

Sexual Dimensions of Person Description: Beyond or Subsumed by the Big Five?

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This research was designed to accomplish five goals: (1) to explore the sexual dimensions of person description, (2) to evaluate the psychometric properties of scales derived from the lexicon of sexuality, (3) to detail the links between the sexual lexicon and the five dimensions uncovered by previous lexical researchers, (4) to examine whether additional dimensions *beyond the Big Five* are needed to incorporate the sexual lexicon, and (5) to discover whether sex differences exist along lexical sexuality dimensions. We found seven sexual dimensions of person description—*Sexual Attractiveness, Relationship Exclusivity, Gender Orientation, Sexual Restraint, Erotophilic Disposition, Emotional Investment, and Sexual Orientation*—based on self-ratings of 67 sexuality adjectives made by women ($n = 217$) and men ($n = 150$) and on observer-ratings of the opposite sex ($n = 207$). The seven sexuality factor scales displayed moderate to high levels construct validity and were modestly correlated with the Big Five. However, we argue that the sexuality factors are best viewed as a reapportionment of general personality variation along seven sex-specific and evolution-relevant dimensions of individual differences. Finally, significant sex differences existed on four of the seven sexuality factors. Discussion focused on the importance and potential utility of lexical dimensions of sexuality. © 2000 Academic Press

One of the most pressing goals in personality psychology is to identify the most important dimensions along which individuals differ. Because individuals differ in thousands of ways, from differences in speed of hair growth

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to differences in social dominance, a key issue is what criteria are used to decide which differences are important. Historically, two of the most influential criteria for determining importance have been lexical criteria and criteria based on a particular theory of personality.

According to lexical criteria, the most important ways in which individuals differ become encoded within the natural language as single terms, such as dominant, gregarious, or manipulative (Galton, 1884; Allport & Odbert, 1936; for historical reviews of this approach, see John, Angleitner, & Ostendorf, 1988; Saucier & Goldberg, 1996; Wiggins & Trapnell, 1997). Presumably, people invent words to describe important differences between individuals. Those words that others find especially useful are used more frequently and hence spread throughout the population. Domains for which different synonyms are invented may be especially important, since this signifies the need to communicate finer gradations in meaning and nuance. And if cultures with independently originating languages also invent words to describe a particular personality difference, then this is lexical evidence for something of universal human importance. Thus, natural accumulations of person descriptors in human languages can serve as signposts that guide personality psychologists toward particularly important individual difference dimensions.

Initially, researchers who adopted the lexical criteria of importance found themselves directed toward five fundamental dimensions of person description (e.g., Norman, 1963, 1967). These major lexical signposts have since become known as the "Big Five" of personality (Goldberg, 1981) and have been variously labeled Extraversion (or Surgency), Agreeableness, Conscientiousness, Emotional Stability (versus Neuroticism), and Openness to Experience (or Intellect) (for slightly different versions of the Big Five, see the five-factor model of McCrae & Costa, 1987, 1989). The Big Five dimensions seem to emerge reliably from factor analyses of large pools of English person descriptors (Goldberg, 1982, 1990), appear to reside within many other European languages (e.g., Caprara & Perugini, 1994; De Raad, Hendriks, & Hofstee, 1992; Ostendorf & Angleitner, 1993), and can be found in free descriptions of children's personality across at least seven different cultures (Kohnstamm, Halverson, Mervielde, & Havill, 1998). From a purely lexical perspective, therefore, the Big Five are compelling candidates as important dimensions of personality description.

Over the past few decades, personality psychologists persuaded by the lexical criteria of importance and impressed with the robust nature of the Big Five dimensions have sought to establish the Big Five as an integrative taxonomy of personality description. For example, the Big Five have been used for making interconnections among personality theories and their respective constructs (McCrae & Costa, 1996); the structure of vocational interests and occupational performance (Barrick & Mount, 1991; Costa,

McCrae, & Holland, 1984); the categories and criteria used to diagnose personality disorders (Costa & Widiger, 1994; Stone, 1993); and a host of other important dimensions of attitudes, emotions, and temperaments (see John, 1990). The capability of the Big Five to integrate so many different aspects of personality has led some to claim that, although originally excavated from the natural language, the Big Five might ultimately serve as *the* comprehensive framework for describing all that is important to personality psychology (Costa & McCrae, 1992; Digman, 1990; Goldberg, 1990).

Recently, however, critics have begun to question both the theoretical relevance and the empirical breadth of the Big Five framework (e.g., McAdams, 1992; Stagner, 1994). For example, some have expressed concern over whether the Big Five are truly comprehensive when one considers the theoretical scope of all personality perspectives (Block, 1995; Eysenck, 1997; Loevinger, 1994), including the newly emerging perspective of evolutionary personality psychology (Buss, 1991; Buss & Greiling, 1999). Others have repeatedly criticized the restricted nature of the pool of person descriptors initially used to discover the Big Five (Almagor, Tellegen, & Waller, 1995; Waller & Zavala, 1993), including the exclusion of sex-linked descriptors (Buss, 1996). In this article, we attempted to address some of these concerns by first detailing the individual difference dimensions deemed important from the perspective of evolutionary personality theory, then we identified those evolutionary personality descriptors that were initially omitted from early lexical studies, and finally we empirically documented whether the personality lexicon central to evolutionary psychology resides within or beyond the Big Five.

Evolutionary Personality Theory

According to evolutionary personality theory, variation in sexuality and human mating tendencies may be especially important dimensions of individual differences (Buss, 1991). Differences in sexuality acquire importance from an evolutionary perspective because events that surround reproduction are pivotal in shaping our evolved psychology. Individual differences in sexuality, because of their proximity to reproductive events, are often the targets of selection, have consequences for solutions to the specific adaptive problems of mating, and likely affect the course of current evolution.

For example, differences in *sexual attractiveness* are linked with success at attracting a particularly desirable partner or a number of partners (Gangestad & Simpson, 1990; Simpson, Gangestad, Christensen, & Leck, 1999). Differences in *relationship exclusivity*, to take another example, have consequences for whether certainty in paternity is jeopardized, whether resources are jeopardized, and whether a couple will divorce (Daly, Wilson, & Weghorst, 1982; Symons, 1979). Differences in *emotional investment* tendencies provide an index of relationship depth and seem to have a profound impact

on relationship disharmony and dissolution (Buss, 1994; Ellis, 1998). Not only is sexuality closely tied with reproduction, differences in sexuality seem critical for solving many of the adaptive problems humans have faced—adaptive problems such as attracting mates (e.g., differences in sexual attractiveness) and retaining mates (e.g., differences in relationship exclusivity and emotional investment). Thus, from an evolutionary personality perspective, it becomes especially critical to identify the major dimensions of individual differences in the sexual sphere.

A start has been made by Simpson and Gangestad (1991a). These researchers have identified a dimension called “sociosexual orientation.” Those high on sociosexual orientation tend to pursue many short-term sexual liaisons, with little emotional commitment or investment in each. Those low on sociosexual orientation tend to be more monogamous and form longer lasting sexual relationships entailing commitment and investment. Gangestad and Simpson (1990) make a persuasive evolutionary argument for the coevolution of these two different sexual strategies and marshal some evidence that these differences can coexist due to frequency-dependent selection (see also Buss & Schmitt, 1993).

Despite this excellent beginning at exploring one dimension of individual difference in sexuality, other evolutionary-relevant dimensions of sexuality remained unexamined. Nor is much known about whether individual differences in sexuality are empirically redundant with more traditional personality differences, such as those of the Big Five, nor whether additional nonredundant dimensions are needed to fully describe these individual differences.

Prior research provides preliminary evidence that individual differences in sexuality may not be independent of traditional personality factors. Eysenck (1971, 1976), for instance, found that *attitudes* toward sexuality were modestly correlated with extraversion, neuroticism, and psychoticism. Extraverts, for example, tended to endorse more favorable attitudes than did introverts toward having multiple sexual partners and trying out different sexual positions. Those scoring high on neuroticism tended to be somewhat less satisfied with their sex lives than those scoring low on neuroticism.

Simpson and Gangestad (1991b) also found links between their measure of sociosexual orientation and traditional personality factors. Those scoring high on sociosexual orientation, for example, tended also to score high on social potency and low on inhibitory control. Wright and Reise (1997) found those scoring high on extraversion, low on agreeableness, and low on neuroticism tended to be oriented toward short-term mating. Finally, Costa, Fagan, Piedmont, Ponticas, and Wise (1992) found correlations in a clinical population between their NEO-PI measure of the Big Five and various aspects of sexuality. For example, those who scored high on neuroticism tended to experience more sexual functioning problems than those who scored low on

neuroticism, and extraverts tended to exhibit a higher sex drive than did introverts.

All of these studies provide suggestive evidence that individual differences in sexuality and the evolutionary psychology of human mating may be linked in important ways with traditional dimensions of personality. Needed, however, is a more systematic examination to address key questions as yet unanswered: Are there descriptors in the English lexicon relevant to the evolved psychology of human mating? What are the lexical dimensions of individual differences in the sexual sphere? Are these individual differences fully subsumed by existing lexical models of personality? Are there sexuality dimensions that are independent of the Big Five in ways that suggest revision or expansion of current models? The goals of this paper are to explore these core questions.

Lexical Approach to Evolutionary Personality Theory

We adopt a two-pronged approach to individual differences in sexuality by combining the strengths of the lexical approach with the theoretical lens of evolutionary personality psychology (Buss, 1991). Individual differences in sexuality take on supreme importance in evolutionary perspective because of their close links with reproduction and their consequences for solutions to specific adaptive problems of mating. Although we view the lexical approach as limited in certain respects as a sole approach to personality, it has the strength of identifying important domains of individual differences that might be overlooked by a purely top-down theoretical approach. Furthermore, since sexuality appears to be an especially important topic in everyday social life—judging from the content of gossip; the consumption of tabloids; and the themes in soap operas, songs, novels, operas, and plays—we would expect that the natural language would be a rich source of terms to describe individual differences in sexuality.

Indeed, this seems to be the case. Based on examinations of various general sexuality references (see “Methods”), we uncovered many sexuality terms within the English lexicon, including: abstinent, adulterous, and amorous; celibate, chaste, and cuddlesome; lewd, lovable, and lustful; marriable, masculine, and monogamous; perverted, promiscuous, and prudish; and seductive, sexy, and sultry. The English language seems to possess numerous individual adjectives that describe variations in sexuality, including many synonym clusters that reflect important evolutionary aspects of human mating psychology (Schmitt, 1995/1996).

Why have lexical strategists not noticed or incorporated sexuality terms? And why have such terms not made their way into the final trait taxonomies of personality psychologists? Part of the answer seems to come from the “exclusion criteria” used by lexical researchers. Given that the natural lan-

guage contains thousands of terms, exclusion criteria have been used to winnow the set down to a more manageable number. Some of these exclusion criteria may have had the inadvertent, but unfortunate, consequence of eliminating terms central to evolutionary personality theory, words that signify variations in sexuality corresponding to the major strategies of human mating.

One of the vigorous modern proponents of the lexical strategy is Goldberg (1982, 1990, 1993). In Goldberg's (1982) application of the lexical strategy to personality, he describes 11 exclusion criteria, which he used to supplement an earlier set of 12 exclusion criteria developed by Norman (1967). Among several reasonable exclusion criteria, such as definitional ambiguity and redundancy, two exclusion criteria were used that may have had especially unfortunate consequences: *sex-linkage* and *peripheral terms*.

The criterion of sex-linkage meant that any terms that were presumed to be more applicable to one sex than the other were jettisoned. The term *coy*, for example, was excluded because it was believed to be more applicable to women than to men. The sex-linkage exclusion criterion is especially unfortunate, from an evolutionary perspective, in that many important differences in sexuality are predicted to show sex differences. For example, men are expected to show more interest in short-term mating than women (Buss & Schmitt, 1993). Even though terms that reflect short-term mating tendencies (e.g., promiscuous) may be partly sex-linked, they represent crucial individual difference variation from the perspective of evolutionary theory and possess lexical content too important to be disregarded.

Using the "peripheral terms" exclusion criterion, the term *adulterous* was excluded from Goldberg's final taxonomy of traits. It remains unclear why adulterous and like terms would be seen as peripheral, given that individual differences in adulterousness have rather profound consequences for individuals and their mates in everyday life. For example, adultery is the most frequently cited cause of divorce across cultures (Betzig, 1989). Furthermore, there seem to be many synonyms for adulterous and its opposite, such as unfaithful, polygamous, faithful, and monogamous. On theoretical, lexical, empirical, and intuitive grounds, therefore, it is hard to imagine how individual differences in adulterousness could be considered peripheral to personality.

Goals of the Current Research

In sum, we had five main goals in pursuing the program of research described in this article: (1) to explore the dimensions of individual differences in the sexual domain using a combination of lexical and evolutionary approaches, (2) to evaluate the psychometric properties of any factor scales derived from the lexicon of sexuality description, (3) to detail the empirical linkages between the sexuality dimensions uncovered and the five dimen-

sions uncovered by previous lexical theorists, (4) to examine whether additional dimensions *beyond the Big Five* are needed or whether individual differences in sexuality can be fully subsumed by the five-factor model of personality, and (5) to discover whether sex differences exist in the lexical sexuality domain and also to test the evolution-based hypothesis that differences signaling short-term mating tendencies will loom larger in men's than in women's sexual repertoires (Buss & Schmitt, 1993).

METHOD

Sample

The participants in this study were composed of four samples from medium-sized midwestern communities. The first sample included 56 women and 60 men enrolled in an introductory psychology course at a large state university who participated in partial fulfillment of course requirements. The second sample included 48 women and 48 men who were paid participants in a study of heterosexual dating couples. The participants in the second sample were recruited through local newspaper advertising and came from both the university and the larger community. The third sample included 113 women and 42 men who participated for extra-credit in an upper level psychology course at a medium-sized private university. These three samples were combined for all analyses using self-report data. The combination of the three self-report samples yielded a total of 367 study participants, 217 women and 150 men. A fourth sample consisted of 114 women and 93 men enrolled in an introductory psychology course at a large state university who participated in partial fulfillment of course requirements. This sample was used for analyses using observer-report data. Overall, participants were primarily Caucasian, single, and young, with a mean age of 23 years and a standard deviation of 5.1 years.

Instruments

Selection of adjectives describing sexuality. The complete sexuality lexicon, all terms that have a sexual connotation, is nebulous and indefinite. Virtually any descriptor could be included if used within a sexual context. However, our first stated objective was to explore the relatively neglected domain of sexuality descriptors using a combination of the traditional lexical approach and the theoretical lens of evolutionary personality psychology. As a result, we systematically limited our analysis of the sexuality lexicon to exploring only formal English adjectives that have an explicit sexual connotation in general sexuality references and that a clear majority of people say they completely understand. We choose this form of item inclusion for three important reasons.

First, although informal adjectives may sometimes be used more frequently than formal adjectives (e.g., "he is delicious" or "she is righteous"), informal sexuality descriptors or slang words are often understood completely only by those groups that routinely employ them and usually for a restricted duration. Consequently, the usefulness of any dimensional structure uncovered by analyzing slang words would be especially limited. In contrast, exploring explicitly sexual descriptors found in formal sources such as a standard English thesaurus provides a better opportunity for obtaining dimensions that will generalize across groups and time periods. Indeed, a central element of the traditional lexical approach which we are following is that the words found in standard sources have stood the test of time and have been more generally useful than slang words (Saucier & Goldberg, 1996).

Second, although dictionaries specific to sexuality exist, these too are routinely full of sexuality descriptors specific to certain cultures, linked to particular academic disciplines, or focused on peculiar contexts of human sexuality variation (e.g., Richter, 1987; Rodgers, 1979).

From an evolutionary personality perspective, words relevant to human mating and sexuality should surely be included in general references and thesauri. Furthermore, from the traditional lexical approach we are instructed to look for those words in general sources. Finally, our goal was to collect a pool of terms that most people can understand and use to evaluate themselves and others. All of these reasons compelled us to collect words selectively from more general sexuality references.

Third, the Big Five framework of personality was initially uncovered from analyzing the structure of *adjectival* personality descriptors from general and formal sources. Because our ultimate objective was to relate the sexuality dimensions we uncover to the five-factor taxonomy, we restricted our initial analysis of the sexual lexicon to sexuality adjectives from general, formal sources. This was the most reasonable method for impartially examining whether the Big Five subsumes any sexuality dimensions that we might uncover.

Obviously, any procedure for selecting words from the sexual lexicon will affect the dimensions that are ultimately uncovered in that lexicon. Our limited sample of sexuality adjectives was not intended as a comprehensive representation of every word that can be used in a sexual manner, nor did we intend to create an exhaustive list of every word associated with sex for every group and culture. Broader goals such as these should be addressed by future investigations. The current investigation attempted only to amass formal adjectives that people could readily use to describe their sexuality and that could be empirically related to the adjectives known to represent the five-factor model of personality. To accomplish this limited set of tasks we used a three-stage process.¹

First, we included all adjectives linked to the word "sexual" in two general thesauri: *Roget's II: The New Thesaurus* (1980) and *Webster's New World Thesaurus* (Laird, 1971). We then included adjectives found in the indexes of two general sexuality textbooks (Byer & Shainberg, 1991; Masters, Johnson, & Kolodny, 1992). This stage gave us an initial pool of 332 formal adjectives that have an explicit sexual connotation in general sexuality references.

In the second stage, we eliminated all words that were redundant, archaic, or technical. Words such as Autoerotic, Coprophilic, Frotteuristic, Ribald, Winsome, and Zoophilic were eliminated during this stage. This yielded a list 105 sexually descriptive adjectives.

Finally, when we administered the sexuality adjective measure to the first sample, we explicitly instructed participants not to rate themselves on words that they did not completely understand. If over one quarter of the participants did not rate a particular word it was excluded from our present set of analyses. Words eliminated during this step include Androgynous, Brazen, Debauched, Lascivious, Lecherous, and Wanton. A sample of our questionnaire format containing only those words used in the present analyses (a total of 67 sexuality adjectives) is listed in the Appendix.

Personality adjectives. We had participants complete a measure of the Big Five that uses 100 unipolar personality adjective ratings (Goldberg, 1992). This was done in order to relate the five personality dimensions uncovered by previous theorists to the sexuality dimensions that we uncovered along a comparable metric. Using the Goldberg 100 unipolar measure of personality also allowed us to eliminate some of the confounds when comparing sexuality and personality self-ratings.

The sexuality measure that we used was, in fact, extremely similar to Goldberg's personality measure. The instructional set and unipolar rating scale were nearly identical. In both measures the rating scales ranged from 1 (indicating the adjective was extremely inaccurate at describing oneself) to 9 (indicating the adjective was extremely accurate at describing oneself). Indeed, as can be seen by contrasting Goldberg's (1992) instrument with our instrument (see Appendix), the only substantive differences between the personality adjective measure and the sexual-

¹ A complete description of all selection procedures including all original adjectives is available from the authors.

ity adjective measure were the additional care we took to provide feelings of anonymity, and the instructional title of the measure, which reads "How Accurately Can You Describe Your Sexuality," instead of "How Accurately Can You Describe Your Personality."

Established sexuality measures. In order to examine the construct validity of the sexuality factor scales uncovered in the sexuality lexicon, several established measures of individual differences in sexuality were completed by Samples 2 and 3. Sample 2 completed the Inventory of Attitudes to Sex (Eysenck, 1976), the Attitudes About Sex measure (Hendrick & Hendrick, 1987), Sternberg's Love Styles questionnaire (Sternberg, 1988), the Personal Attributes Questionnaire (Spence & Helmreich, 1978), and a measure we designed to assess their current romantic relationship and past sexual behavior called the Confidential Romantic History questionnaire. Sample 3 completed the Sexual Opinion Survey (Fisher, Byrne, White, & Kelley, 1988), the Sociosexual Orientation Inventory (Simpson & Gangestad, 1991a), the Marlowe-Crowne Social Desirability Scale (see Crowne, 1979), and a multidimensional measure of self-esteem called the California Self-Evaluation Scales (Phinney & Gough, 1984).

Procedure

The three self-report samples received the sexuality and personality measures in different orders. All samples received the measures in a series of paper-and-pencil questionnaires. In Sample 1, the sexuality adjective measure always preceded the personality adjective measure. Between the two measures of interest, participants completed other measures not relevant to this study. In Sample 2 the personality measure was always presented before the sexuality measure. Between the two measures were other instruments relevant to the validation of the sexuality factor scales, including a version of the sexuality adjective measure in which dating partners rated each other's sexuality. In Sample 3, the sexuality adjective measure always preceded the personality adjective measure, and between the two measures were validation instruments. Fifty-one participants from Sample 3 completed the sexuality measure on a second occasion, 4 weeks after the initial assessment. The observer-report participants, Sample 4, received only the sexuality adjective measure and were asked to describe a "typical" member of the opposite sex.

All measures were administered under anonymous conditions. Only random identification numbers assigned by the experimenter after the study were connected with participants' responses. Nevertheless, questions on sexuality inventories are often perceived to be affectively charged and intrusive. Therefore, we felt it necessary to take special care to ensure that our participants felt comfortable in answering sometimes personal questions. Toward this end, we stressed the anonymous nature of the study and no participant was administered questionnaires in the direct presence of another person. We believe this second procedural step was crucial. It allowed our participants to feel at ease enough to answer sensitive sexuality questions, and it enabled us to feel reasonably confident in the veracity of their sexual self- and other-descriptions.

Analysis Overview

To pursue the first objective of the study—exploring the lexical dimensions of individual differences in the sexual domain—we performed exploratory factor analyses on men's and women's self-ratings of the sexuality adjectives. To achieve the second goal, we evaluated various aspects of reliability and validity for the factor scales of sexuality across subsamples. To address the third goal—relating the sexuality factors to the Big Five—we intercorrelated the factors for each sex separately. The fourth goal, assessing the comprehensiveness of the Big Five, was approached by examining the total variance explained for each sexuality factor scale by all five *orthogonal* personality factor scores, by calculating the total variance shared among all personality and sexuality factors, by factor analyzing sexuality factor scales and

personality factor scores together, and by factor analyzing the 67 sexuality items and the 100 personality items together. We examined sex differences in sexuality factors, our final objective, by looking at the significance and effect size of group mean-level differences between the sexes.

RESULTS

Exploratory Factor Analysis of Sexuality Adjectives

Number of factors. We performed a principal axis exploratory factor analysis with direct oblimin rotation on the self-descriptions ($n = 367$) of the 67 sexuality adjectives displayed in the Appendix. This form of factor extraction and rotation is often recommended for exploratory factor analyses of personality items (see Kline, 1993). The first latent factor accounted for approximately 18% of the total variance, suggesting that a general factor was fairly weak. Fourteen eigenvalues greater than 1 emerged from the original, unrotated extraction. These were 11.95, 9.48, 3.98, 3.06, 2.56, 1.98, 1.93, 1.48, 1.35, 1.23, 1.20, 1.16, 1.08, and 1.02. According to the Scree criterion for factor interpretation (Cattell, 1966), two- and seven-factor structures were the most compelling interpretations. In the two-factor solution, the 67 items tended to form a circumplex-type structure resembling the Interpersonal Circle (Wiggins, Steiger, & Gaelick, 1981), a point to be taken up in the discussion. However, with the two-factor solution, the residual correlation matrix possessed sufficiently high correlations to suggest additional factors were present (Gorsuch, 1983). Ultimately, we found that a seven-factor extraction with oblique rotation emerged as the most empirically robust and conceptually compelling solution, for the reasons described below.

Empirically, the pattern matrix factor loadings from the seven-factor extraction with direct oblimin rotation can be seen in Table 1. This fundamental seven-factor structure did not change using alternative factor extraction techniques, an indication the solution is fairly stable (Goldberg & Digman, 1994). As indicated by the factor correlation coefficients along the bottom of Table 1, the composition of the seven factors was largely congruent across solutions for male and female subsamples and compared to the observer-reported sexuality structure. Again, this suggests an empirically robust seven-factor structure. Furthermore, no additional factors of substance were uncovered beyond the seven factors using alternative factorial number criteria, with residuals in the correlation matrix reaching appreciably low values at the seven-factor level (Gorsuch, 1983). Conceptually, each dimension of the seven-factor solution seemed to capture a traditionally important and evolutionary-relevant dimension of human mating psychology (Buss & Schmitt, 1993).

Factor scale construction and validation. In a preliminary attempt to develop measures of the seven sexuality adjective dimensions, we constructed factor scales by averaging the unweighted means of those items that loaded

TABLE 1
 Psychological Structure of 67 Sexuality Adjectives: Oblimin-Rotated Factor Loadings from a Seven-Factor Principal Axis Factor Analysis

Adjectives	Sexuality factors						
	Sexual attractiveness	Relationship exclusivity	Gender orientation	Sexual restraint	Erotophilic disposition	Emotional investment	Sexual orientation
Sexy	.79	-.07	.00	-.13	-.01	-.02	-.09
Stunning	.75	-.05	-.04	.01	.00	.06	-.07
Attractive	.69	.07	-.09	-.03	-.13	-.03	-.10
Alluring	.66	-.06	.08	.01	-.03	.06	.07
Arousing	.64	.04	-.05	-.13	.05	.13	.09
Sensual	.63	-.02	.03	-.12	.05	.15	.17
Seductive	.62	-.15	.03	-.16	.12	.10	-.01
Sultry	.53	-.04	.05	-.04	.22	.05	.10
Adorable	.50	.00	.02	.06	-.06	.29	-.03
Provocative	.45	-.13	-.04	-.13	.27	.02	.02
Erotic	.45	.14	-.07	-.18	.22	.07	.27
Amorous	.36	.22	.06	.00	.08	.25	.14
Flirtatious	.34	-.19	.16	-.13	.19	.14	-.19
Faithful	.04	.77	-.04	.03	.00	.11	.14
Unfaithful	.02	-.76	.04	-.06	-.06	-.07	-.02
Monogamous	-.03	.68	-.03	.01	.12	.09	-.10
Polygamous	-.05	-.66	-.15	.03	.02	.17	.27
Promiscuous	.09	-.59	-.18	.02	.16	.06	-.02
Adulterous	.13	-.59	-.04	.04	-.05	-.04	.15
Devoted	.16	.53	.08	.02	-.06	.27	.02
Loose	.06	-.37	-.26	.01	.26	.06	.00

TABLE 1—Continued

Adjectives	Sexuality factors						
	Sexual attractiveness	Relationship exclusivity	Gender orientation	Sexual restraint	Erotophilic disposition	Emotional investment	Sexual orientation
Feminine	.02	.02	.93	-.01	-.00	.09	.11
Womanly	.05	.02	.93	-.03	-.02	.09	.07
Manly	.08	-.07	-.91	.04	.02	-.04	-.01
Masculine	.05	-.03	-.91	.02	.04	-.03	-.04
Ladylike	.08	.01	.88	.00	-.01	.07	-.09
Gentlemanly	.14	-.03	-.85	.13	.01	.03	-.01
Effeminate	.04	-.09	.68	.06	.05	.07	.09
Virginal	-.03	.07	-.03	.80	.04	.13	.06
Celibate	-.03	.01	-.03	.74	-.02	.09	.01
Abstinent	.01	.05	-.09	.73	-.02	.06	-.04
Chaste	-.02	.00	-.01	.70	.04	.03	.00
Prudish	-.07	-.06	-.00	.60	.02	.03	.06
Obscene	.05	.00	-.04	.01	.78	-.08	.07
Vulgar	.00	.05	-.11	.04	.70	-.11	.07
Lewd	.03	.03	-.03	.13	.69	-.06	.10
Crude	-.08	.07	.02	.03	.68	-.13	-.00
Indecent	-.11	-.12	.02	.06	.67	.06	.08
Perverted	-.06	-.01	-.10	-.03	.56	.12	.09
Shameless	.15	-.02	-.07	-.05	.48	.08	-.02
Risque	.23	-.07	.04	-.07	.47	.02	.02
Indiscreet	-.04	-.17	.00	-.06	.44	.15	-.08
Immodest	.02	.00	-.01	-.19	.41	-.06	-.04
Kinky	.11	-.06	-.12	-.21	.36	.26	.14
Horny	.13	.05	-.22	-.19	.31	.29	.10
Lustful	.19	-.01	-.07	-.15	.29	.27	.17

Loving	.02	.26	.10	.04	-.04	.69	-.02
Lovable	.21	.06	.06	.07	-.06	.66	-.11
Cuddlesome	.08	.09	.17	-.10	-.04	.60	-.09
Romantic	.21	.04	.16	.02	-.08	.60	-.09
Affectionate	.09	.15	.14	-.08	-.03	.60	-.03
Compassionate	.07	.13	.08	.07	-.09	.48	-.07
Passionate	.26	.09	.15	-.18	-.07	.45	.15
Homosexual	.02	-.03	.05	.04	.01	-.08	.63
Bisexual	-.08	-.06	.14	-.04	.05	-.05	.60
Heterosexual	-.01	.04	.01	-.05	.00	.03	-.18
Sexual ^a	.49	.05	-.02	-.37	.13	.05	.00
Suggestive ^a	.43	-.04	.01	-.13	.35	.00	-.14
Hard-to-get ^a	.27	.07	.12	.18	.05	-.14	-.05
Charming ^a	.23	.01	-.01	-.00	-.13	.11	.01
Nymphomaniaca ^a	.08	-.14	-.07	-.28	.27	.19	.02
Orgasmic ^a	.21	.03	-.10	-.25	.20	.21	.21
Asexual ^a	.02	-.02	.02	.24	.03	-.04	.01
Coy ^a	.13	-.09	.07	.10	.25	-.01	-.13
Marriable ^a	.21	.12	-.01	.03	-.14	.26	-.23
Jealous ^a	-.10	-.08	.03	.03	.19	.26	-.12
Orgiastic ^a	.07	-.19	-.07	-.00	-.13	.17	.21
Men's Factor Congruence	.71***	.96***	.80***	.95***	.95***	.71***	.73***
Women's Factor Congruence	.95***	.95***	.89***	.97***	.95***	.91***	.88***
Observer's Factor Congruence	.88***	.92***	.94***	.88***	.90***	.82***	.76***

Note. All values equal or greater than $\pm .30$ are listed in boldface. These analyses were based on the responses of 367 people (150 men and 217 women) who described themselves and 207 people (93 men and 114 women) who described a member of the opposite sex using an inventory of 67 sexuality-descriptive terms.

^a Items that did not load primarily on one factor.
*** $p < .001$.

primarily on one factor as indicated in Table 1. We examined the psychometric properties of each sexuality adjective scale using traditional construct validity techniques (Cronbach, 1960; Nunnally & Bernstein, 1994). This step was crucial, for if the scales were to be useful for addressing the issue of whether sexual adjectives are beyond or subsumed by the Big Five, the sexuality scales themselves needed to possess adequate reliability and validity.

The first factor scale, labeled *Sexual Attractiveness*, was constructed from the 13 items highlighted in the first column at the top of Table 1. The Sexual Attractiveness scale possessed a normal distribution, with a mean of 6.04 and a standard deviation of 1.11. Thus, consistent with previous research (e.g., Hatfield & Sprecher, 1986), most people described themselves as slightly more sexually attractive than average. Sexual Attractiveness has been the focus of much research attention in personality and social psychology (Eagly, Ashmore, Makhijani, & Longo, 1991; Hatfield & Sprecher, 1986). As described earlier, it is also of central importance to evolutionary personality theory (Buss, 1991). Although some sexual attractiveness adjectives have been examined in previous lexical studies (Garcia & Carrigan, 1998), their precise relationship to the Big Five remains in dispute (e.g., Henss, 1996; Saucier, 1997; Saucier & Goldberg, 1998).

The construct validity of the Sexual Attractiveness scale was formally evaluated using the information seen down the first column of Table 2. The Sexual Attractiveness scale possessed high internal reliability ($\alpha = .91$) and a high level of temporal reliability, $r(49) = .92, p < .001$. It positively correlated with a measure of Physical Self-Esteem (Phinney & Gough, 1984), $r(84) = .32, p < .01$, providing evidence of convergent validity. In addition, the Sexual Attractiveness scale did not significantly correlate with Social Desirability, nor in the dating couples sample did it relate to an index of General Relationship Satisfaction, providing evidence of discriminant validity. On the other hand, the Sexual Attractiveness scale did not show significant cross-person convergence as evaluated among dating partners. That is, one's self-ratings of attractiveness did not significantly relate to one's dating partner's observer-ratings. Also, one's self-reported Sexual Attractiveness did not possess discriminant validity in terms of its significant relationship to General Self-Esteem. Thus, overall, the Sexual Attractiveness scale displayed only moderate amounts of construct validity.

The second latent sexuality factor had eight items that loaded primarily on it and was labeled *Relationship Exclusivity*. The Relationship Exclusivity factor scale had a moderately negatively skewed distribution, with a mean of 7.54 and a standard deviation of 1.25. This factor has been largely absent from previous lexical investigations of personality and is central to evolutionary personality theories involving reproductive strategies, paternity certainty, and sexual jealousy (Buss, 1994). As seen down the second column of Table 2, the Relationship Exclusivity factor scale possessed high internal and tem-

TABLE 2
 Summary of the Psychometric Properties of Seven Sexuality Adjective Factor Scales

Psychometric properties	Sexuality factors						
	Sexual attractiveness	Relationship exclusivity	Gender orientation	Sexual restraint	Erotophilic disposition	Emotional investment	Sexual orientation
Reliability indexes							
Internal (α , $n = 367$)	.91	.86	.96	.83	.88	.87	.74
Temporal (4 weeks, $n = 51$)	.92***	.87***	.96***	.92***	.87***	.86***	.70***
Validity indexes							
Convergent							
Established Measures ($n = 86$) ^a	.32**	.61***	.56***	-.46***	-.51***	.57***	.59***
Cross-Person Agreement ($n = 56$)	.13	.27*	.74***	.31*	.49***	.22	.61***
Discriminant							
Social Desirability ($n = 106$)	.07	-.07	.09	-.01	-.21*	.02	-.14
General Self-Esteem ($n = 86$)	.38***	.04	-.13	-.15	.12	.22	-.08
Relationship Satisfaction ($n = 86$)	.02	.06	.04	-.11	.11	-.17	.32*

^a The established measures of sexuality used for convergent validity are described in the text.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

poral reliability. It correlated significantly with an established measure of relationship exclusivity, the Sociosexuality Orientation Inventory (Simpson & Gangestad, 1991a), $r(84) = .61$, $p < .001$. In addition, it did not significantly correlate with Social Desirability, General Self-Esteem, or General Relationship Satisfaction. Furthermore, it showed significant cross-person convergence as evaluated among dating partners. Thus, the Relationship Exclusivity scale displayed moderate to high levels of construct validity.

The third factor scale, labeled *Gender Orientation*, was constructed from the seven items highlighted in the third column of Table 1. The Gender Orientation factor scale had a bimodal distribution corresponding to men's and women's central tendencies, with a mean of 5.33 and a standard deviation of 2.61. This factor scale seemed to represent a limited, one-dimensional version of the two-dimensional conception of gender roles commonly used by personality psychologists (Bem, 1974; Spence, 1993) and has been examined in previous lexical studies (Wiggins & Holzmueller, 1978). As seen down the third column of Table 2, the Gender Orientation factor scale possessed high internal and temporal reliability. It correlated significantly with established measures of gender-role orientation (Spence & Helmreich, 1987), including masculine and feminine subscales. The Gender Orientation scale did not significantly correlate with Social Desirability, General Self-Esteem, or General Relationship Satisfaction. Furthermore, it showed significant cross-person convergence as evaluated among dating partners. Thus, the Gender Orientation scale displayed high levels of construct validity.

The fourth sexuality factor scale was called *Sexual Restraint* and had a slight positive skew to its distribution, with a mean of 3.38 and a standard deviation of 2.01. Although this factor is central to evolutionary personality theory and appears to be strongly linked to relationship disharmony and dissolution (Buss, 1994), it has not been examined in previous lexical studies. As seen down the third column of Table 2, the Sexual Restraint factor scale possessed high internal and temporal reliability. It displayed a significant negative correlation with a measure of sexual intercourse frequency, and did not significantly correlate with Social Desirability, General Self-Esteem, or General Relationship Satisfaction. Furthermore, it showed significant cross-person convergence as evaluated among dating partners. Thus, the Sexual Restraint scale displayed relatively high levels of construct validity.

The fifth factor scale was *Erotophilic Disposition* and had a normal distribution, with a mean of 4.27 and a standard deviation of 1.24. This factor is also central to evolutionary personality theory (Buss, 1994), and has been the subject of much research attention in the sexological literature (Fisher et al., 1988). The Erotophilic Disposition factor scale possessed high internal and temporal reliability. It displayed a significant correlation with an established measure of Erotophobia-Erotophilia (Fisher, et al., 1988) and did not significantly correlate with General Self-Esteem or General Relationship Sat-

isfaction. In addition, it showed significant cross-person convergence as evaluated among dating partners. On the other hand, the scale did correlate significantly with Social Desirability. Thus, the Erotophilic Disposition scale displayed moderate levels of construct validity.

The sixth lexical factor of sexuality, labeled *Emotional Investment*, displayed a normal distribution, with a mean of 7.47 and a standard deviation of 0.95. This factor is also central to evolutionary personality theory (Buss, 1994) and has been the subject of much research attention in the social psychological literature (Sternberg, 1988). The Emotional Investment scale possessed high internal and temporal reliability. It displayed a significant positive correlation with an established measures of Emotional Investment (i.e., the Intimate Love scale from Sternberg, 1988) and did not significantly correlate with Social Desirability, General Self-Esteem, or General Relationship Satisfaction. It did not show significant cross-person convergence as evaluated among dating partners. However, with such an evaluative dimension as Emotional Investment, it is unusual to observe even small cross-person convergences (Robins & John, 1997). Thus, the Emotional Investment scale displayed moderate levels of construct validity.

The seventh and final sexuality adjective factor was called *Sexual Orientation*. The Sexual Orientation scale had a strong positively skewed distribution, with a mean of 1.48 and a standard deviation of 1.06. It was made up of the adjectives Homosexual, Bisexual, and Heterosexual (reverse-coded); so, a high score on this factor indicated a self-description toward homosexuality, as conceived in a bipolar fashion. This factor has been the subject of much research attention in the social and evolutionary psychology literature (Hamer & Copeland, 1994). We realize this conception of sexual orientation is, along with our gender scale, a simplified one. In using a lexical approach, we were constrained by those words that occur in the natural language. Because of the present item-selection procedures, we were additionally compelled to use only words describing sexual orientation that most of our participants could understand. Sexual orientation in a broader context undoubtedly takes on many forms and probably has multiple origins (Karlen, 1971).

As seen down the last column of Table 2, the Sexual Orientation factor scale possessed good internal and temporal reliability. It displayed a significant positive correlation with self-reported fantasies about same-sex romantic relationships, $r(84) = .59, p < .001$, and did not significantly correlate with Social Desirability or General Self-Esteem. It did, however, correlate positively with self-reported General Relationship Satisfaction. The Sexual Orientation scale also showed significant cross-person convergence as evaluated among dating partners. Of course, Sexual Orientation was evaluated among heterosexual dating partners, so this finding was primarily due to the cross-person congruence of a few outlying bisexuals. Overall, the Sexual Orientation scale displayed moderate levels of construct validity.

Altogether, we considered the seven sexuality factors fairly representative of the sexually connotative lexical domain we targeted. Indeed, as seen in Table 1, more than 80% of the sexual adjectives from our initial pool loaded at least .30 on one of the seven dimensions we uncovered. Although some of the adjectives fell below this threshold, most were related to one or more of the seven dimensions in ways that made conceptual sense. For example, “marriable” loaded on Sexual Attractiveness (.21) and Emotional Investment (.26), while “nymphomaniacal” loaded on Sexual Restraint (−.28) and Erotophilic Disposition (.27). Overall, then, these seven dimensions were a reasonable representation of the current set of sexuality adjectives.

We also examined the structure of sexuality self-ratings for men and women separately. This is an important step because adjectives that have substantial sex differences will correlate even if they are being influenced by different latent factors. When men and women’s self-ratings were analyzed separately, however, the same reliable seven-factor solution emerged.² As seen along the bottom of Table 1, the seven-factor solution was significantly congruent with male and female subsamples and with the observer ratings from Sample 4.

Thus, our first goal of exploring the sexual lexicon was accomplished with the preliminary construction of these seven-factor scales. They seemed reasonable in terms of their relationship to evolutionary personality theory and in capturing the general diversity of human sexuality variation. Finding the same factors in male, female, and observer-ratings attested to the robust nature of a seven-factor solution. The second goal of this study was to examine the psychometric properties of the seven sexuality factor scales. This was accomplished by evaluating the reliability and validity of each scale. All seven factors possessed at least moderate levels of construct validity. Therefore, the sexuality scales that we derived appeared sufficient for evaluating the relationship of the sexual lexicon to the personality factors uncovered by previous lexical theorists.

Sexuality Related to Personality

Our third goal was to detail the empirical linkages between sexuality dimensions and the five dimensions uncovered by previous lexical researchers. We related sexuality to the Big Five by correlating the factor scales of the seven sexuality dimensions with orthogonal factor scores derived from an

² For men, the factors emerged in the following order: Emotional Investment, Relationship Exclusivity, Gender Orientation, Erotophilic Disposition, Sexual Restraint, Sexual Orientation, and Sexual Attractiveness. For women, the factors came out as Sexual Attractiveness, Relationship Exclusivity, Sexual Restraint, Gender Orientation, Emotional Investment, Erotophilic Disposition, and Sexual Orientation. Many of the original seven factors, such as Sexual Orientation, displayed even stronger interpretability and cohesion within sex. The loadings of all 67 adjectives on the seven factors within each sex are available from the authors.

adjectival measure of the Big Five (Goldberg, 1992). These analyses were presented for each sex separately due to observed differences in their patterns of correlations. As seen in Table 3, the correlations between personality and sexuality factor scales for male participants are reported to the left of the correlations between personality and sexuality factor scales for female participants. Because we examined a large number of correlations, we conservatively focused on those relationships significant beyond the $p < .01$ level.

As seen in Table 3, extraversion and agreeableness were strongly related to most of the sexuality dimensions. However, the precise pattern of these relationships varied between the sexes. For men, Sexual Attractiveness was significantly related only to extraversion. Men who said they were high on Relationship Exclusivity tended to score low on extraversion and slightly higher on agreeableness, $r(129) = .20, p < .05$. Feminine men tended to report themselves as introverted, although this was only marginally significant, $r(129) = -.20, p < .05$. Sexually restrained men tended to describe themselves as low on extraversion. As can be seen in the fifth male column of Table 3, men describing themselves as having an Erotophilic Disposition tended to be extraverted and disagreeable. Men who were high on Emotional Investment rated themselves as extraverted and highly agreeable, an indication that Emotional Investment is fundamentally a dimension of interpersonal nurturance (Wiggins & Trapnell, 1997). Finally, men describing themselves as homosexual tended to be open to new experiences.

Female-reported Sexual Attractiveness was significantly related to both extraversion and openness. Women who were high on Relationship Exclusivity said they were agreeable and conscientious. The sex difference in personality correlates of exclusivity mirrors the finding of Zuckerman (1994) in that promiscuous men are primarily high on sensation-seeking (a facet of extraversion), whereas promiscuous women seem to also lack impulse control (i.e., they are low on conscientiousness). Women's Gender Orientation was significantly related only to their level of agreeableness. Sexually restrained women tended to be low on extraversion. Erotophilically disposed women tended to describe themselves as extraverted, disagreeable, and low on conscientiousness. Emotionally investing women described themselves as slightly extraverted and highly agreeable, replicating the relationship found among men. Also similar to the male participants, women who described themselves as homosexual tended to rate themselves high on openness to experience.

Additional Factors beyond the Big Five?

Our fourth objective was to examine the extent to which the Big Five subsumes lexical factors of sexuality. We did this, in part, by using *orthogonal factor scores* for the Big Five factors, as measured by Goldberg's 100-item questionnaire (Goldberg, 1992). Using factor scores allowed us to iden-

TABLE 3
Seven Sexuality Factor Scales Correlated with Five Orthogonal Personality Factor Scores

Personal factors	Sexuality factors													
	Sexual attractiveness		Relationship exclusivity		Gender orientation		Sexual restraint		Erotophilic disposition		Emotional investment		Sexual orientation	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W
Extraversion	.45**	.41**	-.21*	-.11	-.20	.05	-.39**	-.33**	.26*	.43**	.26*	.24**	-.13	-.05
Agreeableness	.13	.14	.20	.37**	-.07	.25**	.08	.12	-.30**	-.21*	.50**	.59**	-.13	-.15
Conscientiousness	-.04	-.04	.11	.23*	-.16	.16	.13	-.10	-.16	-.26**	.02	-.05	-.11	-.15
Emotional Stability	.07	-.06	-.05	.00	.13	.05	.13	.15	.02	.09	.01	.11	.00	.08
Openness to Experience	-.12	.26**	.17	.03	.14	.00	.09	.09	-.11	.13	.17	.11	.23*	.24**
Multiple <i>R</i>	.49	.53	.36	.45	.36	.32	.43	.38	.44	.55	.60	.69	.34	.32

Note. These analyses are based on the responses of 311 participants (131 men and 180 women) who described themselves using an inventory of 67 sexuality-descriptive terms and an inventory of 100 personality-descriptive terms (Goldberg, 1992).

* $p < .01$.

** $p < .001$.

tify the amount of overlap between each sexuality factor's variance and the total variance of the Big Five. Factor scores were computed using the Anderson–Rubin technique (Anderson & Rubin, 1956; Harman, 1976). Corrections for attenuation were computed for each of the multiple correlations (Nunnally & Bernstein, 1994). These corrected values were only trivially different from the uncorrected values, perhaps because the alpha reliabilities for the personality factors in our sample were so high. These attenuation-corrected analyses may be obtained from the authors.

Along the bottom row of Table 3 can be seen the amount of overlap between each sexuality factor and the Big Five, as traditionally expressed by multiple R 's. Typically, an association of less than .30 suggests that a dimension is "beyond the Big Five" (e.g., Saucier & Goldberg, 1998). As seen in the bottom row of the first column, although the factors of Gender Orientation and Sexual Orientation showed the least amount of overlap with the Big Five, each of the sexuality factors had multiple R 's of at least .30. This suggested that each of the individual sexuality factors could be subsumed by the Big Five. However, because a multiple R of .30 indicates that a sexuality factor shares only 10% of its variance with the Big Five, this may be too liberal a test of Big Five comprehensiveness. Consequently, we performed three other examinations of the comprehensiveness of the Big Five.

A second examination of the relationship between the Big Five and the seven sexuality factors of the sexuality lexicon came from computing a canonical correlation between the Big Five and all seven sexuality factors. A canonical correlation expresses the total amount of variance shared by two sets of variables (Tabachnik & Fidell, 1989). We found the overlap between the sexuality and personality factors was 79.6%. Thus, as a whole the two sets of variables largely shared the same variance.

A third examination of the overlap or independence of sexuality adjective factors from the Big Five personality taxonomy came from combining all 12 factors, 5 personality factor scores and 7 sexuality factor scales, and factor analyzing them together. This gave us a powerful 10 to 1 subject-to-item ratio within each sex (Gorsuch, 1983; Harman, 1976).

Principle axis factor analyses for men, women, and both sexes combined suggested a five-factor solution. This was true using both the Scree criterion and the number of eigenvalues above 1. The resulting five-factor structure across both sexes can be seen in Table 4, along with factor congruence coefficients for each sex separately. As seen at the top of the first column in Table 4, the first extracted factor was made up of agreeableness and Emotional Investment. The second factor contained extraversion and several of the sexuality factors, including a .38 loading from Emotional Investment of the first factor. The third factor contained openness to experience and Sexual Orientation. The fourth factor contained emotional stability and Gender Orientation, although the latter factor also loaded on the fifth and final factor

TABLE 4

Seven Sexuality Factor Scales and Five Orthogonal Personality Factor Scores:
Oblimin-Rotated Factor Loadings from a Five-Factor Principal Axis Factor Analysis

Sexuality factor scales and personality factor scores	Factor loadings for five factors extracted and obliquely rotated				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Agreeableness factor score	.87	-.12	-.08	-.05	.08
Emotional Investment factor scale	.73	.38	.06	.17	-.02
Sexual Attractiveness factor scale	.29	.71	.20	.00	.06
Extraversion factor score	.02	.64	-.08	.06	-.05
Erotophilic Disposition factor scale	-.17	.54	.05	.06	.46
Sexual Restraint factor scale	.10	.47	.04	.12	.05
Openness to Experience factor score	.07	-.01	.80	-.09	-.12
Sexual Orientation factor scale	-.14	-.02	.30	.07	.11
Emotional Stability factor score	-.07	-.06	-.01	.72	.05
Gender Orientation factor scale	.21	.07	-.03	.42	-.32
Conscientiousness factor score	-.10	.05	-.01	.00	-.55
Relationship Exclusivity factor scale	.32	-.19	.05	.11	-.40
Men's factor congruence	.97***	.94***	.82***	.63*	.15
Women's factor congruence	.95***	.99***	.93***	.64*	.84***

Note. All values equal or greater than $\pm .30$ are listed in boldface. These analyses are based on the responses of 311 participants (131 men and 180 women) who described themselves using an inventory of 67 sexuality-descriptive terms and an inventory of 100 personality-descriptive terms (Goldberg, 1992).

* $p < .05$.

*** $p < .001$.

that contained conscientiousness and Relationship Exclusivity. Relationship Exclusivity also loaded on the first factor containing agreeableness. As indicated by the factor correlation coefficients at the bottom of Table 4, this factor structure was found among men and women, with the exception that in men conscientiousness loaded with Gender Orientation on Factor 4. Once again, the Big Five appeared to encompass the seven factors excavated from the sexuality lexicon.

Our final examination of the comprehensiveness of the Big Five came in the form of a combined factor analysis of all 100 adjectives reflecting the Big Five and all 67 adjectives that form the seven factors of sexual description. A principal axis factor analysis with oblimin rotation of all 167 items clearly yielded a five-factor solution, with the first 12 eigenvalues being 20.3, 14.9, 9.3, 6.5, 6.2, 4.6, 4.1, 3.6, 3.4, 2.9, 2.7, and 2.5. Factor 1 included virtually all of the items from the personality factor of agreeableness and the sexuality factors of Emotional Investment and Relationship Exclusivity. The second factor contained items from Sexual Attractiveness and Erotophilic Disposition. The third factor contained all the items from Emotional Stability and

Gender Orientation. The fourth factor contained items from extraversion and conscientiousness, along with sexual adjectives from Sexual Restraint. Finally, factor 5 contained items from openness to experience and Sexual Orientation. Analyses within each sex, although having a poor subject-to-item ratio, provided similar factor structures.

Because the sexuality factors of Sexual Attractiveness and Erotophilic Disposition formed their own factor, we could argue, as have others (e.g., Henss, 1996), that certain Sexual Attractiveness adjectives are somewhat independent of the Big Five. In fact, in a recent analysis of synonym clusters loosely related to our Sexual Attractiveness factor, Saucier and Goldberg (1998) concluded "As for Attractiveness, substantial lexical representation is indicated by the number of adjectives in Attractiveness clusters. . . as well as their forming a separate rather large factor in previous studies" (p. 515). It should be noted, however, that because so many of the sexuality factors we uncovered were related to extraversion, when we factor analyzed them along with all the other factors it most likely put pressure on the solution to create additional "subfactors" of extraversion that did not really exist as additional factors. Thus, this form of analysis was perhaps not the best test of whether the seven sexuality factors, and Sexual Attractiveness in particular, are within or beyond the Big Five.

Our analyses of the relationship of the seven sexuality factors to the Big Five—multiple correlations, canonical correlation, and combined factor analyses of scales and items—taken together indicated the sexuality lexicon and its higher level factors are probably not beyond the Big Five. Rather, it appeared that most of the sexuality lexicon is related to the personality traits of extraversion and agreeableness, components of the Interpersonal Circle (Wiggins, 1979), with female sexuality also showing links to conscientiousness and with Sexual Orientation being related to openness to experience in both sexes.

Sex Differences in Sexuality Factors

The final major goal of this research was to examine sex differences in sexuality description linked to the evolutionary hypothesis that men possess more of a short-term mating orientation than women. To this end, we conducted *t* tests for differences between the means of male and female participants. We also computed effect sizes (*d*) as estimates of the magnitude of difference between men and women (Hyde & Lynn, 1986).

As seen in Table 5, this was done for both personality and sexuality scales for comparative purposes. The *t* tests for sex differences in personality means show that women reported significantly more extraversion, agreeableness, and conscientiousness, and significantly less emotional stability, than men. As seen in the last column of Table 5, however, these differences were of small to moderate magnitude ($.32 < d < .54$).

TABLE 5
Magnitude and Significance of Sex Differences on Five Personality Factors and Seven Sexuality Factors

	Males		Females		Significance		Effect size	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>	<i>d</i>
<i>Personality factors</i>								
Extraversion	5.81	1.10	6.20	1.27	-2.87	.004	-0.32	-0.32
Agreeableness	6.53	0.84	6.98	0.79	-4.80	<.001	-0.54	-0.54
Conscientiousness	6.17	0.90	6.68	0.94	-4.82	<.001	-0.53	-0.53
Emotional Stability	5.08	1.11	4.59	1.03	3.99	<.001	0.45	0.45
Openness to Experience	6.71	0.95	6.77	0.89	-0.60	ns	-0.07	-0.07
<i>Sexuality factors</i>								
Gender Orientation	2.44	0.97	7.33	1.02	-46.04	<.001	-1.87	-1.87
Relationship Exclusivity	7.05	1.33	7.89	1.08	-6.61	<.001	-0.67	-0.67
Emotional Investment	7.12	0.95	7.73	0.86	-6.55	<.001	-0.66	-0.66
Erotophilic Disposition	4.58	1.24	4.05	1.21	4.12	<.001	0.43	0.43
Sexual Attractiveness	5.91	1.06	6.12	1.13	-1.78	ns	-0.19	-0.19
Sexual Restraint	3.28	1.97	3.45	2.04	-0.82	ns	-0.09	-0.09
Sexual Orientation	1.48	1.08	1.48	1.05	0.04	ns	0.00	0.00

Note. These analyses are based on the responses of 367 people (150 men and 217 women) who described themselves using an inventory of 67 sexuality-descriptive terms and 311 people (131 men and 180 women) who described themselves using an inventory of 100 personality-descriptive terms (Goldberg, 1992). For both inventories, rating scales ranged from 1 (indicating the terms were extremely inaccurate at describing oneself) to 9 (indicating the terms were extremely accurate at describing oneself). Effect sizes were computed using the *d* statistic, which expresses the difference between means in pooled standard deviation units. Cohen (1969) defines effect sizes as small if ± 0.20 , moderate if ± 0.50 , and large if greater than ± 0.80 .

There were several moderate to large and highly significant sexuality differences between men and women in four of seven sexuality factors. Gender Orientation ($d = 1.87$) showed the largest sex difference. Relatively large to moderate differences were found on the dimensions of Relationship Exclusivity and Emotional Investment (women higher) and a moderate difference was found on Erotophilic Disposition (men higher). Only on the dimensions of Sexual Attractiveness, Sexual Restraint, and Sexual Orientation were no significant sex differences found.

One of the larger sex differences in sexuality came on the dimension of Relationship Exclusivity. Men were significantly lower than women on the Relationship Exclusivity dimension [$t(365) = -6.61, p < .001, d = -0.67$]. Men described themselves as more unfaithful, promiscuous, polygamous, loose, and adulterous than did women, who in turn described themselves as more faithful, monogamous, and devoted than men. These results support the hypothesis that short-term mating looms larger in men's than women's sexual repertoires (see Buss & Schmitt, 1993).

DISCUSSION

Evolutionary personality theory views individual differences in sexuality as among the most important ways that people differ from one another. Other classic personality psychologists, including Freud (1914/1953), Fromm (1956), Erikson (1968), and Rogers (1972), also placed variation in sexuality and romantic functioning at the core of their personality theories. Unfortunately, early lexical researchers of personality decided to exclude many sexuality terms from their initial studies of the lexicon of person description. As a result, the lexicon of sexuality and its relationship to modern models of personality description remained largely unexamined. The current research redressed these omissions by systematically exploring the sexuality lexicon and uncovering seven psychometrically sound factors of sexual description. By relating these seven sexuality factors to the traditional Big Five model of personality, we were able to document that the sexuality lexicon is, to a limited degree, subsumed by the Big Five.

The current findings have further implications for three key issues in personality psychology—identifying important dimensions of personality in the relatively neglected sphere of sexuality variation, locating important dimensions of sexuality variation more precisely within existing taxonomies of personality, and fully exploring the realm of sex differences in personality. Each of these topics is taken up in turn.

Individual Differences in the Sexual Sphere

This research represents the first attempt to use the classic lexical strategy to identify individual differences in the sexual sphere. Focusing on formal sexuality adjectives that most people understand, we found an abundance of

terms that each capture a somewhat different facet of sexuality. Factor analyses of these sexuality adjectives yielded seven coherent factors. Among these seven factors was a dimension that has been well explored by other investigators—*Gender Orientation* (Bem, 1974; Maccoby, 1987; Spence & Helmreich, 1978). Furthermore, the *Emotional Investment* factor has been captured by the Wiggins (1979) circumplex model of interpersonal behavior and overlaps (or shares variance) with the agreeableness factor in traditional five-factor models (Wiggins & Herzmueller, 1978). In addition, although *Sexual Attractiveness* has been tapped lexically in previous studies (Saucier, 1997; Saucier & Goldberg, 1998), it was not clear where it resides, and whether it should reside, in the current taxonomies of personality. Furthermore, we discovered four lexical factors of sexuality that had yet to be related to current taxonomies of personality—*Erotophilic Disposition*, *Relationship Exclusivity*, *Sexual Restraint*, and *Sexual Orientation*.

From this preliminary analysis of the sexuality lexicon, we conclude that human sexuality does not vary on a single, monolithic dimension. Individuals differ in a dazzling variety of ways in their sexuality. Over the ages, people have invented terms to capture these sexuality differences. Other people have found these terms useful, and so they have evolved within the natural language. The original lexical strategy (Allport & Odbert, 1936; Norman, 1963; Goldberg, 1990) thus has proven to be a powerful method for identifying individual differences that are of importance to people in everyday life and over time. In this sense, we endorse Goldberg's (1982) conclusion that "we must retain a much larger set of terms until such time as empirical data bearing on their potential usefulness warrant the decision to remove any of them" (p. 205).

The many lexically encoded differences in sexuality support a key premise of evolutionary personality psychology (Buss, 1991). According to its tenets, events surrounding and affecting reproduction are of central importance. Thus, the discovery of individual differences such as degree of allure or attractiveness to potential mates (Sexual Attractiveness), exclusivity of reproductive resources (Relationship Exclusivity), and commitment to a long-term union (Emotional Investment) suggests that dimensions of sexuality are indeed of central importance to individuals in everyday life. Presumably, those in our evolutionary past who noticed and attended to these differences in others more successfully solved adaptive problems than those who were oblivious to these differences—for example, by making wiser choices in a short-term mate (Sexual Attractiveness) or in a long-term marriage partner (Relationship Exclusivity and Emotional Investment).

Placing an emphasis on these dimensions may advance the research anchored along the temporal dimension of short-term versus long-term mating (Gangestad & Simpson, 1990; Schmitt & Buss, 1996). Traditionally, the psychological differences between short-term versus long-term romantic rela-

tionship seeking have been the primary focus of human mating strategy research (Buss, 1994). This single sexuality dimension—sociosexuality (Simpson & Gangestad, 1991a)—though, logically has at least four facets: number of current relationships, duration of each relationship, emotional engagement in each relationship, and sexual fervor of each relationship. These facets bear a resemblance to our sexuality factors. The first two facets relate to Relationship Exclusivity. The third facet may reflect the Emotional Investment factor. The last facet relates to Erotophilic Disposition, and Sexual Restraint may potentially relate to all four facets. Because we can now assess the logical facets of mating strategies as seven specific sexuality factors, we can empirically explore a wider array of mating psychologies and their consequences. Although these remain speculations, a multivariate approach to short-term versus long-term mating phenomena would likely augment the theory and research of this domain.

Focusing on these dimensions of sexuality also offers an avenue for expanding the study of personality to more fully capture its complexity. The next step in researching these dimensions, however, includes identifying the *origins* and *consequences* of these individual differences. Are sexuality differences heritable in origin or are they due to predictable environmental variables such as parenting practices or father-absence during development (Belsky, Steinberg, & Draper, 1991)? What are the consequences of these individual differences for important life outcomes such as reputation, marital happiness, divorce, professional success, health, mortality, and number of children produced? Through exploring these origins and consequences, future research can more fully identify the importance of sexuality differences for individual functioning in everyday life.

Sexuality Dimensions and Personality Taxonomies

Early advocates of the Big Five did not envision it as a definitive or terminal structure. After completing his taxonomic work on the five-factor model more than three decades ago, Norman (1963) concluded: “It is time to return to the total pool of trait names in the natural language” (p. 582). Norman was convinced that there remained important individual differences, discoverable through the lexical strategy, beyond the Big Five.

The current research used evolutionary personality psychology as one heuristic to guide us to a sphere of critical theoretical importance that might have been overlooked by early lexical researchers. The discovery that “sex-linkage” had been used as an exclusion criterion by early lexical researchers suggested that the lexicon might contain a rich vein of individual differences—central to evolutionary personality theory—that remained heretofore undiscovered. Our research confirmed that a relatively rich vein exists in the form of individual differences in sexual description.

Can the factors of sexuality be adequately subsumed by the Big Five? Or

will the five-factor model of personality require revision? Our findings suggest that most dimensions of sexuality can, to some extent, be subsumed by the Big Five. The Emotional Investment factor, for example, showed strong correlations with the agreeableness factor and was also modestly correlated with extraversion. Furthermore, the Wiggins (1979) circumplex model of interpersonal behavior has Emotional Investment (Love) as one of its two major axes. Nonetheless, the current analysis of the Emotional Investment factor adds to its conceptual elaboration by identifying facets such as Love (e.g., loving, compassionate) and Romance (e.g., romantic, cuddlesome) that have not been delineated in previous frameworks.

Still, where should each of the seven sexuality factors be placed within the Big Five? Are they all subfacets of individual traits or should each be seen as a unique combination of traditional personality facets? We feel the most appropriate way to answer this question is to view the Big Five and the seven factors of sexuality as part of a hierarchy of personality concepts (Digman, 1997; Eysenck, 1947; John, Hampson, & Goldberg, 1991). According to Digman (1997), the Big Five can be viewed as one possible expression of the more abstract personality concepts of Alpha and Beta. Alpha is a higher order factor of personality with an extremely large bandwidth that can be expressed more concretely in the form of agreeableness, conscientiousness, and emotional stability. Beta represents a general factor that can be expressed with greater fidelity through extraversion and openness. Other theorists break Alpha and Beta into different concepts. For example, interpersonal theorists express Alpha in terms of Communion or Love and Beta as Agency or Status (Wiggins, 1979). Motive theorists express Alpha in terms of Intimacy or Affiliation and Beta as Power or Dominance (McAdams, 1992). Individualistic psychologists express Alpha and Beta in terms of Social Interest and Superiority Striving, respectively (Adler, 1939).

We view the seven sexuality factors uncovered in the present study as an expression of Alpha and Beta variation within the context of evolutionary personality theory. The scales of Relationship Exclusivity, Gender Orientation, and Emotional Investment are an expression of primarily Alpha variation, whereas most of the other sexuality factors are expressions of Beta. Some factors, like Erotophilic Disposition, may possess both Alpha and Beta variation. Thus, it is our contention that the seven sexuality factors are best viewed as a recarving of general personality variation along sex-specific dimensions. Essentially, the sexuality factors reflect the reapportionment of Big Five variation along more evolution-relevant, sexual dimensions of personality description.

As seen in Fig. 1, we feel that the seven sexuality factors, here termed the "Sexy Seven," represent high-order (Level Four) factors within a hierarchical view of personality (Digman, 1997; Eysenck, 1947). Each factor of sexuality is more specific than the metatraits of Alpha and Beta, and each can

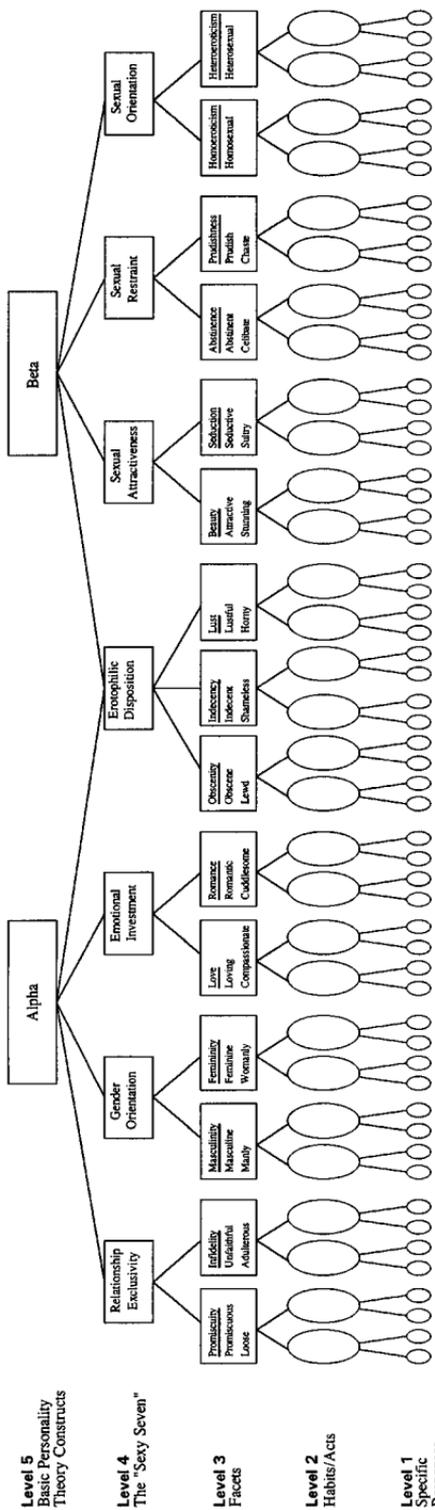


FIG. 1 A hierarchical view of sexuality description based on Digman's (1997) conception of Alpha and Beta.

be broken down into even more specific facets of sexuality. For example, as noted by Saucier and Goldberg (1998), the broad domain of Sexual Attractiveness adjectives can be theoretically divided into facets pertaining to attributes that attract courtship attempts (Beauty) and those that facilitate courtship (Seduction). Preliminary factor analyses of the adjectives within Sexual Attractiveness suggests these two facets do exist as distinguishable constructs.

The same can be said of the other sexuality factors. Relationship Exclusivity can be decomposed into facets of Promiscuity (e.g., promiscuous, loose) and Infidelity (e.g., unfaithful, adulterous). Gender Orientation is obviously composed of Masculinity and Femininity. Sexual Restraint can be decomposed into the facets of Abstinence (e.g., abstinent, celibate) and Prudishness (e.g., prudish, chaste). Erotophilic Disposition can be broken down into facets of Obscenity (e.g., obscene, lewd), Indecency (e.g., indecent, shameless), and Lust (e.g., lustful, horny). Sexual Orientation, as with sophisticated sexological research and theory (see Storms, 1981), can be broken into facets of homoeroticism (e.g., homosexual) and heteroeroticism (e.g., heterosexual). According to a hierarchical view of personality, the level of sexuality facets (Level Three) could be further divided into more concrete sexual acts and habits, which could subsequently be broken down into specific sexual responses.

In sum, we view the Sexy Seven as one possible expression—similar in hierarchical level to the Big Five—of the more abstract personality dimensions of Alpha and Beta. Clearly, the Sexy Seven do not possess the broad explanatory scope of the domain-general Big Five, neither are they simply sexual facets of the Big Five that have been overlooked due to previous exclusion criteria. Instead, the Sexy Seven reflect basic personality variation as expressed in the domain-specific context of human sexuality. Thus, the Sexy Seven represent a new set of lexical signposts, inspired by evolutionary personality theory, that may be distinctively situated for charting the realm of human mating variation and its consequences.

In a recent study (Simpson et al., 1999), the Big Five apparently lacked the theoretical relevance and specificity necessary to predict the differential use of evolved mate competition tactics. However, the evolutionary-relevant dimension of sociosexuality did predict mating tactic use. In a similar vein, there is some evidence that the Sexy Seven may provide a more theoretically relevant measure of variation in sexuality and romantic functioning than the Big Five (see Schmitt, 1999) and may do so with more conceptual diversity than the single dimension of sociosexuality. Thus, we might speculate that the Sexy Seven may provide a welcome balance between theoretical specificity and conceptual breadth in the domain of human mating variation.

Sex Differences in Dimensions of Sexuality

The major current taxonomies of personality show few dimensions along which the sexes differ. Within most personality taxonomies, for example,

only neuroticism and agreeableness show consistent sex differences, with women scoring higher than men (Feingold, 1994). This rather meager depiction of sex differences seems at odds with most people's intuitions about the ways in which the sexes differ in personality (see, e.g., Eagly, 1995). Perhaps an early decision to exclude terms based on "sex linkage"—terms believed by the researchers to apply more to one sex than to the other—impoverished the resulting taxonomies as tools for describing the dimensions along which men and women differ.

Models based in evolutionary personality psychology provide a powerful framework for predicting sex differences. In particular, the sexes are predicted to differ precisely in those domains where the sexes have faced different adaptive problems over human evolutionary history (Buss, 1995). One of the most important such domains is that of sexuality, and especially those aspects of sexuality dealing with the pursuit of short-term versus long-term mating. Since short-term mating historically had a higher reproductive payoff for men than for women, the sexes have been predicted to differ in their desire for sexual variety (Buss, 1994; Symons, 1979; Trivers, 1972). The findings that men score higher than women on Erotophilic Disposition and lower than women on Relationship Exclusivity and Emotional Investment add to a growing body of literature supporting this evolutionary hypothesis (see Buss & Schmitt, 1993).

Personality taxonomies anchored in the lexical strategy have a conceptual commitment to include dimensions of individual differences that are of sufficient importance in everyday life that they have become encoded within the natural language. Given the number of sexual adjectives uncovered in the present study, the centrality of sexuality to contemporary theories of personality and evolution, and the relevance of sex and gender to people's everyday lives, sex-linkage cannot continue as a justified criterion for exclusion. Indeed, future research should continue to excavate the unexplored array of sexual terms and their implicit meanings, including type-nouns and slang terms used in everyday discourse across cultures. Thus, the current research can be viewed as taking us one step closer toward the goal originally envisioned by the pioneering lexicalists—one step closer "toward an adequate taxonomy of personality attributes" (Norman, 1963).

APPENDIX

How Accurately Can You Describe Your Sexuality?

- Please rate how accurately each of the following adjectives describes your sexuality.
- So that you can describe yourself in a completely honest manner, your responses will be kept in absolute confidence; only a random identification number will be connected with your responses.

- Please try to describe yourself as you are at the present time, not as you wish to be in the future.
- Try also to describe yourself as you are generally or typically, as compared with other persons you know of the same sex and of roughly your same age.
- Please write a number after each adjective indicating how accurately that word describes you by using the following nine-point scale:

<u>INACCURATE</u>									<u>ACCURATE</u>
<u>Extremely</u>	<u>Very</u>	<u>Quite</u>	<u>Slightly</u>	<u>Neither</u>	<u>Slightly</u>	<u>Quite</u>	<u>Very</u>	<u>Extremely</u>	
1	2	3	4	5	6	7	8	9	
Abstinent	_____		Flirtatious		_____		Obscene	_____	
Adorable	_____		Gentlemanly		_____		Orgasmic	_____	
Adulterous	_____		Hard-to-get		_____		Orgiastic	_____	
Affectionate	_____		Heterosexual		_____		Passionate	_____	
Alluring	_____		Homosexual		_____		Perverted	_____	
Amorous	_____		Horny		_____		Polygamous	_____	
Arousing	_____		Immodest		_____		Promiscuous	_____	
Asexual	_____		Indecent		_____		Provocative	_____	
Attractive	_____		Indiscreet		_____		Prudish	_____	
Bisexual	_____		Jealous		_____		Risqué	_____	
Celibate	_____		Kinky		_____		Romantic	_____	
Charming	_____		Ladylike		_____		Seductive	_____	
Chaste	_____		Lewd		_____		Sensual	_____	
Compassionate	_____		Loose		_____		Sexual	_____	
Coy	_____		Lovable		_____		Sexy	_____	
Crude	_____		Loving		_____		Shameless	_____	
Cuddlesome	_____		Lustful		_____		Stunning	_____	
Devoted	_____		Manly		_____		Suggestive	_____	
Effeminate	_____		Marriable		_____		Sultry	_____	
Erotic	_____		Masculine		_____		Unfaithful	_____	
Faithful	_____		Monogamous		_____		Virginal	_____	
Feminine	_____		Nymphomaniacal		_____		Vulgar	_____	
							Womanly	_____	

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