

Comment

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Incompatible With Evolutionary Theorizing

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Eagly and Wood (June 1999) argued that social structural theory can explain the origin of psychological sex differences. Several conceptual problems, however, render the theory implausible. In this comment, we address two of these problems.

First, Eagly and Wood (1999) maintained that it "would be inappropriate to conclude that the social structural approach is incompatible with the general perspective of evolutionary theorizing. Social structural analyses suggest an evolved organism" (p. 409). Although the social structural approach acknowledges that evolution has shaped morphological similarities and differences (e.g., men's greater size and strength as compared with women's), as well as psychological similarities (e.g., the capacity for language), between the sexes, the approach denies that evolution has played a role in the origin of psychological differences between the sexes. By limiting the realms within which evolution can shape the human organism, social structuralists invoke a variant of Cartesian dualism. Whereas Descartes advocated a mind/body dualism, social structuralists advocate a "mind-differences/everything-else" dualism. Ac-

ording to this dualistic argument, psychological differences between the sexes are a product of the differing placement of women and men in the social structure; however, psychological and morphological similarities between the sexes, as well as morphological differences, are allowed to be a product of evolution. Why are psychological sex differences unique in their immunity to natural selection? Social structuralists' dualistic interpretation of the origin of human traits is untenable and results from a misunderstanding of what drives the evolution of adaptations.

An adaptation is an "inherited and reliably developing characteristic that came into existence as a feature of a species through natural selection because it helped to directly or indirectly facilitate reproduction during the period of its evolution" (Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998, p. 535). Human adaptations are solutions to the problems of survival and reproduction that our ancestors faced recurrently over evolutionary history (e.g., finding food, choosing a mate). Moreover, many adaptations are domain specific: Different adaptive problems tend to require different adaptive solutions (Tooby & Cosmides, 1992).

To support the view that social structural theory suggests an evolved organism, Eagly and Wood (1999) mentioned that both men and women possess the language facility. Correct they are, because both sexes faced the adaptive problem of communicating information, and research supports the hypothesis that humans possess psychological mechanisms designed to solve that problem (e.g., see Pinker, 1994). In domains in which men and women faced different adaptive problems, however, natural selection designed sex-specific psychological solutions. By proposing that evolution has not designed psychological differences between the sexes, social structuralists imply that men and women have not faced different adaptive problems over human evolutionary history. This is simply wrong.

For example, men, but not women, have recurrently faced the adaptive prob-

lem of parental uncertainty. Because fertilization occurs within women, pregnant women have always been 100% certain of their maternity. However, men have always been less than 100% certain of their paternity, because internal fertilization leaves open the possibility of impregnation by a rival. Men, but not women, have thus faced the adaptive problems of avoiding cuckoldry and the resulting investment in a rival's child. Therefore, men, but not women, should have psychological mechanisms designed to solve the adaptive problem of parental uncertainty. A substantial amount of empirical research supports this hypothesis (Buss, 1994). Similarly, adaptive problems faced by women, but not men, have led to the evolution of psychological mechanisms in women to solve those problems. For example, women have faced the adaptive problem of avoiding the ingestion of teratogens that harm a fetus. Therefore, women, but not men, should have psychological mechanisms designed to avoid the ingestion of potentially toxic foods during pregnancy. Empirical research supports this hypothesis (Profet, 1992). Social structuralists' contention that humans do not have evolved psychological sex differences is implausible, because their implicit assumption that the sexes have not faced different adaptive problems over evolutionary history is not true.

Second, in addition to their theoretical misunderstandings, social structuralists neglect empirical evidence supporting the hypothesis that behavioral sex differences are mediated by hormonal influences. Studies of girls with congenital adrenal hyperplasia (CAH), or excess levels of androgens, demonstrate the influence of hormones on sex-specific cognition and behavior. Compared with unaffected girls, girls with CAH exhibit more aggressive and tomboyish behavior, a robust preference for automobile toys over dolls, and an uncharacteristic lack of interest in caring for infants (Berenbaum & Hines, 1992; Collaer & Hines, 1995). These results support an evolutionary explanation of psychological sex differences: Cognitive, mo-

tivational, and behavioral sex differences have been shaped by sexual selection and are mediated by hormonal influences. Can social structural theory explain why, in the face of comparable socialization practices, different hormone levels are associated with different psychological preferences in two groups of girls? Moreover, cases of misassigned gender roles pose a problem. Can social structural theory explain why individuals adopt the roles of one gender after being raised initially as the other (Imperato-McGinley, Peterson, Grautier, & Sturla, 1980)?

In conclusion, social structural theory is not compatible with the general perspective of evolutionary theorizing, because it is predicated on a dualistic conceptualization of the origins of human traits. The theory also fails to account for evidence that psychological differences, in the face of comparable socialization practices, are mediated by hormones. Social structural theory is thus an implausible explanation of the origin of psychological sex differences.

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The Darwin Is in the Details

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Ever since Bishop Wilburforce asked Darwin's cousin about the side of his family on which he claimed descent from an ape, evolutionary theorists have been harangued with eloquently uninformed critiques (Kenrick, 1995). Eagly and Wood (June 1999) provided a rare and welcome exception: a data-based challenge by researchers making an effort to understand evolutionary hypotheses. Unfortunately, as well-meaning students learn in difficult courses and as well-meaning researchers learn in analyzing data, slight misunderstandings can compound into very wrong conclusions. In this comment, we examine three examples of such misunderstandings in Eagly and Wood's article.

Evolutionary Models of Sex Differences Are Based on a Much Broader Foundation Than Eagly and Wood (1999) Imply

Eagly and Wood (1999) suggested that evolutionary hypotheses about sex differences balance on thin speculations regarding ancestral human environments. But those hypotheses instead stand on solid principles of sexual selection and differential parental investment—principles founded on thousands of observations spanning the animal kingdom. Any birding guide reveals that when the sexes differ in coloration or display, male birds are usually gaudier, more vocal, and more territorially aggressive. According to parental investment theory, as either sex increases parental investment, it becomes more selective about mates, and the other sex consequently becomes more intrasexually competitive. Because female birds' minimal investment is a large egg, they comparison shop among male birds, who compete to be chosen. There are exceptions, like phalaropes, with the females being the more colorful and competitive sex of the species. However, these exceptions confirm the rule: Phalaropes are raised by their fathers, while their mothers move on to other mates.

Humans are obviously influenced by

norms, and these clearly vary across cultures. However, women's greater attraction to social dominance not only parallels the expected pattern in species with high female parental investment but also accompanies many other cross-species sex differences that fit elegantly into an evolutionary framework. In species with differential parental investment, for example, males are more intrasexually competitive and aggressive (Geary, 1998). Across societies, men have always killed one another substantially more than have women (Daly & Wilson, 1988). Many other data support this nomological network, including findings linking hormones such as testosterone and estrogen to sex-role behaviors in nonhuman species (e.g., Mazur & Booth, 1998). Human social role assignments cannot explain many of the interconnected details.

Subtle but Important Details of Age Preferences in Mates Favor Evolutionary Over Role Perspective

Eagly and Wood (1999) misconstrued previous age preference findings as supporting the "common knowledge" that men prefer younger women. If men's preferences were indeed so simple, that would be consistent with either the evolutionary view that men seek fertility or the socio-cultural view that older men and younger women fit "the culturally expected pattern of breadwinner and homemaker" (Eagly & Wood, 1999, p. 415). Because younger women generally have less income, status, and education than their older mates, Eagly and Wood reasoned, traditional age discrepancies facilitate the norm-driven "power gap." They dismissed a potential problem with this explanation: "Although Kenrick and Keefe (1992) showed that teenage boys prefer girls of similar age, this tendency is most likely a product of the lower age limits that exist for culturally and maturationally appropriate partners" (p. 416). Unfortunately, this is an incorrect characterization of this literature, which instead showed that men in their 20s are interested in women up to five years older than they are and that teenage boys are attracted to women up to seven years older than they are (cf. Kenrick, Gabrielidis, Keefe, & Cornelius, 1996). For example, an average 16-year-old boy is attracted to women ranging in age from 15 to 24 years and views women in their 20s as relatively more attractive than similarly aged mates. Contrary to the presumed norm, only men above the age of 30 are disinterested in women older than themselves. Have teenage boys failed to learn sex-role norms?