cess calories as visceral or gynoid fat, with male choice selecting for gynoid fat and a low WHR and the energy demands of day-to-day living selecting for visceral fat. The dynamic results in a trade-off that pushes the female WHR away from .70 but maintains it below that typically found in men.

Second, sexually antagonistic coevolution can also result in a cost to the physical attractiveness or fecundity of one sex while benefiting the other. For example, alleles on the same genetic loci that make males more masculine and thus preferred as mates may be costly to females, leading to more masculine and thus less attractive traits. Despite the costs to one sex, such alleles are maintained through the reproductive benefits conferred to the other. Sexually antagonistic loci are highly polymorphic, suggesting that neither sex consistently "wins" coevolutionary contests (Rice & Chippindale, 2001). Along with the trade-offs mentioned previously, sexually antagonistic coevolution (an example of interindividual trade-offs) may help explain why female WHRs vary from .70.

We agree with Confer et al. (2010) that homosexuality represents an evolutionary mystery that is unlikely to be explained as a mismatch between ancestral and modern environments. However, sexually antagonistic selection may provide a partial explanation. In a test of the hypothesis that genes that increase the fitness of daughters may reduce the fitness of sons, Camperio-Ciani, Corna, and Capiluppi (2004) analyzed the fertility of 4,600 relatives of 98 homosexual and 100 heterosexual men (see also Camperio-Ciani, Cermelli, & Zanzotto, 2008). As predicted, the female relatives of homosexual men had more children than the female relatives of heterosexual men, but only for the maternal side of the family. Male homosexuals reported that 5.5% of their male relatives on their maternal side were homosexual, as compared with 2% on their paternal side; male heterosexuals reported no male homosexuals on their maternal side and 1.3% on their paternal side. The pattern suggests at least one X-linked locus possessing alleles that increase women's fertility but that may—in combination with other factors—also increase the frequency of homosexuals among their brothers and in other males that carry the allele. These alleles will persist in the population as long as the increase in women's fecundity outweighs the reduced fecundity of their brothers. Although these results are preliminary, they do provide an evolutionarily informed and empirically testable means to study the seeming paradox of exclusive male homosexuality.

In conclusion, we iterate our appreciation of Confer et al.'s (2010) fair and lucid discussion of common misconceptions of evolutionary psychology. However, we argue that a productive evolutionary psychological method must involve the consideration of trade-offs in the evolution and expression of adaptive traits, as is the norm in evolutionary biology (Stearns, 1989).

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Oversimplifying Evolutionary Psychology Leads to Explanatory Gaps

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The Confer et al. (February–March 2010) article is the latest in a series of oversimplified claims generally enumerated by sexual strategies theory (SST; Buss, 1998), which is only one type of evolutionary account (see Kenrick, Li, & Butner, 2003, for another). Confer et al. (2010) argued that SST cannot explain the existence of either homosexuality or suicide within the human species. We contend that a sufficiently nuanced evolutionary position has no difficulties explaining either phenomenon. It is important to note that Confer et al.'s (2010) reliance on SST also means that their analysis is a functionalist account of evolution (see Buss, 1998). In this account, it is assumed that all psychological functioning must serve survival and reproduction. However, since evolution *selects against* certain qualities (it does not *select for* qualities, as it is commonly, but incorrectly, described), two types of qualities should remain intact for any species: (a) those that facilitate survival and reproduction and (b) those that do not impede survival and reproduction at the population level.

The Confer et al. (2010) article tacitly assumes that all human psychology is equally influenced by evolutionary processes because *some* effects appear to be explained by an evolutionary account. Yet Confer et al. regularly underestimated the multidetermination of some human thoughts, feelings, and behaviors without sufficient evidence. Furthermore, it is sensible to frame evolutionary processes as existing within a scientific framework of "stepwise contributions." In this stepwise framework, evolutionary processes may be the only clear explanation of *some* observed effects within human psychological functioning, but in other cases, evolutionary processes may be only the first step in the explanation. Importantly, this stepwise framework intimates that evolutionary processes may largely code from similarity in human psychological functioning. One way to account for differentiation in psychology would be to argue that sociocultural, psychosocial, and experiential processes (which often affect physiology) converge or act independently to create differences between individuals and groups.

Take two empirical examples to illustrate this stepwise framework. In one investigation, Matsumoto and Willingham (2009) examined whether human facial expressions of basic emotions (e.g., happiness, anger) resulted from some species-typical biological endowment (an evolutionary explanation) or were the result of socially learned behavior. Matsumoto and Willingham compared sighted judo competitors at the 2004 Olympic Games to congenitally blind and noncongenitally blind judo competitors at the 2004 Paralympic Games. The results showed near-

perfect concordance among all groups (irrespective of vision status) in terms of the muscle striations and contractions that produced the facial expression of these emotions (Matsumoto & Willingham, 2009). Thus, it appears that basic emotions are generated by evolutionary processes and require no further "step" in terms of explaining their origin.

In another investigation, Tate (2010) examined whether the desired number of sexual partners over a lifetime is more influenced by self-reported sex (a presumed evolutionary variable) or gender stereotype endorsement. Across three studies, Tate showed that psychosocial gender conceptions in the United States accounted for more variance in participants' desired number of sexual partners than did self-reported sex. Importantly, Tate (2010, Study 3) showed that endorsement of feminine gender stereotypes had the same magnitude of negative correlation with desired number of sexual partners for both men and women. Tate's results suggest that evolutionary processes may be the first step in explaining the desired number of sexual partners. Evolutionary variables may set initial desires that are similar across genders. However, in another step, cultural stereotypes and one's personal endorsement of them create the observed differences in this outcome.

From this stepwise framework, homosexuality and suicide are no longer problems for an evolutionary account. Homosexuality is easily explained as a phenomenon that does not affect reproduction at the population level and is therefore not selected against. Empirically, one would expect that homosexuality has a low incidence, which can be shown by demographic studies in the United States: for instance, at a rate of 2%–6% (Diamond, 1993). Of course, showing that homosexuality does not affect reproduction at the population level does not answer the question of how same-sex attraction arose in the first place. Havelock Ellis (1905, p. 314) provided a potential answer that he claimed Darwin endorsed. Ellis argued that humans might be fundamentally "bisexual" in their sexual attraction. Updating Ellis's account, we propose that human genetics may code for a conspecific attraction to all members of the species, or *anthropos*. This anthroposexual attraction could account for heterosexuality, homosexuality, and bisexuality simultaneously. In the stepwise framework, humans would start from the basic step of species-wide attraction to other humans. In what likely involves multiple steps, human attraction would then be differentiated into exclusive heterosexuality, exclusive homosexuality, and also bisexuality by a variety of physiological, sociocultural, psychosocial, and experiential processes. This account can explain diverse phenomena such as the differences in self-reported incidence of homosexuality across cultures as well as historical occurrences of homosexual behavior among certain social classes but not others (e.g., homosexuality in the ancient Greek aristocracy). In short, explaining homosexuality with an evolutionary account is only difficult if that account assumes that everyone must be heterosexual.

In terms of explaining suicide, the Confer et al. (2010) argument again stumbles on its implicit assumption that every behavior has to be functional or *selected for*. Smirnov, Arrow, Kennett, and Orbell (2007) argued that heroism—self-sacrifice for a group's benefit—is consistent with an evolutionary perspective. The Smirnov et al. argument recognizes the importance of population outcomes, allowing individuals to contribute to or not impede those outcomes. The reasons given for attempted suicide also feature self-sacrificing for the group's benefit (Joiner et al., 2009). Although heroism and suicide have different social meanings and consequences, both may emanate from the same psychological source—the ability to overcome self-preservation. Again, a second step consisting of psychosocial, sociocultural, and experiential (including physiological) factors is needed to adequately describe cross-cultural and individual variability. Nonetheless, the tenor of the argument is the same: Evolution may code for similarity (self-preservation) across the species, and other factors create the observed differences between individuals within that species.

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Trade-Offs, Individual Differences, and Misunderstandings About Evolutionary Psychology

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We appreciate the thoughtful commentaries on our original article (Confer et al., February–March 2010), the purpose of which was to clarify the logic of evolutionary psychology and clear up some of the more common misunderstandings about it. In this response, we address the key points raised by the commentators.

Evolutionary Trade-Offs and Individual Differences

We are delighted that Winegard, Bailey, Oxford, and Geary (2010) found our article to be useful in clarifying many misconceptions about evolutionary psychology, and we hope that other readers share that view. Furthermore, we agree with the main thrust of their commentary—the importance of evolutionary trade-offs, both as a set of causal processes (e.g., sexually antagonistic selection) and products of those processes (e.g., appar-