INTEGRATING MULTIPLE LEVELS OF SCIENTIFIC ANALYSIS AND THE CONFLUENCE MODEL OF SEXUAL COERCERS

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ABSTRACT: By transcending traditional disciplinary boundaries and integrating "embedded" levels of scientific analysis, researchers can enhance the value of knowledge derived from each level. We emphasize herein the need to integrate knowledge from evolutionary, genetic, cultural, and developmental levels. Examining how factors emanating from each level interact, and how such interaction shapes individual personality and other characteristics, results in a deeper understanding of the interplay between these critical variables. Such an integrative framework in turn enhances understanding of the more proximate "person by situation" interactional levels that social psychologists often use to analyze behaviors. Unfortunately, there are common misconceptions relating to the use of multi-level approaches, and we address some of them here. Finally, the utility of such integrative approaches is illustrated by a well-supported model of the characteristics of sexually aggressive men. This model incorporates factors traditionally thought to be in opposition and demonstrates that, rather than conflict, they can clarify and amplify each other.

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Various writers from diverse fields have stressed the need to develop behavioral theories that include "vertically integrated,"[1] multiple-level, complementary explanations of ultimate and proximate causes.[2] Research consistent with this theme is, unfortunately, quite rare. The research described in this article seeks to develop such a multi-level approach by designing a theoretical and empirical model of the male characteristics that may lead to sexually coercive acts.

Figure 1 illustrates the critical elements that might be integrated within a relatively comprehensive, multi-level model of behavior. This case focuses on male mating strategies, in which sexually coercive tactics are part of a continuum of behaviors ranging from cooperative to manipulative to coercive. In developing a model of the characteristics of sexual aggressors, the following should be considered: (a) species-wide psychological mechanisms or "mental organs" (evolutionary-based decisionmaking rules or information-processing algorithms);[3] (b) cultural and subcultural variables, such as group-wide belief systems, that have evolved in response to local ecological conditions; (c) individual variability resulting from different calibrations[4] of psychological mechanisms because of genetic and environmental influences; and (d) situational dynamics that affect which potentialities are actually activated and expressed in overt behaviors.

The organization of these levels in Figure 1 illustrates that researchers often consider each level of analysis independently, largely ignoring other levels of analysis. While at times such concentration on a particular level may be desirable or necessary, it may also fail to incorporate critical knowledge from other levels of analysis.[5] Because of these shortcomings, we suggest the framework depicted

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1. Vertical integration, also known as conceptual integration, is "the principle that the various disciplines within the behavioral and social sciences should make themselves mutually consistent, and consistent with what is known in the natural sciences as well. . . . A conceptually integrated theory is one framed so that it is compatible with data and theory from other relevant fields . . . . Such is not the case in the behavioral and social sciences." Leda Cosmides et al., *Introduction: Evolutionary Psychology and Conceptual Integration*, *in* THE ADAPTED MIND 4 (Jerome H. Barkow et al. eds., 1992). This article attempts to integrate information from varied levels of analysis of human behavior, including genetics, evolutionary biology and psychology, developmental psychology, and social psychology.

2. *See generally* JEROME H. BARKOW, DARWIN, SEX AND STATUS: BIOLOGICAL APPROACHES TO MIND AND CULTURE (1989); MARTIN DALY & MARGO WILSON, HOMICIDE (1988); Niko Tinbergen, *On War and Peace in Animals and Man*, 160 SCIENCE 1411 (1968); NIKO TINBERGEN, THE STUDY OF INSTINCT (1951).

3. As indicated below, while an evolutionary approach emphasizes species-wide characteristics, attention also is given to group and individual differences, including gender differences in psychological mechanisms resulting from differences in the adaptive problems faced by our ancestors. *See, e.g.*, David M. Buss & D.P. Schmidt, *Sexual Strategies Theory: An Evolutionary Perspective on Human Mating*, 100 PSYCHOL. REV. 204 (1993).

4. Here, "calibration" refers to relatively long-term alteration in information-processing elements, such as the encoding and decoding of stimuli, which can affect the way individuals respond to their environments.

5. The approach is analogous to one using only "direct main effects" rather than including mediating and moderating factors. For a discussion of these statistical concepts, see R.M. Baron & D.A. Kenny, *The Moderator-Mediator Variable Distinction in Social Psychological Research:*

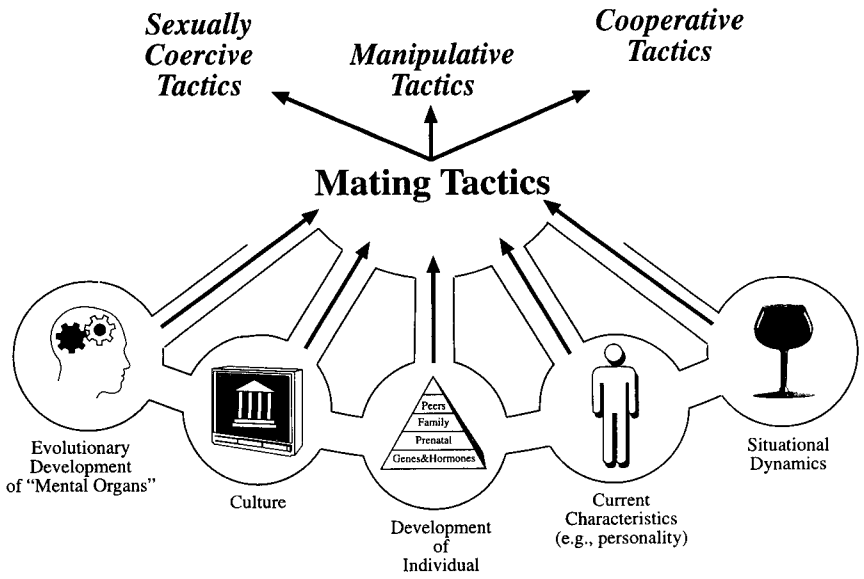

Figure 1. Illustration of various levels of analysis used by researchers. Here each level is considered independently vis-a-vis its influence on the outcome behaviors (i.e., mating tactics).

in Figure 2, which emphasizes the interrelationships and interactions among these levels, with arrows indicating "causal" influences. As one proceeds from bottom to top, the framework suggests that each level's existence and impact on mating tactics is better viewed within the context of the other levels that cause it. For example, the evolved psychological mechanisms or "mental organs" of humans are essential to an understanding of the development of cultures and individuals.[6] In turn, focusing on the interaction between cultural environments and individual histories can greatly enhance analyses of the current characteristics of people and how they select and shape particular situational dynamics. These most proximate levels of analysis encompass the "person by situation" interactional level that personality and social psychologists typically use.

Conceptual, Strategic, and Statistical Considerations, 51 J. PERSONALITY & SOC. PSYCHOL. 1173 (1986).

6. "There is a universal human nature . . . [p]rimarily at the level of evolved psychological mechanisms, not of expressed cultural behaviors. On this view, cultural variability is not a challenge to claims of universality, but rather data that can give one insight into the structure of the psychological mechanisms that helped generate it." Cosmides et al., *supra* note 1, at 5.

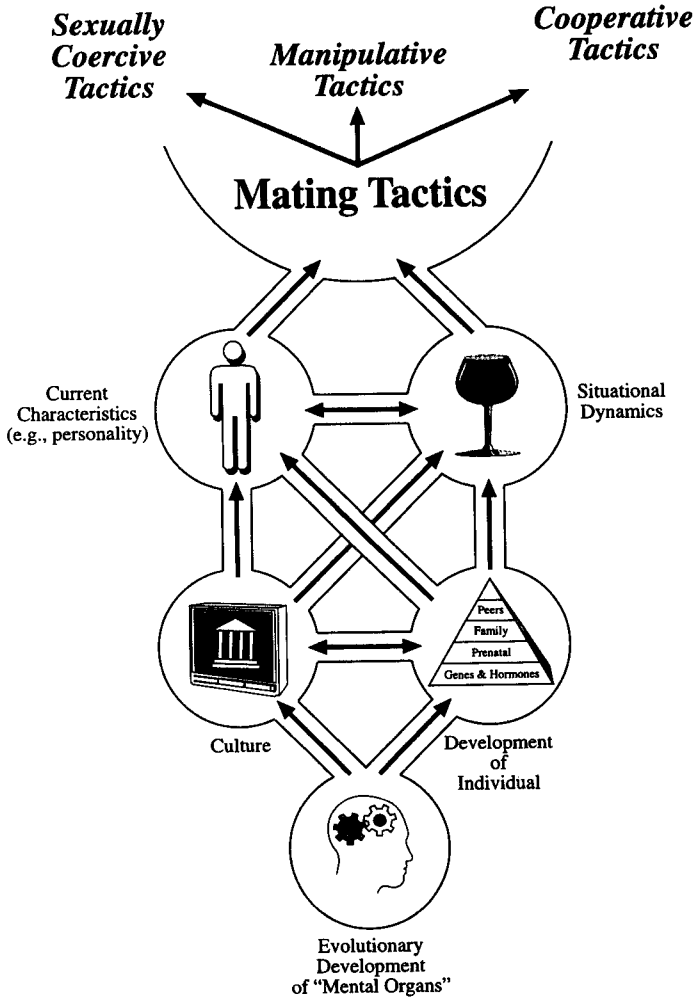

Figure 2. Illustration of various levels of analysis used by researchers embedded within an integrative approach that encompasses the interrelationships and interactions among these analysis levels.

Not only is a multi-level conceptual analytic framework essential to understanding the existence of the other levels, but each level can indicate variables that help explain a behavior not suggested by the other levels. Once identified, the impact of the variables derived from each analytic level becomes more important within the large framework depicted in this figure. We illustrate this approach with a theoretical and a corresponding statistical model, called the

Confluence Model, of the characteristics of sexually coercive men.[7] This model incorporates interactions among variables suggested by each of these levels of analysis, and the analysis of the confluence of factors derived from various analytical and theoretical perspectives may serve as an example for research in other areas as well.

I. EVOLUTIONARY LEVEL OF ANALYSIS

Many social scientists have dismissed the evolutionary approach to sexual aggression due to incorrect interpretations of the implications of such an approach. For example, Gordon Hall writes:

> An implication of the sociobiological model is that sexually aggressive behavior is inevitable. If sexual aggression is based on evolutionary factors, then intervention implications are not clear, other than removing sexually aggressive genes from the gene pool. Perhaps some of the impetus for the current popularity of the sociobiological model is from those who favor permanent removal of sexually aggressive men from society.[8]

Three interrelated misconceptions are encapsulated in this quotation: (a) that genetics and evolutionary psychology are one and the same; (b) that evolutionary psychology or sociobiology[9] establishes that sexual aggression is inevitable; and (c) that evolutionary psychology or genetics necessarily favor some drastic measure antithetical to our social norms.

An evolutionary approach often is confused with genetics. Genetics attempts to understand individual differences in phenotype (observable characteristics) resulting from interactions of genotypes (genetic makeup) and environments. A geneticist need not focus on the history or evolutionary cause of particular genes to determine their current performance. In contrast, evolutionary psychology focuses particularly on species-wide characteristics that affect current behavior through study of the adaptive problems faced by our ancestors that have led to such specific evolved psychological mechanisms or information-processing mechanisms. There could be many competing theories explaining the evolutionary source of any set of genes. Evolutionary theories can be compared with genetic findings to test their veracity, and genetic findings may spark advances in

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7. "Confluence" designates the interactive "flowing together" of factors derived from differing levels of analysis.

8. GORDON C. NAGAYAMA HALL, A THEORY OF SEXUAL AGGRESSION 26 (1996).

9. Sociobiology and evolutionary psychology share some key aspects but differ in important respects. *See* David M. Buss & Todd K. Shackelford, *Human Aggression in Evolutionary Psychological Perspective*, 17 CLINICAL PSYCHOL. REV. 605 (1997). We focus on evolutionary psychology.

evolutionary theory.[10] Nevertheless, evolutionary psychology can be conceptualized without a particular focus on genetics.

A. Evolutionary Processes

According to evolutionary theory, human characteristics evolved through the process of "natural selection."[11] Evolutionary processes do not involve design and planning. Instead, evolution retains those characteristics that led to greater reproductive success, or "fitness." The genes creating the "blueprints" for such characteristics proliferated if they conferred reproductive advantages because carriers outreproduced those who did not have those characteristics.

B. Evolutionary Psychology

Evolutionary psychology applies current knowledge of evolutionary processes to understand the human mind and behavior. The question is not whether evolutionary principles apply to human behavior and the underlying psychology, but which evolutionary model is more accurate.[12] Within the evolutionary framework are various alternative middle-level theories and competing mini-theories (specific evolutionary hypotheses and predictions).[13] To understand the human mind, it is essential to analyze the "mental organs" or psychological mechanisms that evolved in ancestral environments and that guide our emotions, thoughts, and behaviors.[14] They process environmental information and can result in highly flexible behavior. Inherited psychological traits are not behaviors per se, but mental organs that can result in various behaviors.

While the mind is the result of natural selection in ancestral environments, people do not consciously strive to increase fitness.[15] Rather, the "mental organs" that evolved in ancestral environments (and that can be "activated" in current environments) were selected because they once had fitness-favoring consequences. For example, taste buds for sweetness evolved as a way to increase the

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10. There may be considerably more potential for behavioral geneticists to contribute to evolutionary behavioral science than has been realized to date. *See generally* J.M. Bailey, *Can Behavior Genetics Contribute to Evolutionary Behavioral Science?*, *in* HANDBOOK OF EVOLUTIONARY PSYCHOLOGY: IDEAS, ISSUES AND APPLICATIONS 211 (C. Crawford & D.L. Krebs eds., 1998).

11. *See generally* CHARLES DARWIN, THE DESCENT OF MAN AND SELECTION IN RELATION TO SEX (John Murray ed., 1871); CHARLES DARWIN, ON THE ORIGIN OF SPECIES BY MEANS OF NATURAL SELECTION (John Murray ed., 1859).

12. *See generally* Donald Symons, *On the Use and Misuse of Darwinism in the Study of Human Behavior*, *in* THE ADAPTED MIND: EVOLUTIONARY PSYCHOLOGY AND THE GENERATION OF CULTURE 137 (Jerome H. Barkow et al. eds., 1992).

13. *See generally* Buss & Shackelford, *supra* note 9; David M. Buss, *Evolutionary Psychology*, 6 PSYCHOL. INQUIRY 1 (1995).

14. *See generally* Buss & Shackelford, *supra* note 9; Leda Cosmides & John Tooby, *From Evolution to Behavior: Evolutionary Psychology as the Missing Link*, *in* THE LATEST ON THE BEST: ESSAY ON EVOLUTION AND OPTIMALITY 276 (John Dupre et al. eds., 1987).

15. *See generally* JOHN ALCOCK, ANIMAL BEHAVIOR: AN EVOLUTIONARY APPROACH (3d ed. 1984).

likelihood that we would eat scarce substances (such as those in ripe fruit) that enhance health. Today, substances such as processed sugar also activate our sweetness mechanisms, but these substances may be harmful. Creating products such as artificial sweets makes our environments more difficult, but it can work the opposite way. We have created buildings, warm coats, and nutritional guidelines to enable our bodies to live comfortably in environments for which they were not "designed." Likewise, knowledge of our mental mechanisms can help us function more effectively in our social lives.

C. Inevitability of Behavior

The assertion that evolutionary psychology or sociobiology treats sexual aggression as inevitable confuses an evolutionary approach with genetic determinism. Although genes play a role in enabling and limiting the range of all human behaviors, the algorithms underlying human development in different domains differ in the extent to which they are open to influence by environmental conditions. A facultative developmental algorithm is a relatively open mental program that directs development by interacting with the environment, while an obligative developmental algorithm is a mental program that is minimally affected by environmental variations.[16] The genetic contribution to individual differences in different environments is a function of the extent to which the mental programs are facultative or obligative. Facultative developmental programs also may differ in the extent to which certain environmental influences, particularly during critical periods, "fix" mechanisms at certain levels as compared to those psychological mechanisms that remain more flexible to changes throughout the lifespan.[17]

It is very likely that genotypes contribute to individual differences in the psychological mechanisms affecting predispositions toward sexually aggressive behavior.[18] However, "genetic influence does not mean that the environment is

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16. *See generally id.*

17. In recent years, models analyzing the role of the environment and genes have become much more sophisticated than those in earlier analyses. For example, some research has identified the role of environmental factors as mediators of the impact of genetic factors rather than operating independently of them. *E.g.*, D. REISS ET AL., THE RELATIONSHIP CODE: DECIPHERING GENETIC AND SOCIAL PATTERNS IN ADOLESCENT DEVELOPMENT (forthcoming); *see also* D. Reiss, *Mechanisms in Linking Genetic and Social Influences in Adolescent Development: Beginning a Collaborative Search*, 6 CURRENT DIRECTIONS IN PSYCHOL. SCI. 100 (1997). These researchers conclude that their "data strongly suggested that parenting factors and genetic factors account for more or less the same half of the variance in adolescents' antisocial behavior, and in other measures of adjustment as well." *Id.* at 102. Such a finding is exemplified in a situation where genetic factors (inherited from both parents) affect the child's response style—for example, a difficult, combative style—which in turn evokes from the mother considerable negativity toward the child. This negativity from the parent (an environmental factor) then contributes to the child's antisocial behavior. In this way, it operates as a mediator between the genetic factors contributing to the child's response style and the child's antisocial behavior.

18. It is essential to distinguish between a genetic foundation for behavior, which has to be true for all of the architecture of the mind that leads to behavior, and a genetic basis for individual differences, with differing degrees of "heritability." Regarding the latter, research has provided

unimportant. To the contrary, genetic research provides the best available evidence for the importance of environmental influences and has produced some of the most important findings in psychology about the environment and how it affects development."[19] Genetic makeup does not predetermine that a man will commit an act of sexual aggression,[20] although it may affect the mental mechanisms in ways that affect risk of such behavior.[21]

D. Variability in Human Behavior

To understand why the evolutionary approach is not deterministic, consider the various potential sources that evolutionary psychologists claim result in individual differences in human behavior.[22] First, there are group differences. Many natural selective pressures have been essentially the same for all humans, resulting in the same adaptation mechanisms. However, natural selection has

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considerable support for genetic contributions to individual differences in virtually all of the personality characteristics studied, averaging somewhere around 50% of the variance. ROBERT PLONIM ET AL., BEHAVIORAL GENETICS (1997). There has also been some interesting work specifically focusing on identifying genetic components to antisocial personality patterns. *See generally* Peter McGuffin & Anita Thapar, *Genetics and Antisocial Personality Disorder*, *in* PSYCHOPATHY: ANTISOCIAL, CRIMINAL, AND VIOLENT BEHAVIOR 215 (Theodore Millon et al. eds., 1998).

19. PLONIM ET AL., *supra* note 18, at 278.

20. A gene "for" a particular characteristic merely means that all other things being equal, an individual with this gene is more likely to reveal that characteristic than an individual without that gene. However, since the protein produced by that gene interacts with those produced by many other genes, the presence of that particular gene may also affect the development of other characteristics.

21. Some theorists hypothesize specific psychological mechanisms or modules as adaptations for sexual aggression. *See generally*, Randy Thornhill & Nancy W. Thornhill, *The Evolutionary Psychology of Men's Coercive Sexuality*, 15 BEHAV. & BRAIN SCI. 363 (1992). This is often contrasted with either a byproduct model or some general mind mechanism model. Yet another alternative is a hierarchical model in which there are psychological mechanisms specific to certain tactics that may be manifested in various domains. For example, the tactic of coercion may be implemented by taking property, demanding sex, or in other domains. The ability to engage in such coercion may have had fitness consequences in ancestral environments. There may also be fairly specific modules governing areas such as sexuality (for example, a relatively impersonal versus personal sexual orientation). Sexual coercion may result from the interaction of such "middle level" psychological mechanisms that are neither very general nor extremely specific. However, there also may be "subroutines" specific to sexual coercion. This approach suggests a somewhat different model than the alternatives discussed within the evolutionary literature, which have typically argued that an evolutionary approach to sexual coercion may be conceptualized either (a) in terms of specialized psychological mechanisms contributing to reproductive success in ancestral environments, or (b) in terms of pathology caused by psychological mechanisms gone awry. *See generally* Martin L. Lalumière & Vernon L. Quinsey, *Evolutionary Perspectives on Sexual Offending*, 7 SEXUAL ABUSE 301 (1995).

22. *See generally* David M. Buss, *Evolutionary Personality Psychology*, 42 ANN. REV. PSYCHOL. 459 (1991); Randy Thornhill & Nancy W. Thornhill, *Human Rape: The Strengths of the Evolutionary Perspective*, *in* SOCIOLOGY AND PSYCHOLOGY: IDEAS, ISSUES AND APPLICATIONS 269, 280 (Charles Crawford et al. eds., 1987).

produced some differences in the mechanisms in certain subgroups such as men and women.[23]

Second, although the mental mechanisms are fundamentally the same, some individual variability occurs. Analogously, all humans have noses, but they differ in size and shape. The individual differences partly result from genetic variability within the species and may affect the thresholds for evoking various responses.

A third important source of individual differences involves "condition-dependent" strategies in which the evolved psychological mechanisms process environmental "input" and select among differing alternative strategies. Such environmental differences may produce different observable manifestations. For example, all humans have callous-producing mechanisms, but depending on the environment, they may or may not develop callouses.[24] Similarly, the social environment affects behavioral variability by acting on mechanisms specifically designed for such input. Such environmental influences contribute to variability throughout an individual's lifespan. In addition, environmental stimulation, particularly at certain critical periods, strongly influences the development of various evolved mechanisms (and their underlying brain neurology or circuitry). Such environmental experiences can result in the "calibration" of mental mechanisms at relatively fixed values, producing life-long differences in such areas as the thresholds for evoking various responses.

E. Implications of Evolutionary Level of Analysis

Because evolutionary analysis is not a "genetically deterministic" approach, the notion that the only way to stop sexual coercion by men is to remove men genetically inclined to coerce is incorrect. This erroneous view of the evolutionary analysis assumes fixed obligative genetic programming or "genetic determinism."[25] Although it is extremely likely that researchers will identify specific sets of genes contributing to characteristics affecting the risk of sexual aggression,[26] this is far different from identifying genes for sexual aggression per

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23. *See generally* David M. Buss, *Social Adaption and Five Major Factors of Personality, in* THE FIVE-FACTOR MODEL OF PERSONALITY: THEORETICAL PERSPECTIVES 180 (Jerry S. Wiggins et al. eds., 1996).

24. *Id.*

25. *See* R. Lore & L. Schultz, *Control of Human Aggression: A Comparative Perspective*, 48 AM. PSYCHOLOGIST 16, 16 (1993). The authors correctly note "even in so-called violence-prone animals, aggression is always an optional strategy . . . . All organisms have coevolved equally potent inhibitory mechanisms that enable them to use an aggressive strategy selectively or to suppress aggression when it is in their interest to do so." *Id.* For example, in mice purposefully bred to be highly aggressive, the level of their aggressivity strongly depends on their early social interactions with other mice. *E.g.*, K. Lagerspetz & K. Sandnabba, *The Decline of Aggression in Mice During Group Caging as Determined by Punishment Delivered by Cagemates*, 8 AGGRESSIVE BEHAVIOR 319 (1982).

26. Recent work appears to have associated genetic markers to personality characteristics similar to some of the characteristics identified in the confluence model of sexual aggression. *See, e.g.*, C.R. Cloninger et al., *Mapping Genes for Human Personality*, 12 NATURE GENETICS 3 (1996); R.P. Epstein et al., *5-HT2C (HTR2C) Serotonin Receptor Gene Polymorphism Associated with the*

se.[27] In fact, some researchers hypothesizing that rape is an adaptation with specific mental mechanisms for such behavior argue that individual genetic differences do not affect the propensity to rape. For example, Thornhill and Thornhill predict zero heritability in rape propensity because they hypothesize that rape is a condition-dependent, species-wide strategy potentiating all men equally.[28] Environmental factors (such as being a "loser" in attracting females by other means) may activate this strategy.

An evolutionary analysis would suggest that being a human male as compared to a female is a risk factor for the use of sexually coercive tactics. The existence of gender differences in orientation to short- versus long-term mating strategies can be traced to the minimum "parental investment" required to produce an offspring.[29] In our species, females make a much greater investment to produce offspring. Because females can produce a lifetime maximum of about twenty offspring, having sex with a relatively large number of males is unlikely to have adaptive advantages. It is generally far better for a female to "invest" more in each offspring by carefully selecting a mate who will participate in the raising of the offspring. For males, having intercourse with a larger number of fertile females is likely to increase reproductive success,[30] since in ancestral environments contraceptive devices were not available, and the upper limit for siring offspring was in the thousands. Even totally "uninvested" sex may have "favorable" reproductive consequences for males.[31]

Human Personality Trait of Reward Dependence: Interaction with Dopamine D4 Receptor (D4DR) and Dopamine D3 Receptor (D3DR) Polymorphisms, 74 AM. J. MED. GENETICS 65 (1997); R.P. Epstein et al., *Dopamine D4 Receptor (D4DR) Exon III Polymorphism Associated with the Human Personality Trait of Novelty Seeking*, 12 NATURE GENETICS 78 (1996); Klaus Lesch et al., *Association of Anxiety-Related Traits with a Polymorphism in the Serotonin Transporter Gene Regulation Region*, 274 SCIENCE 1527 (1996).

27. The same genetic propensity can lead in dramatically different directions depending on its interaction with other genetic and environmental factors. *See* PLONIM ET AL., *supra* note 18, at 85 (indicating that "[a] gene associated with novelty seeking may be a risk factor for antisocial behavior, but it could also predispose individuals to scientific creativity . . . . Most complex traits are influenced by multiple genes, which means that we are all likely to be carrying one or more genes that contribute to risk for some disorders. For simple single-gene disorders, environmental factors may have little effect. In contrast, for complex traits, environmental influences are usually as important as genetic influences.").

28. *See* Thornhill & Thornhill, *supra* note 21.

29. *See generally* Robert L. Trivers, *Parental Investment and Sexual Selection*, *in* SEXUAL SELECTION AND THE DESCENT OF MAN 1871 (B. Campbell ed., 1972).

30. These generalizations gloss over many complexities. For example, females may prefer to mate with males who show signs of willingness to commit to monogamous relationships. Therefore, a man who develops a "reputation" for being highly promiscuous may not be chosen as a mate by some females, creating a selection pressure for males who do not take advantage of every mating opportunity.

31. *See generally* DAVID M. BUSS, THE EVOLUTION OF DESIRE: STRATEGIES OF HUMAN MATING (1994).

F. Risk Factors in the Confluence Model

In light of these differences, an evolutionary model suggests that men and women differ considerably in their motivation to engage in short-term mating. The evolved mental mechanisms of men "set the stage" for the occurrence of coercive sexuality.[32] Two implications follow. First, as indicated above, the mental mechanisms of men are more conducive to coercive sex than those of women. Second, those men more prone to impersonal sexuality are likely to be particularly oriented to sexually coerce. Consequently, our confluence model of sexual coercers attends to individual differences in degree of impersonal sexual orientation and some of its important antecedents.

II. CULTURAL LEVEL OF ANALYSIS

Although some scholars who adopt an evolutionary perspective have downplayed the relevance of culture,[33] others have recognized its central importance.[34] Theories emphasizing the role of culture do not replace theories encompassing the role of evolutionary processes, for culture develops in light of the characteristics of the evolved mind of a species:[35]

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32. *See* H.H. Cleveland, Sexual Coercion: Evolutionary Approaches and Peer Group Contexts 12 (1998) (unpublished Ph.D. dissertation, University of Arizona, on file with author). Recent analysis of sexually coercive men shows the importance of an interactional model that incorporates the influence of characteristics such as mating strategies on other factors. Using a longitudinal analysis, Cleveland found that university men's level of short-term mating strategy measured earlier in the year predicted their later selection of peers who were pro-coercion as well as their own levels of sexual coerciveness. Although this work did not explicitly show that selecting such peer environments actually increased the likelihood of using coercive tactics, other data suggests such bi-directional causal influences.

33. *See generally* HUMAN NATURE: A CRITICAL READER (Laura Betzig ed., 1997). There have also been evolutionary researchers studying sexual coercers who have minimized the importance of factors such as attitudes and ideologies that the cultural-feminist level of analysis emphasizes. *E.g.*, LEE ELLIS, THEORIES OF RAPE (1989); Lee Ellis, *A Synthesized (Biosocial) Theory of Rape*, 59 J. CONSULTING & CLINICAL PSYCHOL. 631 (1991).

34. For a useful analysis of varied evolutionary-based approaches to the topic of culture, see M.G. Janicki & D.L. Krebs, *Evolutionary Approaches to Culture*, *in* HANDBOOK OF EVOLUTIONARY PSYCHOLOGY: IDEAS, ISSUES AND APPLICATIONS 163 (C. Crawford & D.L. Krebs eds., 1998).

35. Some social scientists emphasize social construction, without considering who constructs society and why it is so constructed. *E.g.*, M.S. Kimmel, *Introduction: Guilty Pleasures—Pornography in Men's Lives*, *in* MEN CONFRONT PORNOGRAPHY 1, 3–5 (1990). Why have humans recurrently developed cultures in which the social environments differ for males and females? Why has patriarchy been common, while societies in which women monopolize resources and severely restrict men's sexuality have not been found? An evolutionary approach by no means suggests the inevitability of such cultural forms, but it highlights the importance of directly addressing such questions. *See, e.g.*, Barbara Smuts, *The Evolutionary Origins of Patriarchy*, 6 HUMAN NATURE 1 (1995). "To describe behaviour as 'cultural' tells us only that the action and its meaning are shared and not a matter of individual idiosyncrasy." THE ADAPTED MIND, *supra* note 1, at 142. At the same time, understanding the role of cultures may require appreciation of "emergent properties" that a "reductionist" analysis would miss.

> Culture cannot transcend biology because it is as much a part of human biology as bipedal locomotion. Culture is generated from organic structures in the brain that were produced by the processes of organic evolution. However, cultural transmission leads to novel evolutionary processes. Thus, to understand the whole of human behavior, evolutionary theory must be modified to account for the complexities introduced by these, as yet poorly understood processes.[36]

Theoretical perspectives that incorporate an evolutionary-based conceptualization generally seek to understand the development of similarities and differences across various cultures by studying them within the framework of adaptations produced by evolved characteristics of the mind interacting with various environments.[37] More than any other species, humans have evolved specialized psychological mechanisms to enhance observational learning from other humans.[38] These mechanisms can be seen in infants who imitate spontaneously much of what they observe in other humans. This creates a "second system of inheritance," whereby humans "inherit" not only genes from progenitors, but values and norms from others around them.[39] Such "conformist" mechanisms enable the gradual, cumulative development of culturally transmitted knowledge.[40]

Cross-cultural consistency and variability can be understood by attending to the distinction between adaptive problems that humans have had to solve in all environments and those that vary according to ecology and social environment. Rearing offspring who are relatively helpless for long periods of time poses the same problem in all human societies, but the severity of problems posed by the availability of food or the prevalence of parasites varies considerably. Such commonalities and differences in environments interact with the underlying evolved psychological mechanisms to produce cross-cultural universality in certain phenotypic characteristics and cross-cultural variability in others.[41] Once certain norms and values have emerged, they may be transmitted and maintained across generations even if the environments that originally led to their development have changed considerably.

If we assume that all men have evolved mental mechanisms that could lead to sexual aggression, why have huge differences existed among and within cultures in the proclivity to engage in sexual aggression? The most comprehensive cross-cultural study of sexual coercion, which compared societies with low,

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36. *See* ROBERT BOYD & JOAN B. SILK, EVOLUTIONARY ANTHROPOLOGY 633 (1998).

37. *E.g.*, Cosmides & Tooby, *supra* note 14.

38. As Henrich and Boyd suggest, "cultural transmission mechanisms represent a kind of special purpose adaptations, constructed to selectively acquire information and behavior by observing other humans and inferring the mental states that give rise to their behavior." J. Henrich & R. Boyd, *The Evolution of Conformist Transmission and the Emergence of Between-Group Differences*, 19 EVOLUTION & HUM. BEHAV. 215, 217 (1998).

39. *See generally* RICHARD DAWKINS, THE SELFISH GENE (1976).

40. An example is those strategies that evolve across generations and are adopted by observational learning rather than through direct individual experience.

41. RICHARD E. NISBETT & DOV COHEN, CULTURE OF HONOR: THE PSYCHOLOGY OF VIOLENCE IN THE SOUTH 610 (1996).

medium, and high rates of rape, concluded that rape occurs within a social ideology of male dominance that often condones male aggression against women.[42] Furthermore, it found that a common feature of rape-prone societies was the need for a man to prove his status and worthiness by displaying traditionally masculine qualities, such as the ability to be aggressive. Such cultures evolved in ecological conditions when male destructive capacities created a competitive advantage.

Research on cultural variations highlights that the existence of underlying evolved mechanisms potentiating aggression does not make such behavior inevitable. Although we all have mental mechanisms producing behaviors such as aggression and cooperation (and there may be genetically based individual differences in some aspects of these), different environments affect the calibration of these mechanisms. Combined knowledge of how such evolved mechanisms are differentially activated in different ecological and cultural environments can help us understand how to reduce or prevent aggression.

Cultural analysis indicates that dominance[43] attitudes condoning violence towards women[44] and hostility towards women[45] are risk factors for male sexual aggression. The confluence model incorporates these factors within the hostile masculinity constellation of characteristics. In addition, our inclusion of a constellation of dominance vs. nurturance is related to the cross-cultural work[46] showing strong associations between degree of sexual aggression and a culture's appreciation of traditionally "feminine" characteristics such as empathy or sympathy.

III. DEVELOPMENTAL LEVEL OF ANALYSIS

Developmental history beginning in the prenatal environment, but particularly in early childhood and adolescence, is a strong predictor of later adult behavior and functioning.[47] Social psychologists' research on the childhood precursors of adult aggression and recent work by psychophysiologists indicate the existence

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42. In keeping with the view of a common underlying evolved psychology among males interacting with differing environmental conditions, it is noteworthy that even relatively rape-free societies had various mixes of high internal and external mechanisms counteracting male potential for sexual aggression. *See generally* PEGGY R. SANDAY, FEMALE POWER AND MALE DOMINANCE: ON THE ORIGINS OF SEXUAL INEQUALITY (1981); Peggy R. Sanday, *The Sociocultural Context of Rape: A Cross-Cultural Study*, 37 J. SOC. ISSUES 5 (1981).

43. *See* sources cited, *supra* note 42.

44. *See generally* Martha R. Burt, *Cultural Myths and Supports for Rape*, 38 J. PERSONALITY & SOC. PSYCHOL. 217 (1980).

45. Although researchers such as Sanday have studied these factors in the context of explaining differences among cultures in rates of rape, the same factors can be expected to also be relevant to differences among men within a culture. *See* Neil M. Malamuth et al., *Sexual Arousal in Response to Aggression: Ideological, Aggressive and Sexual Correlates*, 50 J. PERSONALITY & SOC. PSYCHOL. 330 (1986).

46. *See* sources cited, *supra* note 42.

47. *See generally* ELLIS, *supra* note 33; Ellis, *supra* note 33.

of particular critical periods, or "developmental windows," that predict later antisocial aggression generally and aggressive behavior specifically. Such critical periods shape life-enduring patterns. The critical periods include the first few years of life, in which the role of primary caretakers is crucial, and adolescence, in which the role of peers is often central. The psychophysiological work, often conducted with animals, seems to document the occurrence of relatively permanent changes in the brain and nervous system that create an extreme sensitivity to environmental and emotional insults that shape how an organism responds to threats and stress.

A model[48] proposing that the early family or home environment contributes to later development by mediating cognitive and emotional-attachment mechanisms suggests that experience in the first five to seven years of life may serve as a "switch" or "trigger" and shape an enduring reproductive strategy.[49] The environmental input at this critical stage informs the developing child of the extent to which the physical environment (including the availability of resources) and the social environment (including the trustworthiness of others and the enduringness of close personal relationships) are relatively benign or harsh. Natural selection may favor long-term, high-quality strategies, with high parental investment in benign environments, and short-term, high-quantity strategies with less parental investment in harsh environments. Promiscuous-impersonal sexual orientation especially relates to "harsh" familial stressors, such as marital discord and rejecting, violent or abusive parenting.

The confluence model proposes that "harsh" early childhood environments may lead to "problem" behavior patterns involving non-conformity, impulsivity, and anti-social behaviors.[50] This oppositional behavior may stimulate earlier biological maturation through an unspecified, but possibly androgenic biological mechanism. This process also fosters among boys indiscriminate and opportunistic sexuality, increasing the likelihood that they will be fathers before other males. In "harsh" environments such a high-quantity strategy would make "biological sense" since it would be more likely to result in offspring reaching reproductive age than a strategy involving "quality" long-term investment.[51] The confluence model gives the role of early home environments (where exploitation and violence are relatively common) and peer environments (where delinquency is more acceptable) considerable prominence as antecedents to current characteristics affecting individual differences in the use of sexual coercion.

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48. J. Belsky et al., *Childhood Experience, Interpersonal Development, and Reproductive Strategy: An Evolutionary Theory of Socialization*, 62 CHILD DEVELOPMENT 647 (1991).

49. *See also* P. Draper & H. Harpending, *Father Absence and Reproductive Strategy: An Evolutionary Perspective*, 38 J. ANTHROPOLOGICAL RES. 255 (1982).

50. *See* Neil Malamuth et al., *The Characteristics of Aggressors Against Women: Testing a Model Using a National Sample of College Students*, 59 J. CONSULTING & CLINICAL PSYCHOL. 670 (1991).

51. Belsky et al., *supra* note 48.

IV. SITUATIONAL LEVEL OF ANALYSIS

Although there is a rich literature in social psychology focusing on situational variables, often missing in such work is the explicit linkage to the evolved mental mechanisms, calibrated by cultural and individual histories, that leads a person to select and respond to only certain elements in any given situation. Yet, psychological mechanisms and the type of environmental input they can process are elements of the same evolved package.[52] One can only understand the impact of situations, and for that matter environmental influences generally, by considering the evolutionary-based mental substrate with which they interact.

Even in other species, situational dynamics can be extremely important as they interact with the evolved strategies of members of the species.[53] Orangutans are a species with a high potential for sexual aggression,[54] yet the behavior is related to changes in the environment. When males and females were placed together in one cage and the females could not avoid the males, the males consistently forced the females to have sex. However, when the females were given control over whether the males could enter their area of the cage, males engaged in elaborate courting, and no forced sex occurred. When females controlled the males' access, the sexual activity correlated highly with the females' estrus cycles, unlike the situation when females did not have such control.[55]

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52. *See generally* John Tooby & Leda Cosmides, *On the Universality of Human Nature and the Uniqueness of the Individual: The Role of Genetics and Adaption*, 58 J. PERSONALITY 17 (1990).

53. *See generally* Ronald D. Nadler, *Sexual Behavior of Orangutans (Pongo Pygameus): Basic and Applied Implications*, *in* THE NEGLECTED APE 223 (Ronald D. Nadler ed., 1995).

54. *See generally* RICHARD W. WRANGHAM & DALE PETERSON, DEMONIC MALES: APES AND THE ORIGINS OF HUMAN VIOLENCE (1996). This work illustrates the interaction between characteristics of the individual and the effectiveness of varying strategies. Wrangham and Peterson observe that among orangutans, rape of females is virtually exclusively perpetrated by the small males. Wrangham and Peterson propose that size is a critical feature because small size results in both a relative failure to succeed in mutually consenting sex and an advantage in using sexually coercive tactics. Female orangutans do not appear to be attracted to the small males, but the males' small size is an advantage in coercing sex. Females easily can escape from large, heavy males who must climb and move slowly in the rainforest trees to avoid falling. The small males, being about the same size as the females, are much more successful in catching females and forcing sex. This illustrates what has been called "reactive heritability." It is not aggression per se that is inherited, but certain characteristics that "situate" individuals differently and result in differential reinforcement of varying strategies. Tooby & Cosmides, *supra* note 52.

55. This example illustrates the importance of the interaction between the evolved mechanisms of the mind and situational factors. Examples include species and gender differences. Although the same manipulation as described in Nadler, *supra* note 53, has not been conducted with other primates closely related to humans, the available evidence on species such as bonobos (also known as pygmy chimps) strongly suggests that the manipulation of these types of situational dynamics would have little effect in that species, since males are generally unlikely to use sexual coercion in any circumstances. *See, e.g.*, F.B.M. de Waal, *Sex as an Alternative to Aggression in the Bonobo*, *in* SEXUAL NATURE, SEXUAL CULTURE 37 (Paul R. Abramson & Steven D. Pinkerton eds., 1995). Among humans, the model emphasized here argues that the male potential for coercive sex is not simply a function of body differences such as physical strength or anatomical ability to "penetrate," as emphasized by some feminists. *E.g.*, SUSAN BROWNMILLER, AGAINST OUR WILL: MEN, WOMEN,

Similarly, in the human species, situational variables that alter the "cost-benefit" analysis (conscious or unconscious) of using sexually coercive tactics can powerfully influence behavior. One striking example is when fear of punishment is reduced and the sexual aggression is against members of an "out group." For example, in wartime, many men who do not use sexually coercive tactics in peacetime will rape.[56]

Although current knowledge does not allow a detailed specification of the situational variables most relevant to the characteristics identified in the confluence model of sexual coercers, several variables may be suggested: (1) those variables that may activate relevant mechanisms such as threats to self-esteem, anger-eliciting provocations, and arousal elicited by certain types of pornography; (2) those that reduce externally based inhibitions (such as the probability or severity of punishment; and (3) those that may reduce internal inhibitions (e.g., alcohol consumption).

V. THE CONFLUENCE MODEL OF SEXUAL AGGRESSORS

A. Description of the Model

Our model of the characteristics of men at risk for sexual coercion integrates evolutionary psychology with other perspectives.[57] Evolutionary psychology

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AND RAPE 5 (1975). It may be just as feasible for a woman to coerce a man to engage in oral sex by threatening him with a gun as for a man to similarly coerce a woman. There is also a crucial difference of minds. Even in situations where the potential for females to coerce males is as high as for males to coerce females, it is expected that gender differences will occur even if males and females were raised in the identical environments.

56. *See* BROWNMILLER, *supra* note 55, at 23–118. *See generally* MASS RAPE (Alexandra Stiglmayer ed. & Marion Faber trans., 1994). Particularly well-known examples include the 1937 case where Japanese men raped 20,000 women in a single month in the city of Nanking (LEON FRIEDMANN, THE LAW OF WAR: A DOCUMENTARY OF HISTORY, VOLUME II 1061 (1972)), the rape of hundreds of thousands of German women, including victims of Nazi concentration camps, by the Allied troops during the 1945 liberation of Berlin (Ruth Seifert, *War and Rape: A Preliminary Analysis*, *in* MASS RAPE 54, 58 (Alexandra Stiglmayer ed., 1994), and the recent rapes in Bosnia-Herzegovina and Croatia (*See generally* BEVERLY ALLEN, RAPE WARFARE: THE HIDDEN GENOCIDE IN BOSNIA-HERZEGOVINA AND CROATIA (1996)). Men's reports of the likelihood that they might use sexual coercion varies dramatically when they think about the possibility of such behavior in current conditions as compared to when the threat of negative consequences to themselves is removed. *E.g.*, K. Dean & Neil M. Malamuth, *Characteristics of Men Who Aggress Sexually and of Men Who Imagine Aggressing: Risk and Moderating Variables*, 72 J. PERSONALITY & SOC. PSYCHOL. 449–55 (1997); Neil M. Malamuth, *Rape Proclivity Among Males*, 37 J. SOC. ISSUES 138 (1981); Neil M. Malamuth & K. Dean, *Attraction to Sexual Aggression*, *in* ACQUAINTANCE RAPE: THE HIDDEN CRIME 229 (A. Parrot ed., 1991).

57. *E.g.*, Neil M. Malamuth, *The Confluence Model of Sexual Aggression: Feminist and Evolutionary Perspectives*, *in* SEX, POWER AND CONFLICT: EVOLUTIONARY AND FEMINIST PERSPECTIVES 269, 279–83 (David Buss & Neil M. Malamuth eds., 1996). *See generally* Neil M.

predicts that conflict between individuals is related to the degree to which their reproductive interests are at odds,[58] and that male aggression against females often can be better understood by considering the evolved psychological mechanisms underlying male reproductive efforts.[59] In particular, when two individuals mate and raise common offspring, they may be pursuing their best reproductive alternative, or one may be attaining a net reproductive gain and the other experiencing a net reproductive loss.[60]

Psychological mechanisms presumably have evolved to implement strategies related to divergent or convergent interests. These mechanisms are species-wide characteristics calibrated at different levels or thresholds for different individuals as a function of genotype and environment (cultural and individual). Calibration of psychological mechanisms for success using a convergent-interests strategy creates more effective evaluation of the needs of others.[61] For example, emotions such as sympathy enhance processing of the other's feelings and difficulties. In contrast, calibration of psychological mechanisms for a divergent-interest strategy mobilizes behaviors that reduce strategic interference by others and override or circumvent such interference.[62] For example, anger can "energize" aggressive behavior and communicate a threat that reduces resistance from the victim. Similarly, when force becomes sexually arousing to a man, a pleasurable cue becomes associated with the imposition of his will on a woman. At least in some aspects, calibration of the psychological mechanisms to implement one of these two strategies may interfere with implementation of the other. For example, greater feelings of sympathy may make it difficult to ignore another person's interests.

Currently, the confluence model suggests three constellations of men's characteristics that, when calibrated in particular directions, are likely to result in sexually coercive tactics. These three constellations are encompassed within a hierarchical approach that includes both general personality characteristics (relevant to divergent and convergent strategies generally) and specific characteristics directly relevant to sexual coercion.

Malamuth, *The Confluence Model as an Organizing Framework for Research on Sexually Aggressive Men: Risk Moderators, Imagined Aggression and Pornography Consumption, in* AGGRESSION: THEORETICAL AND EMPIRICAL REVIEWS 229–45 (Russell G. Geen & Edward Donnerstein eds., 1998).

58. *E.g.*, RICHARD D. ALEXANDER, DARWINISM AND HUMAN AFFAIRS (1979); W.D. Hamilton, *The Genetical Evolution of Social Behaviour, I and II*, 7 J. THEORETICAL BIOLOGY 1 (1964).

59. *See generally* Barbara Smuts, *Male Aggression Against Women: An Evolutionary Perspective*, 3 HUM. NATURE 1 (1992).

60. *See generally* C. Crawford & B. Galdikas, *Rape in Non-Human Animals*, 27 CANADIAN PSYCHOL. 215 (1986).

61. This enables a better fit for the convergence of interests and for increasing "strategic facilitation." Buss, *supra* note 23, at 181.

62. *See generally* David M. Buss, *Conflict Between the Sexes: Strategic Interference and the Evocation of Anger and Upset*, 56 J. PERSONALITY & SOC. PSYCHOL. 735 (1989).

1. *Dominance Versus Nurturance*

Some general personality characteristics may reflect how frequently a person solves adaptive problems by focusing exclusively on his own interests rather than incorporating the interests of others. The two most basic or pure dimensions of personality have been referred to by various names, such as surgency and agreeableness, agency and communion, and dominance and nurturance.[63] The first dimension has been defined as a concern for "mastery and power which enhance and protect [the self]," and the second as a concern for "intimacy, union and solidarity with [other people]."[64]

The first constellation included in the confluence model uses these two personality dimensions to reflect the degree to which a person is oriented to assert his own interests at the expense of others. If a male's mental mechanisms are calibrated so that his dominance characteristics are relatively high compared with his nurturance characteristics, his general personality mechanisms predict a divergent-interest strategy, and he is more at risk for using sexually aggressive tactics. Consistent with Sanday's cross-cultural research and other work,[65] our assessment of this dimension includes measures of characteristics associated with "femininity" versus "masculinity." This constellation may be particularly relevant to whether the potential for aggression is realized in behavior.

2. *Impersonal Versus Personal Sexuality*

The constellation that we call impersonal versus sexual personality bears even more directly on whether a man uses sexually coercive tactics.[66] A man oriented to a short-term sexual strategy would be more likely to be in conflict with a woman's reproductive interests. By adopting a long-term mating strategy, a male is more likely to consider the intersection of the male and female fitness interests and find ways to accommodate each other's interests. Here, both individuals may evaluate and choose each other as mates.[67] In contrast, a male short-term mating strategy will typically contribute to a situation of divergent interests. Therefore,

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63. *See generally* Jerry S. Wiggins & Paul D. Trapnell, *A Dyadic-Interactional Perspective on the Five-Factor Model*, *in* THE FIVE-FACTOR MODEL OF PERSONALITY: THEORETICAL PERSPECTIVES 88 (Jerry S. Wiggins ed., 1996).

64. Jerry S. Wiggins, *Agency and Communion as Conceptual Coordinates for the Understanding and Measurement of Interpersonal Behavior*, *in* 2 THINKING CLEARLY ABOUT PSYCHOLOGY: PERSONALITY AND PSYCHOLOGY 88, 89 (1996).

65. *See* sources cited, *supra* note 42.

66. *E.g.*, Malamuth et al., *supra* note 50. Other researchers refer to these as mating strategies (Buss & Schmidt, *supra* note 3) and sociosexuality. *See generally* Steven W. Gangestad & Jeffrey A. Simpson, *Toward an Evolutionary History of Female Sociosexual Variation*, 58 J. PERSONALITY 69 (1990); Jeffrey A. Simpson & Steven W. Gangestad, *Individual Differences in Sociosexuality: Evidence for Convergent and Discriminant Validity*, 60 J. PERSONALITY & SOC. PSYCHOL. 870 (1991).

67. *See generally* Linda R. Hirsch & Luci Paul, *Human Male Mating Strategies: II. Moral Codes of "Quality and "Quantity" Strategies*, 17 ETHOLOGY & SOCIOBIOLOGY 71 (1996).

the calibration of mating mechanisms to favor a short-term mating strategy is the second constellation increasing risk for sexual aggression.

3. *Hostile Masculinity*

The calibration of a third constellation includes characteristics emphasized by those studying sexual aggression from a feminist, cultural, or social learning perspective.[68] We describe this as an associative network of emotions (such as hostility toward women), cognitions (suspiciousness schema, for example), ideological beliefs (attitudes condoning aggression against women), and motor tendencies (such as impulsivity) that directly "mobilize" coercion as a response to strategic interference or conflict.[69] When calibrated to increase the likelihood of such coercion, this network has been labeled as hostile masculinity. It contains two interrelated components: (a) an insecure, defensive, hypersensitive, suspicious and hostile orientation, particularly toward women; and (b) gratification from controlling or dominating women.[70]

B. Antecedents of Mechanism Calibration

How do these three constellations of psychological mechanisms become calibrated at various levels? While recognizing that there may be some genetically based variations in degrees or threshold levels, the model emphasizes a common evolved psychology whereby all men share the same basic underlying mechanisms. Part of this evolved psychology is an adaptation to permit the individual to "identify" aspects of the environment early on and to choose the strategy most suited to his individual attributes and the local conditions.[71] The "harshness" or "exploitativeness" of early social environments in the home and among peers may calibrate psychological mechanisms to anticipate and initiate relatively more exploitative or cooperative interactions, particularly with women. Identifying early on whether one is likely to succeed using tactics associated with convergent or divergent strategies and calibrating mechanisms accordingly would make particular sense if the calibration affecting one of these strategies generally undermined the effectiveness of the other one.

Harsh early environments with frequent exploitation may calibrate mechanisms that favor divergent strategies, including a general self-centered personality,

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68. *E.g.*, Burt, *supra* note 44, at 80; Neil M. Malamuth & L.M. Brown, *Sexually Aggressive Men's Perceptions of Women's Communications: Testing Three Explanations*, 67 J. PERSONALITY & SOC. PSYCHOL. 699 (1994); Malamuth et al., *supra* note 45; sources cited, *supra* note 42.

69. While our focus on the particular set of characteristics associated with this constellation is based on the cultural-feminist level of analysis, the "functional" interpretation we have used here is based on the evolutionary level of analysis.

70. *See generally* Neil M. Malamuth et al., *Using the Confluence Model of Sexual Aggression to Predict Men's Conflict with Women: A Ten-Year Follow-Up Study*, 69 J. PERSONALITY & SOC. PSYCHOL. 353 (1995).

71. *See generally* Belsky et al., *supra* note 48; Draper & Harpending, *supra* note 49; Trivers, *supra* note 29.

a short-term mating strategy, and hostile masculinity. However, there may be different elements of those environments that provide the particularly relevant information to specific constellations of mechanisms. For example, perceived strategic interference from women, such as a history of rejection, may particularly affect the calibration of the hostile masculinity characteristics. Future research should attempt a more specific analysis of the particular features of early environments that relate to each of the three constellations of characteristics.

Figure 3 displays some of the ideas described above. In differing ecological conditions, natural selection may affect the frequency of certain genetic characteristics and cultural norms.[72] These interact with the environmental effects on the calibration of characteristics relevant to the use of sexually coercive tactics.

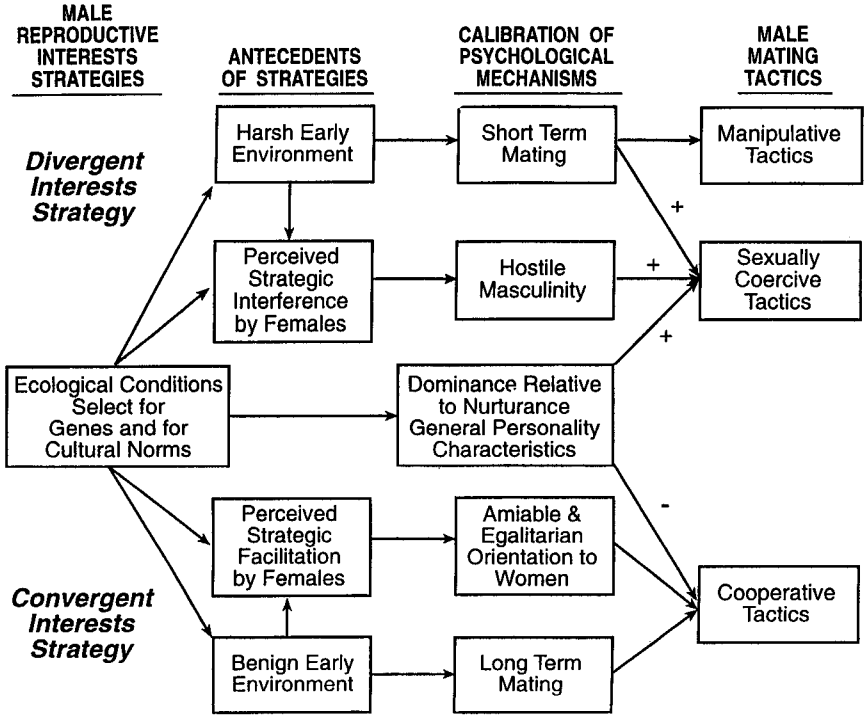

Figure 3. Hypothesized confluence model of the characteristics of sexually coercive men shown within the framework of *divergent vs. convergent* interests strategies. Plus signs indicate the paths of the three major constellations of characteristics hypothesized to synergistically contribute to sexual coercion, whereas minus signs indicate hypothesized reverse association with the use of cooperative tactics.[73]

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72. Neil M. Malamuth, *An Evolutionary-Based Model Integrating Research on the Characteristics of Sexually Coercive Men*, *in* 2 ADVANCES IN PSYCHOLOGICAL SCIENCE: PERSONAL, SOCIAL, AND DEVELOPMENTAL ASPECTS 151 (John G. Adair et al. eds., 1998).

73. *Id.*

The center of the figure depicts the relationship of the general personality constellation of dominant to nurturant personality characteristics. Relatively high dominance and low nurturance favors sexually coercive tactics over cooperative tactics. This figure also displays, at the top and bottom parts, the opposite patterns of mechanism calibration shunting men into relatively divergent or convergent interest strategies with women. Although not all the hypothesized connections are shown, the major ones are indicated by arrows. Plus signs at the right side of the figure near sexually coercive tactics show the confluence or synergistic impact of the three major constellations. On the bottom of the figure, the calibration in the direction of a convergent-interests strategy—high-nurturant personality, long-term mating, and an amiable and egalitarian orientation to women—is expected to yield cooperative tactics such as open and honest communication, allowing ample opportunity for mutual evaluation and choice before sexual intimacy. Finally, the very top of the graph suggests that a short-term mating orientation alone may increase the use of manipulative tactics.

C. Empirical Support for the Confluence Model

Various studies very clearly show that an interactive combination of such risk factors enable much better statistical prediction of which men use sexually coercive tactics than can be achieved by any of the factors alone or by a more limited subset of the factors.[74] In addition, investigators have replicated key aspects of the confluence model in America[75]and in other countries, including Singapore[76] and Finland.[77] For example, Dean and Malamuth predicted that high levels of the characteristics comprising the Impersonal Sex and Hostile Masculinity constellations would create considerable motivation for sexual aggression.[78] However, they also predicted that the degree of nurturance (converging interests orientation or "other oriented") relative to dominance (divergence interests orientation or "self only") characteristics would moderate the occurrence of sexually coercive behavior. These investigators used Bem's masculinity (dominance) and femininity (nurturance) scales to compute for each subject the relative balance of these two dimensions.[79] To test these predictions, first, the "two path" model (comprising the Impersonal Sex and Hostile Masculinity constellations) of the predictor "risk" characteristics of sexual aggressors was

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74. *See* Malamuth et al., *supra* note 70; Malamuth et al., *supra* note 50.

75. *E.g.*, F.S. Christopher et al., *Exploring the Dark Side of Courtship: A Test of a Model of Premarital Sexual Aggressiveness*, 55 J. MARRIAGE & FAM. 469.

76. *E.g.*, Sandy Lim & Rick Howard, *Antecedents of Sexual and Non-Sexual Aggression in Young Singaporean Men*, 25 PERSONALITY & INDIVIDUAL DIFFERENCES 1163–82 (1998).

77. *E.g.*, Kim Haebich, Characteristics of Men Who Aggress Sexually and of Men Who Imagine Aggressing: A Cross-Cultural Comparison (1997) (unpublished master's thesis, Abo Akademi University, Finland) (on file with author).

78. Dean & Malamuth, *supra* note 56.

79. *See generally* Sandra L. Bem, *The Measurement of Psychological Androgyny*, 42 J. CONSULTING & CLINICAL PSYCHOL. 155 (1974).

successfully replicated and shown to predict the risk for sexual coercion.[80] Second, analyses were conducted dividing this sample into two levels on the basis of the relative balance of nurturance to dominance characteristics. In both groups, the "two path" structure on the "predictor" side of the model remained essentially the same. However, in those men more oriented towards the self relative to others (e.g., little nurturance or sympathy for others' needs), the linkages between the risk characteristics and actual aggressive behavior were strong. In contrast, when the personality profile reflected higher relative levels of nurturance (e.g., greater compassion for others), the relationships between the "risk" characteristics and actual occurrence of aggression was weak or not significant. In addition, these investigators also demonstrated that even when aggressive behavior may be inhibited, the risk created by the first two constellations, impersonal sexual orientation and hostile masculinity, is still likely to be revealed in such areas as fantasized sexual aggressivity where actual victim suffering does not occur.[81]

The confluence model has been used as a framework to assess the role of situational factors such as alcohol or pornography consumption.[82] We examined whether information about a person's mass media usage enables us to identify risk for committing sexual aggression. Using a nationwide representative sample, the added information of frequent use of sexually explicit media discriminated between "high risk" men (those scoring high on both hostile masculinity and impersonal sexual orientation) who engaged in sexual aggression of women and those "high risk" men who did not commit sexually aggressive acts. In contrast, knowledge of the degree of sexually explicit media consumption with "low risk" men was found to be of little predictive utility. These data are consistent with the model hypothesizing the interaction among multiply-relevant factors.[83] Interestingly, alcohol consumption was not found to add predictive ability to analyses of risk for sexual aggression, but it did improve prediction of non-sexual aggression against women.[84]

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80. *See generally* Malamuth et al., *supra* note 50.

81. These findings have been recently successfully replicated and extended. NEIL M. MALAMUTH, REPLICATING AND EXTENDING THE CONFLUENCE MODEL OF SEXUAL AGGRESSORS (forthcoming 1999).

82. *Id.*

83. Only those men who were already predisposed to sexual aggression showed increased likelihood of using such coercion when heavy pornography consumption was involved. (However, cause and effect cannot be inferred here due to the correlational nature of the data.) Additional support for this model was recently found in a meta-analysis of studies on the reactions of sexual offenders to pornography. *See* Mike Allen et al., *Reactions of Criminal Offenders to Pornography: A Meta-Analytic Summary*, 22 COMMUNICATION YEARBOOK (forthcoming 1999).

84. In addition, Bernat, Calhoun and Stolp found support for our model of a convergence among dispositional characteristics interacting with situational context in a study manipulating alcohol consumption . They showed that the presence or absence of alcohol consumption affected sexually aggressive men's reactions to a date rape analogue but not that of nonaggressive men. J.A. Bernat et al., *Sexually Aggressive Men's Responses to a Date Rape Analogue: Alcohol as a Disinhibiting Cue*, 35 J. SEX RES. 341 (1998).

Scientists, legal scholars, and the community at large have compelling reasons to understand the causes of sexual aggression. Misunderstandings about the theories and findings are unfortunately common in this area. Unless we reach beyond traditional disciplinary boundaries and study in some depth other relevant literature, such misunderstandings are likely to persist.

To understand the causes of sexual coercion adequately, it is necessary to develop a comprehensive, vertically integrated model that includes multiple-level, complementary explanations of ultimate and proximate causes. Such a framework can contribute significantly to the integration of approaches that seem in direct conflict with each other. For example, the public and many researchers view rape as an act of violence, hostility, or power and thus not a sexual act. This has led to the perception that feminist-cultural analyses, emphasizing the power view, are in direct conflict with evolutionary-based perspectives, which generally emphasize sexuality-related mechanisms. The confluence model incorporates factors from both of these "sexual" and "hostile" dimensions and shows their interrelationships. For example, understanding how differences in impersonal sexuality contribute to conflicts of interests between men and women helps explain the role of hostility and attitudes supporting violence in the context of a "divergent interests" strategy. While we believe that the available data show that such a model serves heuristic purposes and can successfully predict the likelihood that a person will be sexually coercive, we hope to show in future work that it can also lead to more effective policy, prevention, and treatment programs.