If a single deontic reasoning system handles deontic social contracts and deontic precautions, then performance on both should be impaired by neural damage to that system. But if they are handled by two distinct neurocognitive systems, as predicted by SCT and HMT, then neural trauma could cause a dissociation. Buller's hypothesis fails again: focal brain damage can selectively impair social contract reasoning while leaving precautionary reasoning intact [5]. This dissociation *within* the domain of deontic rules has recently been replicated using neuroimaging [6].

Interpretations of social contract rules track SCT's domain-specialized inference procedures: in [8], we refuted Buller-style logic explanations of social contract results for perspective change, switched rules, and 'wants' problems – facts he fails to mention, let alone discuss. Buller's systematic inattention to large bodies of findings that conflict with his assertions is not due to lack of space in TICS – the pretence that these findings do not exist pervades his book, and its treatment of many areas of evolutionary psychology. (For further analysis, see www.psych.ucsb.edu/research/cep/buller.htm)

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The evolution of jealousy

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Two decades ago, mainstream psychologists explained jealousy as a pathology, social construction, or by-product of capitalist society, manifested identically in men and women [1]. Evolutionary psychologists, in contrast, hypothesized that jealousy is an evolved adaptation, activated by threats to a valuable relationship, functioning to protect it from partial or total loss [2–4]. Because the reproductive consequences of infidelity and partner loss are parallel for men and women in some respects, and asymmetric in others, the sexes were predicted to have similar psychologies in some respects, and different psychologies where their adaptive problems recurrently diverged. This program initially focused on a few core design features of jealousy, but has since expanded to study many more.

Sexual *similarities* include the following. Jealousy (i) is an emotion designed to alert an individual to threats to a valued relationship, (ii) is activated by the presence of interested and more desirable intrasexual rivals, and (iii) functions, in part, as a motivational mechanism with *behavioral output* designed to deter 'the dual specters of infidelity and abandonment' ([1], p. 35). (iv) '[B]oth sexes are hypothesized to become distressed over sexual and emotional infidelity' because both forms of infidelity provide important cues to the loss of reproductively valuable resources ([4], p. 251). When there is a discrepancy in mate value, (v) the lower-value partner will experience more intense jealousy [1].

There are at least 13 distinct hypothesized *sex-differentiated* design features, and 13 out of 13 have been confirmed empirically. Men and women differ psychologically in the weighting given to sexual and emotional cues that trigger jealousy, such that (i) *men more than women* become upset at signals of sexual infidelity, which portend both paternity uncertainty and loss of reproductive resources to a rival; and (ii) *women more than men* become upset at signals of a partner's emotional infidelity, which threaten a loss of commitment and resources to a rival [1,5].

When jealousy is activated by interlopers, (iii) women become especially distressed by threats from physically attractive rivals, whereas (iv) men become especially distressed by rivals with more resources [6]. Within

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committed mateships (v) men paired with physically attractive women exhibit elevated jealous mate-guarding, whereas (vi) women paired with more resource-endowed men exhibit more jealous mate-guarding [7]. (vii) Near ovulation – the critical window in which a man's paternity probability is compromised by a partner's sexual infidelity – men increase jealous mate-guarding [8].

Cognitively, relative to women, (viii) men preferentially process, and (ix) show greater memory recall of cues to sexual infidelity [9]. Relative to men, (x) women preferentially process, and (xi) show greater memory recall of, cues to emotional infidelity [9]. Upon discovery of infidelity, relative to women, (xii) men will find it more difficult to forgive a sexual infidelity than an emotional infidelity, and (xiii) will be more likely to terminate a current relationship following a partner's sexual infidelity than an emotional infidelity [10].

Both in his article [11] and book, with 45 pages devoted to jealousy, Buller ignores 11 of the 13 hypothesized sex-differentiated design features. He rejects the hypothesis that jealousy is an adaptation with sex-differentiated design features by attempting to discredit two of them (i and ii). Egregiously, he misrepresents even these. He claims that the theory predicts that men 'respond primarily to cues of sexual infidelity' and women 'primarily to cues of emotional involvement'. Unfaithfulness is linked, of course, to a variety of fitness consequences, including paternity uncertainty (for men) and the total loss of a valuable partner. Whether these consequences follow depends on many factors. Thus, Buss *et al.* [4,5] were careful to state the prediction not in terms of absolute levels of jealousy, which are affected by many factors external to the hypothesis, but rather in *sex differences in sensitivities* to different forms of infidelity [4,5]. All the cross-cultural evidence Buller cites actually supports the *properly-framed* original hypotheses of sex differences, although not Buller's mischaracterized versions.

A scientific evaluation of evolutionary hypotheses about jealousy requires an accurate characterization of the many hypothesized design features *and* a proper review of the large body of empirical findings pertinent to each. Buller's article and book fail on both counts. Buller's distorted depictions of others' hypotheses, and his failure to inform readers about numerous studies that contradict his claims, do not advance the science of the mind.

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The 'Cinderella effect' is no fairy tale

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In his polemic against 'evolutionary psychology', philosopher David Buller [1] tries to discredit not just its practitioners' theories, but their research findings as well, including our discovery that stepchildren are disproportionately mistreated. His denial of this abundantly verified 'Cinderella effect' (see http://psych.mcmaster.ca/dalywilson/research.html) goes beyond reasonable skepticism.

On the basis of comparative evidence and consideration of how natural selection works, we proposed long ago that step-parents might be overrepresented as child abusers, and analyzed US data, which confirmed the hypothesized overrepresentation [2]. Buller asserts that 'the principal evidence cited in support' of this hypothesis is one city-level study of non-lethal abuse [3]. In reality, there are now dozens of confirmatory studies.

In one striking example, we reported that the rate of fatal beatings of Canadian preschoolers by (putative) genetic fathers between 1974 and 1990 was 2.6 per million children at risk per annum, whereas the corresponding rate for stepfathers was 321.6 per million [4]. Without acknowledging their magnitude, Buller dismisses such differences as possible artifacts of a recording bias in official records. This conjecture would require that every Canadian preschooler's death that was considered

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