Threat simulation, dreams, and domain-specificity

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Abstract: According to Revonsuo, dreams are the output of a evolved "threat simulation mechanism." The author marshals a diverse and comprehensive array of empirical and theoretical support for this hypothesis. We propose that the hypothesized threat simulation mechanism might be more domain-specific in design than the author implies. To illustrate, we discuss the possible sex-differentiated design of the hypothesized threat simulation mechanism.
[REVONSUO]

REVONSUO proposes that dreaming is the output of an evolved "threat simulation mechanism." According to the author's argument, the hypothesized mechanism was selected for because ancestral humans whose psychology included this mechanism experienced dreams in which threats were simulated and thereby more efficiently and effectively dealt with in waking life. Those early humans who had dreams in which threats to survival and reproductive success were simulated were better able to solve similar classes of threats in waking life and, therefore, out-reproduced conspecifics whose psychology did not include the threat simulation mechanism. We appreciate this argument, and believe that REVONSUO has done an excellent job of synthesizing an impressive array of empirical and theoretical support for the argument. We propose, however, that the hypothesized threat simulation mechanism is more domain-specific than the author presents.

The hypothesized threat simulation mechanism may be too domain-general. According to REVONSUO, dreams serve as a means for the dreamer to rehearse events that would have threatened survival or reproductive success in ancestral environments. The author proposes two primary threatening events or episodes – one in which the dreamer is being chased or attacked by an unfamiliar adult male, and one in which the dreamer is being chased or attacked by a wild and dangerous animal. REVONSUO provides sound theoretical arguments why unfamiliar adult males and wild animals were key threats to ancestral humans and, therefore, why they are prominent in the self-reported dreams of modern humans. We believe this is an excellent starting point for an evolutionary psychological analysis of dreams. We propose, however, that the threat simulation mechanism that generates dreams may be far more domain-specific. Instead of generating general threat dreams that include the two key events proposed by REVONSUO, we suggest that perhaps the dreams of modern humans might reveal greater domain specificity. Might the threat simulation mechanism generate dreams that are more specific to the adaptive problems faced recurrently by humans over human evolutionary history? For example, might the threat simulation mechanism generate different classes of threatening dreams when it is operating in a child living with one stepparent and one genetic parent than when it is operating in the psychology of a child who lives with two genetic parents (see Daly & Wilson 1996)? As another example, might the threat simulation mechanism generate different classes of threat scenarios when it is operating in male psychology than in female psychology? We discuss the latter example in the remainder of this commentary.

Is the threat simulation mechanism sex-differentiated? An overwhelming collection of theoretical and empirical work suggests that males and females faced different adaptive problems recurrently over human evolutionary history (see Buss 1994, for a review). For this class of adaptive problems, modern evolutionary psychologists expect the evolution of sex-differentiated psychological mechanisms. One such adaptive problem recurrently faced by ancestral humans is a long-term partner's infidelity. Because fertilization occurs internally to females, females always can be certain that they are the genetic parent of any offspring they produce. Males, in contrast, never can be certain that they are the genetic parent of the

offspring produced by their partner. Males, but not females, risk cuckoldry – unwittingly investing in offspring to whom they are genetically unrelated. Although both sexes are upset by a partner's infidelity, males are more upset by a partner's sexual infidelity than by a partner's emotional infidelity – infidelity in which resources such as social support and material wealth are channeled to another person. Females, in contrast, are more upset by a partner's emotional infidelity, which places them at risk of losing to another woman the investment their partner would otherwise channel to them and their children (see Buss 2000, for a review of this work).

If the threat simulation mechanism generates dreams that simulate ancestral threats to survival and reproductive success, we propose that sex-differentiated ancestral threats will have selected for a threat simulation mechanism that generates sex-differentiated dreams. The mechanism might be sensitive to and triggered by different classes of infidelity cues when situated in male psychology than when situated in female psychology. Relative to a partner's emotional infidelity, sexual infidelity presented a graver adaptive problem for ancestral males than for ancestral females. We therefore hypothesize that the threat simulation mechanism will generate in males relative to females more dreams about a partner's sexual infidelity. In addition, we hypothesize that dreams about a partner's sexual infidelity will be more upsetting for males than for females. A partner's emotional infidelity presented a graver adaptive problem for ancestral females than for ancestral males. We hypothesize that the threat simulation mechanism will generate in females relative to males more dreams about a partner's emotional infidelity. In addition, we hypothesize that dreams about a partner's emotional infidelity will be more upsetting for females than for males. According to this argument, the threat simulation mechanism is the same in males and in females, but the design features of the mechanism – the class of information that triggers the mechanism, and the output generated by the mechanism, may be sex-differentiated.

In summary, REVONSUO has provided us with a wonderful example of the heuristic value of an evolutionary psychological perspective. The target article significantly advances our understanding of dreams by proposing that dreams are generated by an evolved threat simulation mechanism. Although we find the core of REVONSUO's argument compelling and convincing, we suggest that the hypothesized mechanism may be more domain-specific than the author implies. We propose that the dreams of males will more frequently include a partner's sexual infidelity, whereas the dreams of females will more frequently include a partner's emotional infidelity. In addition, we propose that dreams of a partner's sexual infidelity will be more distressing for males than for females, whereas dreams of a partner's emotional infidelity will be more distressing for females than for males. We hope that future work might investigate the domain-specificity of the hypothesized threat simulation mechanism. We suggest as a starting point the investigation of the possible sex-differentiated design features of this mechanism that might be revealed with an analysis of dreams about a partner's infidelity.

Continued vitality of the Freudian theory of dreaming

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Abstract: A minority position is presented in which evidence will be cited from the Hobson, Solms, Revonsuo, and Nielsen target articles and from other sources, supporting major tenets of Freud's theory of dreaming. Support is described for Freud's view of dreams as meaningful, linked to basic motivations, differing qualitatively in mentation, and wish-fulfilling.
[HOBSON ET AL.; NIELSEN; REVONSUO; SOLMS]