor of the feminist agenda of economic opportunities for women equal to those for men. This means that some of us are lying, to others and to ourselves. Living in patriarchy means that some of us consciously conspire against women and some of us do it unconsciously. Patriarchal ideology—characterized by deceit and self-deception—might be productively viewed as an emergent property of human communication systems. Patriarchal reversals—societywide lies that foster sexist oppression—are all around us (Daly 1978).

Like feminists, behavioral ecologists (a subdisciplinary band of evolutionary biologists) have recently emphasized that communication systems "are not systems for the dissemination of the truth" (Trivers 1985); rather, at least in part, they are systems of manipulation of the receiver of a signal by the sender. Theoretically, the relationship of deceptive signal to truth is a co-evolutionary, frequency-dependent oscillation: as deception increases, so too does selection for detection of deception; as detection spreads, selection on deceit increases (Krebs and Dawkins 1984). In animal communication systems, self-deception may then arise. Self-deception functions to make deception an unconscious practice of the deceiver, because it hides from others the subtle physiological and behavioral signs that the deceived may use to detect deception (Trivers 1985).

The power of deception in communication systems is evidenced by morphological lies, such as camouflage and mimicry, that serve to hide individuals from their predators. Insect examples abound. Plants use the chemistry of moth sex to trick moths into visiting them so the moths will disseminate pollen from one plant to another. Within-species deceptive communication has been described in sparrows, chimpanzees, and, of course, among people. "Deceit and self-deception" now stand for an important subparadigm in the study of animal communication systems.

If Daly and Trivers are right about deceit and self-deception, and I think they are, some obviously flawed dogmas of professionalism—in this case, the profession of evolutionary biology—can be explained. The failure of earlier evolutionary biologists to infer (*a*) the logical interrelationships of a full suite of behavioral mechanisms of sexual selection, especially anti–female choice, and (*b*) the importance of strong selection

on males to control female reproduction and the equally strong selection on females to resist male control can be explained by the workings of deceit and the workings of self-deception in the maintenance of patriarchy; these logical failings can be seen as patriarchal reversals.

The argument I am making is a meta-analysis of evolutionary biology; that is, I am making an argument about the evolution of some traits of evolutionary biology. Deceit and self-deception in communication systems are biologically, evolutionarily relevant. Evolutionary biology itself is a discipline of communication. Deceit and self-deception seem to function in the communication system of evolutionary biology. I ask about the causes and consequences of the evolution of deceit and self-deception in evolutionary biology: a meta-analysis. In other words, evolutionary biology is no exception to the rule that it is difficult to see past the constraints of patriarchy. If evolutionary biologists—both women and men—saw the centrality of control of female sexuality in nonhuman animal systems, by analogy control of women would necessarily need to be examined in human social systems. Similar analyses by feminists—without reference to nonhuman animal systems—make the argument that even in the face of extreme brutality in efforts to control women (e.g., suttee, footbinding, clitorectomy, and infibulation), observers, researchers, and writers have failed to characterize these horrors truthfully from the perspective of the victims, because the truth does not serve patriarchy, i.e., it explicitly does not serve the interests of men and their intergenerational supporters, who maintain the control of women, their resources, and their sexuality (Daly 1978). Is this one of the reasons that that so few of us know what clitorectomies and infibulations are, much less that they happen to millions of women?

A psychological argument provides a proximate explanation for some of the deceit and self-deception surrounding these horrors. Being blind to a horror may be a psychological defense against pain. Members of the victim group can respond to the truth of horrors with righteous anger; however, when those who perpetuate horrors face the truth, they must also face victims of horrors (whose victimization is thus acknowledged and recognized), something that is not only painful but also may reduce the advantages the oppressor group enjoys. Whatever proximate explanation holds, deceit and self-deception characterize the behavioral practices that surround suttee, footbinding, clitorectomy, infibulation, and other practices that serve the patriarchal agenda to control women (Daly 1978).

Another aspect of deception in human communication systems is "femininity." In the next section, I describe how evolutionary biologists might look at what women do to ourselves in our efforts to be "feminine" (i.e., our efforts to make ourselves attractive to men), and I

advance the hypothesis that femininity is self-deceptive, offering short-term advantages for women attempting to make the best of a bad job under patriarchal constraints.

FEMININITY

In the previous two sections of this essay I have tried to show how evolutionary biology would benefit from attention to issues raised by feminists. In this section I want to explore how evolutionary perspectives might serve feminists in our efforts to understand femininity. What I want to stress is that evolutionary biology suggests strategies for women to use in our efforts to gain, regain, and maintain autonomy.

Femininity is controversial within the lives of women and within feminist discourse. Two recent protagonists came to my attention after I had written most of what follows and illustrate just how controversial the topic is. These women take opposite stands on femininity. One, a feminist, free-lance writer, says femininity is an expression of and a mechanism of women's oppression (Wolf 1991). The other, a psychologist interviewed on a popular television show, emphasizes the power that the trappings of femininity provide. I mention these alternative interpretations and experiences to set the stage for those readers who might not appreciate the power the idea of femininity has in our minds or the power the practice of femininity has in women's lives. Fashion (as in fashion magazines, which sell the latest fads in femininity), is political too. Furthermore, it is often painful (Chapkis 1987). I think the approach an evolutionary biologist would take to understand femininity should be useful to feminists. In what follows I outline an approach I would take. I would first operationally describe what femininity is; I would ask about how it varies (through time, in modern times, within and between populations, over the lifetime of individuals, and—for individuals and populations—under varying ecological circumstances). I would then ask questions about the functional significance of femininity in terms of the social organizations in which the traits are expressed. What follows is my anticipation of some of the answers and would best be read as a series of working hypotheses about femininity.

Femininity is what women do to ourselves to make ourselves attractive to men. Note that my attention is not on the evolution of traits that make women attractive to men; rather my attention is on those things we do to ourselves to make ourselves attractive to men. I am leaving aside the interesting question of whether our attempts achieve what we are hoping for. Because fashion varies, descriptions of femininity vary, often in ways that seem to be arbitrary. Whatever expressions femininity

takes seem to increase the differences between men and women. A classical ethological approach might profitably view femininity from the perspective of "baby releasers" and "super normal stimuli" (see the discussion below). In western culture, femininity is associated with size (petiteness), color (fairness), increased contrast between women and men for such traits as amounts and distribution of body hair and voice pitch, among others.

Feminist analyses of femininity (e.g., Brownmiller 1984) show that devices of and behavior associated with femininity restrict women's freedom to move (to think, to work); sap women's strength; and set up obstacle courses that rob women of time, energy, and financial resources that would productively be used in other ways. I call these aspects of femininity "hobbling." The "hobbling" standard of femininity raises the question of the development in men of attraction toward feminine traits. Why should men find hobbled women attractive? Evolutionary biologists probably cannot argue convincingly against the feminist insight that the functional significance of femininity is to handicap women, making them more controllable (sexually and economically) and less competitive with men (think of a highway worker in a dress). This functional hypothesis strikes me as a testable one, and it raises the very interesting question of how mutable femininity might really be, and the even more interesting question of what femininity signals.

It is easy to explain the attractive force of some characteristics associated with femininity that do not seem particularly hobbling. I argue that shaved legs and underarms, madeup faces, and exaggerated thinness are neotenic characteristics that signal juvenilization and its attendant dependence and subordination (for a methodology for additional research, see Gould 1977). Juvenilization decreases the threat some men may feel when confronted with women; many men are comfortable around women whom they can clearly dominate and are profoundly uncomfortable around women whom they cannot so clearly dominate. The hypothesis that femininity signals ability to be dominated through juvenilization is an alternative to, but not necessarily mutually exclusive of, other evolutionary hypotheses that posit that femininity signals, sometimes deceptively, reproductive value and fertility. Keep in mind that I am considering "what women do to ourselves to make ourselves attractive to men." Thus, I am not making an explicit argument about the genetic substrate of this variation; I am referring to traits that are cultural, learned, exclusively facultative, and highly variable.

Apparently, men see juvenilization as feminine. Recently a male friend told me the Miata (the new, trendy automobile that, like Mickey Mouse [Gould 1979], is cute) was feminine, something that surprised me, because I see the Miata as cute—little and young. It is low to the

ground (has shortened extremities), has an exaggeratedly rounded hood (flattened nose, chin, and rounded cheeks), and is small relative to other cars (diminutive), so it elicits responses from many of us that are usually reserved for "cute" living things. Like most adult mammals, I find cute things attractive (Darwin 1915). What is curious in this context is that men find juvenilized women feminine and associate femininity with sexual attractiveness. The function of this second aspect of femininity deserves scrutiny, and it might not be different from my functional explanation for why "hobbled" women are attractive to men.

Thus, in my mind there are two classes of traits associated with femininity, those that hobble and those that juvenilize. Two questions follow: Are hobbling and juvenilization really attractive to men? If they are, does this attraction preclude being attracted to other traits (i.e., is there a fuller suite of attractive traits)?

In many cases the practice of femininity is deceptive. Women contrive to make men think we are attractive: we force ourselves into thinness (in western societies), we paint our faces, we modify our voices and behavior. Femininity is also self-deceptive; rarely does a woman who engages in the rituals of femininity realize that the fashionable nature of femininity changes, increasing the likelihood that her efforts will become less and less effective, and that the underlying standard of much of femininity is "hobbling," making it more difficult for her to move and act freely. One explanation for the evolution of femininity seems to be that it offers women a short-term (perhaps a null) advantage in contests over access to the resources men control.

In some cases, to the evolutionary biologist the variation in hobbling femininity looks much like frequency-dependent selection, with advantage going to the bearers of the rarer trait. In other cases it appears as if Zahavi's (1975) handicap principle is at work, in that women who are able to live and work while bearing the handicap signal their quality relative to other women. Both of these arguments focus the attention of evolutionary biologists on the fact that in human societies, women compete for men, as though men were the limiting resource for women's reproduction, and not the other way around, as it is for Williams's (1966) typical mammal! Is this human cultural pattern a patriarchal perversion?

Women displaying to men is partially explained by the relatively high level of paternal investment in some human cultures compared to that of other primates, but it cannot be the entire explanation. Cross-cultural and within-culture studies indicate that paternal investment strategies are highly variable (Lancaster and Kaplan 1991). Furthermore, the number of female-headed, single-parent families is increasing at an explosive rate worldwide (Lancaster 1989), in what appears to be a return to,

rather than a departure from, the historic economic role of women (Smuts 1989). Women exploit variable strategies in their efforts to gain access to economic resources, including resources acquired by their male mates, their own kin, and their own efforts (Lancaster 1989). Thus, any explanation of femininity that depends on the relatively high standard of male parental investment in humans must take into account the variation in female dependence on male parental investment.

Mildred Dickemann's (1979a, 1979b, 1981) ideas about the effects of hypergyny (the cultural practice of women marrying into social classes above that of their parents) on such cultural practices as claustration (the secluding, veiling, protecting, defending, and controlling of women) might profitably be applied to a discussion of the meanings and abuses of femininity. Dickemann's analyses suggest quite strongly that claustration is associated with concerns about paternity assurance. That is, claustration serves to increase or guarantee paternity confidence for men and their intergenerational supporters. One important aspect of claustration should not be forgotten, however: "claustration and veiling are also prestige matters: the higher the socioeconomic status of the family, the greater the intensity of the practice, both as regards degrees of seclusion and of veiling and as regards their duration extending from the centerpoint of puberty toward the termini of birth and death" (Dickemann 1981:419). Thus, its strongest manifestations are in the higher-status groups, in which women's access to resources depends most strongly on men who provide resources for them. In other words, women in these socioeconomic classes may submit more readily to these practices because of the resources to which it allows them access.

The parallels between claustration and hobbling femininity are striking. The occurrence and particular manifestations of hobbling femininity are variable, and its most extreme practice seems to be in the highest socioeconomic groups. By analogy to claustration, I hypothesize that hobbling femininity is a result of economic and social variation among men in their ability to provide paternal investment; the men who control economic resources can control the reproductive lives of the women who submit to or are dominated by them. Hobbling femininity may therefore be a display through which women compete for the attention of resource-controlling men. In these displays, women who practice hobbling femininity (unconsciously, self-deceptively, and perhaps deceptively) signal their vulnerability to control or their willingness to be controlled. Nevertheless, the selective pressure on females to control their own sexuality and resources essential for reproduction will also operate. That resulting dynamic suggests that there will always be important variation in our societies, and that women and men should be able to capitalize on this variation to decrease the power of the patriarchs.

Women are always the limiting resource for male reproduction, which means that men will always be attracted to women—whether women are juvenilized or hobbled or not. The traits and strategies of men will track the traits and strategies of women. Or, individual men will adopt conditional strategies, finding some women attractive in some circumstances and other women attractive in others.

Some say, "There's no accounting for taste." I think there is, and I think women—individually and collectively—can affect the expression of preferences of men. Empirical evidence of this fact is in the perceived attractiveness to some men of the many women who forego makeup and wear sensible shoes and even trousers. Femaleness, frank femaleness, is attractive to many men. I think it is possible for women individually or collectively to avoid the traps of hobbling femininity and juvenilizaiton without incurring devastating effects (either economically, sexually, or reproductively). Certainly in our culture it is now possible for many middle-class professional women to emphasize their own abilities to garner resources for themselves, rather than to display vulnerability via hobbling or juvenilization. Whether I am right about this or not, my point is that evolutionary biology suggests strategies for feminists in our efforts to gain, regain, and maintain autonomy for women.

The combined perspective of evolutionary biology and feminism also suggests research in human behavior. Below I describe some of the traits that I think will characterize an inclusive evolutionary biology, and I briefly describe a question I think amenable to testing.

RESEARCH IN EVOLUTIONARY BIOLOGY INFORMED BY FEMINIST INSIGHT

Evolutionary biology emphasizes process and variation. Rather than limiting attention to secondarily derived sexually selected behavior, such as male–male competition, evolutionary biologists informed by feminist ideas, experiences, and perspectives also attend to the behavioral causes and consequences of the control by females of their own reproduction, and to the factors that contribute to the lack of female control when it occurs (Smuts and Smuts 1992). Evolutionary biologists informed by feminist ideas ask explicitly evolutionary questions, such as what ecological, phylogenetic, and developmental forces account for the "evolution of patriarchy" (Smuts 1991).

Research in inclusive evolutionary biology is not *motivated* by feminist political goals any more than research in "pop sociobiology" (Kitcher 1985) is *motivated* by concern to maintain patriarchy. The difference is that evolutionary biologists informed by feminist ideas—by definition—

are aware of the political sources of some of their own theoretical ideas and of the potential political uses of their results, whereas pop sociobiologists are generally unconscious participants in status quo political agendas. Furthermore, unlike pop sociobiologists, evolutionary biologists informed by feminist ideas are not genetic determinists.

Given this background, I would like to suggest a topic for study. Feminists and evolutionary biologists claim that men think of women as property to be owned and used. The proprietariness of men toward women seems to arise from the idea that women are resources for men's reproduction. The evidence of proprietariness is everywhere (Daly et al. 1982). Despite its frightening manifestations and apparent ubiquity, and despite the fact that violence toward women becomes a tool of patriarchal ideology that serves to control women (even when they are not direct victims of violence; Brownmiller 1969), it has been my observation that men are not universally proprietary toward women. I think this is something that both feminists and evolutionary biologists forget when they suggest scenarios of human evolution. I think it is something that many of those who are sensitive to the effects of female victimization forget too. Another feminist once said to me, "All men have raped." (But, then again, prominent evolutionary biologists also have posited a sex-specific, species-typical tendency for rape in humans; Thornhill and Thornhill 1991.) I resist this essentialist notion and all notions of monolithic character among women *and men* from an evolutionary perspective, and I hope other feminists and evolutionary biologists will be able to accept my arguments on this point.

What I would like to know is, how commonly do men consider women property? My question is about within-individual as well as within- and between-population variation. My predictions about the answer to this question come from my *hypothesis* that men's attitudes are shaped by the options they have for associations with women. I hypothesize that the relative vulnerability or invulnerability of women to direct coercive control and indirect control via control of resources by males are the factors contributing to the evolution of relatively more or less proprietary men or of facultatively proprietary men. Furthermore, I suspect that some men facultatively adopt conditional strategies in their relationships with women. It seems most likely to me that individual men have the potential to exhibit variable behaviors depending on the variable behavior of women. I *predict* that there is quite a range of variation in the presence or absence of proprietary attitudes of men toward women. I *predict* (in the language I used above about varieties of men that coevolve with varieties of women) that "sexy" (or gynocentric) men who coevolve with women who are able to garner access to essential resources without

help will lack proprietary attitudes toward women. If I am right, women have many options. As more and more women refuse to be treated as property, men will co-vary with women, and proprietary attitudes will decrease in frequency.

A comprehensive theory including gynocentric orientations will incorporate these ideas—about selection for females to retain control of their own reproduction, their resistance to the efforts of males to wrest control from females, and variation—into theories of the evolution of human social behavior. These hypotheses about the nature of evolutionary process in humans, apart from the directions for empirical research, are important stories, because they may provide direction away from the most deadly paths that human behavior takes. When we tell each other stories about where we came from, who we are, and what we want, we should remember that existing variations in behavioral alternatives—including those variations we imagine—are essential to the evolution of a future free of sexist oppression for both men and women.

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REFERENCES

Atwood, Margaret
1986 *The Handmaids Tale*. Boston: Houghton Mifflin.

Bleier, Ruth
1979 Social and Political Bias in Science: An Examination of Animal Studies and Their Generalizations to Human Behavior and Evolution. In *Genes and Gender II: Pitfalls in Research on Sex and Gender*, Ruth Hubbard and Marian Lowe, eds. Pp. 49–70. Staten Island: Gordian Press.

Borgia, G.
1979 Sexual Selection and the Evolution of Mating Systems. In *Sexual Selection and Reproductive Competition in Insects*. M. S. Blum and N. A. Blum, eds. Pp. 19–80. New York: Academic Press.

Brownmiller, Susan
1975 *Against Our Will: Men, Women, and Rape*. New York: Simon and Schuster.
1984 *Femininity*. New York: Simon and Schuster.

Burley, Nancy
1986 Sex-ratio Manipulation in Color-banded Populations of Zebra Finches. *Evolution* 40:1191–1206.

Chapkis, Wendy
1987 *Beauty Secrets: Women and the Politics of Appearance*. Boston: South End Press.

Corea, Gena
1985 *The Mother Machine: Reproductive Technologies from Artificial Insemination to Artificial Wombs*. New York: Harper & Row.

Daly, Martin, Margo Wilson, and S. J. Weghorst
1982 Male Sexual Jealousy. *Ethology and Sociobiology* 3:11–27.

Daly, Mary
1975 *Beyond God the Father*. Boston: Beacon Press.
1978 *Gyn/Ecology: The Metaethics of Radical Feminism*. Boston: Beacon Press.

Daly, Mary, and Jane Caputi
1987 *Websters' First New Intergalactic Wickedary of the English Language*. Boston: Beacon Press.

Darwin, Charles
1859 *The Origin of Species*. London: Murray.
1871 *The Descent of Man, and Selection in Relation to Sex*. New York: Appleton.
1915 *The Expression of the Emotions in Man and Animals*. New York: Appleton.

Dickemann, Mildred
1979a Female Infanticide, Reproductive Strategies and Social Stratification: A Preliminary Model. In *Evolutionary Biology and Human Social Behavior: An Anthropological Perspective*, Napoleon Chagnon and William Irons, eds. Pp. 321–367. Boston: Duxbury Press.
1979b The Ecology of Mating Systems in Hypergynous Dowry Societies. *Social Science Information* 18(2):163–195.
1981 Paternal Confidence and Dowry Competition: A Biocultural Analysis of Purdah. In *Natural Selection and Social Behavior*, R. D. Alexander and D. W. Tinkle, eds. Pp. 417–438. New York: Cheron Press.

Dobzhansky, T.
1973 Nothing in Biology Makes Sense Except in the Light of Evolution. *American Biology Teacher* 35:125–129.
Frieze, Irene Hanson
1983 Investigating the Causes and Consequences of Marital Rape. *Signs: Journal of Women in Culture and Society* 8:532–553.
Gould, Stephen Jay
1977 *Ontogeny and Phylogeny*. Cambridge: Harvard University Press.
1979 Mickey Mouse Meets Konrad Lorenz. *Natural History* 5:30–36.
Gowaty, Patricia A.
1992 The Battles of the Sexes and the Evolution of Mating Systems in Birds and Mammals. Manuscript. Department of Biological Sciences, Clemson University, Clemson, South Carolina.
Harding, Sandra
1986 *The Science Question in Feminism*. Ithaca: Cornell University Press.
Haraway, Donna
1989 *Primate Visions: Gender, Race, and Nature in the Natural World of Modern Science*. New York: Routledge.
Hite, Shere
1987 *The Hite Report: Women and Love—A Cultural Revolution in Progress*. New York: Alfred A. Knopf.
Hooks, Bell
1984 *Feminist Theory: From Margin to Center*. Boston: South End Press.
1989 *Talking Back: Thinking Feminist—Thinking Black*. Boston: South End Press.
Hrdy, Sarah Blaffer
1981 *The Woman That Never Evolved*. Cambridge: Harvard University Press.
1986 Empathy, Polyandry, and the Myth of the Coy Female. In *Feminist Approaches to Science*, Ruth Bleier, ed. Pp. 119–146. New York: Pergamon Press.
Hubbard, Ruth
1990 *The Politics of Women's Biology*. New Brunswick: Rutgers University Press.
Huxley, Julian S.
1938 The Present Standing of the Theory of Sexual Selection. In *Evolution*, G. DeBeer, ed. Pp 11–42. New York: Oxford University Press.
Jaggar, Alison M.
1983 *Feminist Politics and Human Nature*. Totowa, New Jersey: Rowman and Allanheld Press.
Johnston, Allan Griswold
1980 On the Prevalence of Rape in the United States. *Signs: Journal of Women in Culture and Society* 6:136–146.
Kirkpatrick, Mark, and Michael J. Ryan
1991 The Evolution of Mating Preferences and the Paradox of the Lek. *Nature* 350:33–38.
Kitcher, Philip
1985 *Vaulting Ambition: Sociobiology and the Quest for Human Nature*. Cambridge: MIT Press.
Krebs, J. R., and R. Dawkins
1984 Animal Signals: Mind-reading and Manipulation. In *Behavioural Ecology:*

An Evolutionary Approach, second ed., J. R. Krebs and N. B. Davies, eds. Pp. 380–402. Oxford: Blackwell Scientific.

Lancaster, Jane B.

1989 Evolutionary and Cross-cultural Perspectives on Single-parenthood. In *Sociobiology and the Social Sciences*, R. W. Bell and N. J. Bell, eds. Pp. 63–72. Lubbock: Texas Tech University Press.

Lancaster, Jane B., and Hillard Kaplan

1991 Human Mating and Family Formation Strategies: The Effects of Variability among Males in Quality and the Allocation of Mating Effort and Parental Investment. In *Primatology Today*, A. Ehara, T. Kimura, O. Takenaka, and M. Iwamoto, eds. Amsterdam: Elsevier.

Lerner, Gerda

1986 *The Creation of Patriarchy*. New York: Oxford University Press.

Lowe, Marion, and Ruth Hubbard

1979 Sociobiology and Biosociology: Can Science Prove the Biological Basis of Sex Differences in Behavior? In *Genes and Gender II: Pitfalls in Research on Sex and Gender*, Ruth Hubbard and Marian Lowe, eds. Pp. 91–112. Staten Island: Gordian Press.

MacKinnon, Catharine A.

1982 Feminism, Marxism, Method, and the State: An Agenda for Theory. *Signs: Journal of Women in Culture and Society*. 7:544–575.

1987 *Feminism Unmodified: Discourses on Life and Law*. Cambridge: Harvard University Press.

Maynard Smith, J.

1977 Parental Investment—A Prospective Analysis. *Animal Behaviour* 25:1–9.

Mayr, Ernst

1982 *The Growth of Biological Thought: Diversity, Evolution, and Inheritance*. Cambridge: Harvard University Press.

Offen, Karen

1988 Defining Feminism: A Comparative Historical Approach. *Signs: Journal of Women in Culture and Society* 14:119–157.

Penelope, Julia

1990 *Speaking Freely: Unlearning the Lies of the Fathers' Tongues*. New York: Pergamon Press.

Prigogine, Ilya

1980 *From Being to Becoming: Time and Complexity in the Physical Sciences*. San Francisco: W. H. Freeman.

Russell, Diana E. H., and Nancy Howell

1983 The Prevalence of Rape in the United States Revisited. *Signs: Journal of Women in Culture and Society* 8:688–695.

Smuts, Barbara

1991 The Origins of Gender Inequality: An Evolutionary Perspective. In *The Foundations of Gender Inequality*, A. Zagarell, ed. Kalamazoo: Western Michigan University Press (submitted).

Smuts, Barbara, and Robert Smuts

1992 Male Aggression against Female Primates: Evidence and Theoretical Implications. In *Advances in the Study of Behavior*, P. J. B. Slater, J. S.

Rosenblatt, M. Milinski, and C. T. Snowdon, eds. New York: Academic Press (submitted).

Smuts, Robert
1989 Behavior Depends on Context. Commentary on D. M. Buss, Sex Differences in Human Mate Preferences: Evolutionary Hypotheses Tested in 37 Cultures. *Behavioral and Brain Sciences* 12:1–49.

Spender, Dale
1982 *Women of Ideas and What Men Have Done to Them: From Aphra Behn to Adrienne Rich*. London: Routledge & Kegan Paul.

Thornhill, Randy
1980 Rape in *Panorpa* Scorpionflies and a General Rape Hypothesis. *Animal Behaviour* 28:52–59.

Thornhill, Randy, and Nancy Thornhill
1991 The Evolutionary Psychology of Men's Coercive Sexuality. *Behavioral and Brain Sciences*, in press.

Trivers, Robert
1972 Parental Investment and Sexual Selection. In *Sexual Selection and the Descent of Man 1871–1971*, B. Campbell, ed. Pp. 136–179. Chicago: Aldine.
1985 *Social Evolution*. Menlo Park, California: Benjamin Cummings.

Tuana, Nancy, ed.
1989 *Feminism and Science*. Bloomington: Indiana University Press.

Wade, M. J., and S. J. Arnold
1980 The Intensity of Sexual Selection in Relation to Male Sexual Behaviour, Female Choice, and Sperm Precedence. *Animal Behaviour* 28:446–461.

Walker, Alice
1983 *In Search of Our Mothers' Gardens: Womanist Prose*. San Diego: Harcourt, Brace Jovanovich.
1989 *The Temple of My Familiar*. San Diego: Harcourt, Brace Jovanovich.

Williams, George C.
1966 *Adaptation and Natural Selection: A Critique of Some Current Evolutionary Thought*. Princeton, New Jersey: Princeton University Press.

Wilson, Edward O.
1975 *Sociobiology: The New Synthesis*. Cambridge: Harvard University Press.

Wolf, Naomi
1991 *The Beauty Myth: How Images of Beauty Are Used against Women*. New York: William Morrow.

Woolf, Virginia
1938 *Three Guineas*. New York: Harcourt Brace and World.

Zahavi, Amotz
1975 Mate Selection—A Selection for a Handicap. *Journal of Theoretical Biology* 67:603–605.

Zuk, Marlene, Kristeen Johnson, Randy Thornhill, and J. David Ligon
1990 Mechanisms of Female Choice in Red Jungle Fowl. *Evolution* 44:477–485.

Zuk, Marlene, Randy Thornhill, J. David Ligon, Kristeen Johnson, Steve Austad, Sandra H. Ligon, Nancy W. Thornhill, and C. Costin
1990 The Role of Male Ornaments and Courtship Behavior in Female Mate Choice of Red Jungle Fowl. *American Naturalist* 136:459–473.