Commentary

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A Preregistered Study of Competing Predictions Suggests That Men *Do* Overestimate Women's Sexual Intent

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Errors in perception and judgment are inevitable, but some errors have greater costs than others. Consequently, evolution may bias cognition toward the less costly error (error-management theory; Haselton, Nettle, & Murray, 2015). For example, some researchers have claimed that men typically overestimate women's sexual interest (Haselton & Buss, 2000) because it was less costly to men's inclusive fitness for them to infer sexual interest that was absent (overperception) than to overlook sexual interest that was present. Other researchers, however, have argued that evolution should bias behavior but not perception or judgment (e.g., McKay & Efferson, 2010). Following in this tradition, Perilloux and Kurzban (2015) hypothesized that men's apparent overperception of female sexual interest is an artifact of women understating their own (and other women's) sexual interest, and that men accurately perceive sexual interest. According to this hypothesis, the gender difference in ratings of female sexual interest is not evidence of a male cognitive bias after all.

Perilloux and Kurzban reported results from three studies to support this argument. The results of the first two studies are consistent with previous research. In the critical third study, female participants estimated other women's sexual intentions (i.e., the likelihood that they intended to have sex with a man) when they engaged in various romantic behaviors with him (e.g., holding hands). Participants were asked to estimate both what other women say their sexual intentions are ("say" question) and what their sexual intentions actually are ("want" question) when they engage in these behaviors. The results indicated that participants thought other women say their sexual intentions are less than what they actually are, which led Perilloux and Kurzban to conclude that males' sexual perceptions are accurate rather than inflated.

We question this conclusion because their finding may be the combined product of question order and Gricean (Grice, 1975) language norms. Because participants were asked the "want" question after the "say" question, they might have concluded that the experimenter expected different responses to the second question (Grice, 1975). If the participants also believed that women are more likely to be coy than otherwise, they would then have given higher ratings for the "want" question than for the "say" question. One way to distinguish Perilloux and Kurzban's interpretation from this Gricean interpretation is to reverse the question order. A Gricean interpretation predicts that women responding to the "say" question first and women responding to the "want" question first would respond identically, as they would be indicating their beliefs about what other women want. Only when one question is asked after the other would women differentiate their responses to them. In contrast, if Perilloux and Kurzban are correct, question order should be irrelevant.

To investigate these competing possibilities, we conducted a preregistered experiment (see www.osf.io/5tejq/) with an online sample of women and varied the order in which Perilloux and Kurzban's questions were asked. We predicted that responses to the "say" and "want" questions would be equivalent when they were asked first, whereas Perilloux and Kurzban confirmed their prediction that ratings for the "want" question would be higher than ratings for the "say" question regardless of the order of the questions (personal communication, April 19, 2016).

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Method

A detailed description of the method and analyses is presented in the Supplemental Material available online; we provide a brief overview here.

We recruited 414 heterosexual women living in the United States (mean age = 37.7 years) through Amazon Mechanical Turk. All participants completed Perilloux and Kurzban's dating-behaviors scale three times. First, they reported their own sexual intentions if they engaged in 15 different romantic behaviors (e.g., "If you held hands with him, how likely is it that you intend to have sex with him?"). The response scale ranged from 1 (*extremely unlikely*) to 7 (*extremely likely*).[1] The 15 behaviors appeared in a fixed order for all participants. The next two times participants completed the scale, they indicated what they believed other women would say their sexual intentions are when they engage in each of the 15 behaviors and what they believed other women actually want when they engage in those behaviors. Some participants answered the "say" question first (the same order as Perilloux and Kurzban used), and others answered the "want" question first. Participants could see, but not change, their responses to previous questions (see Figs. SA1–SA3 in the Supplemental Material).

Results and Discussion

We replicated Perilloux and Kurzban's results, as participants gave significantly lower ratings when they reported what other women say their sexual intentions are than when they reported what other women actually want. This pattern was found both for participants who answered the questions in the same order as in Perilloux and Kurzban's study (i.e., "say" question first) and for participants who completed the questions in the reverse order. A mixed-model analysis of variance revealed a significant interaction between the order of the questions ("say" question first vs. "want" question first) and question type ("say" vs. "want"), $F(1, 412) = 43.43$, $p < .001$. Simple-effects analyses revealed that this interaction was consistent with our preregistered hypotheses: As shown in Figure 1, ratings for the "say" and "want" questions were equivalent when these questions were asked first, $t(412) = 0.66$, $p > .25$, Bayes factor favoring the null hypothesis (BF_{01}) = 7.43, 95% confidence interval (CI) of the difference = [–0.12, 0.25]. Only when participants were asked a follow-up question did they adjust their answers. This adjustment was upward if they were next asked what women actually want, $t(206) = 3.67$, 95% CI of the difference = [0.08, 0.27], $d_z = 0.26$, $p < .001$, and downward if they were next asked what women say, $t(206) = -5.71$, 95% CI of the difference = [–0.35,–0.17], $d_z = 0.40$, $p < .001$. These results support the hypothesis that women's differential responses to the "say" and "want" questions in Perilloux and Kurzban's study were driven by question-order effects and language conventions, rather than by women's chronic underreporting of their sexual intentions. (See the Supplemental Material for detailed analyses and findings, a conceptual replication in an exploratory sample, and results of exploratory questions examining why women might act more or less sexually interested.)

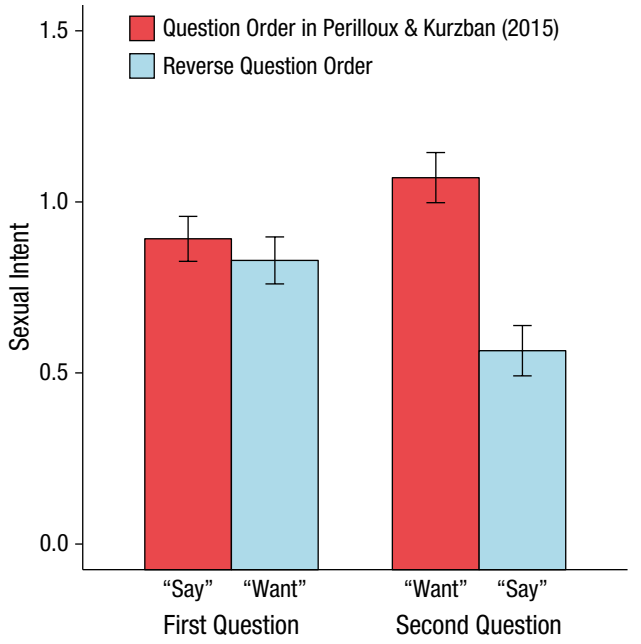

Fig. 1. Participants' mean estimates of what other women say their sexual intentions are and what they actually want, as a function of the order in which these questions are asked (see note 1). Error bars represent ±1 *SE*.

Perilloux and Kurzban asserted that evolution should shape men to accurately assess women's sexual intent, but should bias men's behavior to pursue sexual opportunities even when there is a low likelihood of success. Perilloux and Kurzban noted that biased beliefs have costs, so it is beneficial to bias only behavior. Although this is a reasonable argument, data and theory are inconsistent with it. For example, people tend to judge incoming objects to be moving faster than outgoing objects (Neuhoff, 2001) and dangerous spiders to be moving faster toward them than innocuous rubber balls are (Witt & Sugovic, 2013). People also judge a hill as steeper when they are standing at the top rather than at the bottom (Proffitt, Bhalla, Gossweiler, & Midgett, 1995), and fearful people at the top of a hill judge it to be steeper when they are standing on a skateboard rather than on a wooden box (Stefanucci, Proffitt, Clore, & Parekh, 2008). Similarly, men holding dangerous objects tend to seem angrier than men holding harmless objects (Holbrook et al., 2014). In each case, evolution could have biased only behavior, but instead appears to have biased perceptual judgments.

So why would evolution bias judgment and belief? Theory suggests that biased beliefs can make people more effective in their behaviors (Trivers, 2000, 2011; von Hippel & Trivers, 2011). Overperception of sexual interest makes men overconfident in their interactions with women, and this overconfidence can lead women to perceive men more positively (cf. Anderson, Brion, Moore, & Kennedy, 2012) and can deter male rivals (Murphy et al., 2015). Consequently, men who overperceive sexual interest may be more romantically effective than men who do not (Haselton & Buss, 2009). Although biased beliefs carry costs, their benefits may ultimately outweigh these costs.

Action Editor

D. Stephen Lindsay served as action editor for this article.

Author Contributions

All the authors contributed to the study's design and theoretical framing. S. C. Murphy carried out the data collection. S. C. Murphy and D. R. Murray carried out the data analyses. M. G. Haselton, S. C. Murphy, D. R. Murray, and W. von Hippel drafted the manuscript, and R. Trivers provided further revisions. All the authors approved the final version of the manuscript before submission.

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Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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Supplemental Material

Additional supporting information can be found at http://journals.sagepub.com/doi/suppl/10.1177/0956797616675474

Open Practices

All data and materials have been made publicly available via the Open Science Framework and can be accessed at osf.io/5tejq/. The design and analysis plans were preregistered at the Open Science Framework and can also be accessed at osf.io/5tejq. The complete Open Practices Disclosure for this article can be found at http://journals.sagepub.com/doi/suppl/10.1177/0956797616675474. This article has received badges for Open Data, Open Materials, and Preregistration. More information about the Open Practices badges can be found at http://www.psychologicalscience.org/publications/badges.

Note

1. Perilloux and Kurzban's rating scale was from −3 to +3. For ease of comparison between their study and ours, we subtracted 4 from the scores we report.

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