

Evidence for the Big Five in analyses of familiar English personality adjectives

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Abstract

Studies of the natural language are a prime source of the Big-Five model, yet the factor analysis of a large, representative, and non-clustered set of English-language personality adjectives in a large sample has not yet been published. In order to test the hypothesis that finding the Big Five depends on biasing the variable selection with an investigator's preferred non-familiar terms, we present the factor analysis of 435 familiar adjectives in a combined sample (N = 899) of 507 self- and 392 peer ratings. The five-factor solution reproduced the Big Five with high clarity, demonstrating generally very high correlations with Goldberg's adjective markers of the Big Five. The Intellect factor had a more moderate correlation, due to its de-emphasis of the creativity components of Factor V, a phenomenon that may occur commonly with the lexical Intellect factor.

INTRODUCTION

An increasing number of researchers have adopted the view that phenotypic personality variation is most meaningfully distinguished in terms of five broad orthogonal factors, labeled the Big Five (Digman, 1990; Goldberg, 1990, 1993; John, 1990; Ostendorf, 1990). These factors demonstrate robustness not only within data sets (see e.g. Ostendorf, 1990), and between self- and peer ratings (e.g. Goldberg, 1990; Ostendorf, 1990), but even between languages. That is, 'emic' or within-language

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studies of personality descriptors from lexical sources, using exploratory factor analysis, generally converge on these five factors. Convergence has so far been clearest in studies utilizing German (Ostendorf, 1990), Czech (Hrebickova, Ostendorf and Angleitner, 1995), and Dutch (De Raad, Mulder, Kloosterman and Hofstee, 1988); convergence was also quite strong in studies of Hungarian (De Raad and Szirmák, 1994), Russian (Shmelyov and Pokhil'ko, 1993), and Filipino (Church, Reyes, Katigbak and Grimm, 1995). The present report addresses and documents the lexical Big Five in English.

Although five-factor models have been developed, following a partially independent course, in the questionnaire domain (McCrae and Costa, 1987), and in studies of scales developed by Cattell (Digman and Takemoto-Chock, 1981; Norman, 1963; Tupes and Christal, 1961), lexical studies provide the most powerful evidence in support of the Big Five. Personality-questionnaire items sample from the 'population' of phrases and sentences, a virtually infinite population that cannot be representatively sampled. Commonly used single words descriptive of personality are a more finite population, more amenable to representative sampling. Adjectives are particularly advantageous because they richly include both desirable and undesirable attributes, whereas personality type-nouns (at least in English) make reference to relatively fewer desirable attributes.

A representative sampling of personality-descriptive terms, especially adjectives, might yield a representative sampling of personality attributes. This rather straightforward psychometric rationale is consonant with the lexical hypothesis, which states that (i) the most distinctive, significant, and widespread phenotypic attributes tend to become encoded as single words in the conceptual reservoir of language, and (ii) the degree of representation of an attribute in language tends to correspond to the relative importance of the attribute (Saucier and Goldberg, 1995). Because expert personality-attribute distinctions might go beyond those emphasized in everyday transactions (Block, 1995), representative sampling by way of the lexical approach can provide necessary, though not sufficient, features for an optimal representation of personality attributes (Goldberg and Saucier, 1995).

Lexical studies of English-language personality descriptors began with Allport and Odbert (1936); they extracted 17954 'trait names' from an unabridged dictionary and provided a four-column classification of these terms, with approximately 4500 terms falling into their 'stable trait' column. About three decades later, Norman (1967) retraced the footsteps of Allport and Odbert, examining a new edition of the same unabridged dictionary and extracting 171 more trait terms. Using various criteria—difficulty, ambiguity, metaphoricalness, and reference to states, activities, social evaluations, and overt characteristics rather than traits—Norman's four-person research team produced a list of 2797 terms for stable traits, including 608 'prime terms' of particularly low difficulty, colloquiality, and awkwardness.

Goldberg (1976; 1982) culled Norman's 2797-term stable-trait pool to devise a set of 1710 terms by eliminating nouns, as well as adjectives that were difficult, that referred to 'nonhuman and/or evil motives or behaviors' (Goldberg, 1982, p. 209), or that were considered ambiguous or intuitively unsuitable. A further culling on grounds of ambiguity, difficulty, slanginess, sex-linkage, over-evaluation, metaphoricalness, and redundancy left 492 trait terms. Although they were never analyzed as a distinct variable selection, these 492 'Norman-Goldberg' terms form

the major part of a 540-adjective inventory that Goldberg and colleagues drew on for major studies of the Big-Five structure (Goldberg, 1990; 1992; Hofstee, De Raad and Goldberg, 1992; Saucier, 1992a) and the development of adjective measures of the Big Five using adjective clusters (Goldberg, 1990) and single (unipolar) adjectives (Goldberg, 1992). Saucier (1994a) developed a brief version of Goldberg's unipolar-adjective measure.

However, both the 492- and 540-term sets include some terms that are relatively unfamiliar to many subjects (e.g. Imperturbable, Indefatigable). What comes out of a factor analysis depends largely on what goes into it, and Block (1995) has pointed to the hazards of experts inadvertently 'prestructuring' their data sets. If such prestructuring were to occur in lexical studies, it would be exhibited partly in the retention of certain variables despite their low frequency of use in everyday transactions; in other words, the expert may add certain 'expert variables', or cluster the variables in a biased manner, and thereby affect the results. One useful corrective for this inadvertent trend is to collect data on the familiarity of the terms from a sample of judges. Eliminating the less familiar terms should skim off the 'expert' variables and reduce the potential for bias in variable selection.

If finding the Big Five is dependent on investigators' prestructuring their data sets, as Block (1995) has suggested, the Big Five should not emerge clearly to the extent that variable selection is left in the hands of judges other than the investigator, and there is no clustering of terms. In this study, we test this hypothesis. We delineate the most familiar subset within the sets of 492 and 540 adjectives, and examine the factor structure of this unclustered subset. If the 'expert-bias hypothesis' is correct, the Big-Five factor structure will be less clear in this subset than in the larger sets that contain possible 'expert bias'.

METHOD

The familiar subset of adjectives

We first utilized familiarity ratings of the 540 adjectives provided by eight men and 17 women, students in an undergraduate psychology course at an ethnically diverse university in the western United States (Saucier, 1995). The 540 adjectives were included in a collection of 843 'stable-trait terms,' including also Norman's 608 prime terms for stable traits, plus a few other adjectives included in neither list but studied elsewhere (Saucier, 1994b; Saucier and Goldberg, 1994). The terms were rated on a 0-9 rating scale, with 0 indicating that the judge had no knowledge of the term, 1 indicating it was 'Never' used, and 9 indicating it was used 'Extremely often' to describe a person. The interrater alpha coefficient was 0.96 (mean interrater correlation = 0.51) for these ratings.

To enhance comparisons with a particularly influential and thorough previous study, we sought a set of variables of approximately equal size to Ostendorf's (1990) prime set of 430 German disposition adjectives. Beginning with the 492 Norman-Goldberg trait terms, we removed those 57 adjectives with a mean familiarity rating (in the work of Saucier (1995)) of less than 3.25, yielding a more compact and familiar set of 435 adjectives.

Subjects

Goldberg (1990; 1992) and Ostendorf (1990) have demonstrated the relative invariance of the Big-Five structure across self- versus peer ratings. We combined ratings of liked peers ($N=392$) using these 435 adjectives drawn from two samples (Samples A and B) with self-ratings ($N=507$) using the same adjectives drawn from two other samples (Samples C and D). These samples are described and analyzed separately in an earlier report (Goldberg, 1990), which included analyses solely of scales (i.e. item clusters). Because the samples used differing rating scales, we ipsatized (Z scored) each subject's responses to remove individual differences in the use of the rating scales.

Sample A consisted of ratings provided by 316 undergraduates in a psychology course, who used a seven-step rating scale to describe peers whom they liked on a 587-adjective inventory. Sample B consisted of ratings provided by 76 students, undergraduates in a psychology course or law school students, who used an eight-step rating scale to describe peers whom they liked on a 566-item inventory. Sample C consisted of 320 undergraduates in a psychology course who used a seven-step rating scale for self-descriptions on the 587-adjective inventory. Sample D consisted of 187 undergraduates who used an eight-step rating scale for self-descriptions on a 1710-adjective inventory. All subjects were students at a large university in the western United States.

Analyses

Ipsatized ratings of self- and peer targets using the 435 familiar personality adjectives (435-FPA) were pooled into a common data set ($N=899$). Use of this large sample affords high factor stability. We performed a principal-components analysis of the 435-FPA; in order to assess the stability of the first five factors under rotation of additional factors, we examined solutions with five to 12 factors.

In order to assess the robustness of the Big Five in this lexical data set, we correlated the factor scores from the first five factors with those from separate principal-components analyses of two adjective inventories of the Big Five. Goldberg (1992) provided a unipolar Big-Five inventory, and 99 of the 100 marker adjectives (all except *neat*) were administered to the present samples. As another measure of the Big Five, we used Goldberg's (1990) 100 clusters, based on 339 adjectives that had been administered to the present samples.

RESULTS

In the analysis of the 435-FPA, the first ten eigenvalues were 30.9, 25.2, 17.9, 12.8, 10.7, 6.7, 6.6, 5.6, 4.7, and 4.3; a clear elbow is obvious after the fifth factor. When the first five components were rotated by the varimax procedure, they produced factors clearly representing the Big-Five factors. Table 1 presents the correlations of the five 435-FPA factor scores with those from the two sets of Big-Five markers. For the 100 unipolar markers, correlations between corresponding factors are 0.91 and above for the first four of the Big Five, and 0.76 for the fifth 'Intellect' factor. For the 100 clusters, correlations between corresponding factors are all 0.88 and above,

Table 1. Correlations between factors from Goldberg's Big-Five markers and factors from 435 familiar personality adjectives

Factors from 435 familiar personality adjectives	Factors from Goldberg Big-Five marker set				
	I	II	III	IV	V
	Factors from 100 Unipolar Markers				
Factor I (Extraversion)	0.94	0.15	0.00	0.01	0.10
Factor II (Agreeableness/Benevolence)	-0.13	0.91	0.04	0.01	0.01
Factor III (Conscientiousness)	0.00	-0.01	0.92	0.05	0.07
Factor IV (Emotional Stability)	0.01	0.03	-0.03	0.91	-0.09
Factor V (Intellect/Imagination)	-0.07	-0.05	-0.05	0.09	0.76
	Factors from 100 Clusters				
Factor I (Extraversion)	0.98	-0.08	0.02	-0.09	0.04
Factor II (Agreeableness/Benevolence)	0.05	0.92	0.08	-0.35	-0.02
Factor III (Conscientiousness)	-0.02	-0.04	0.98	0.08	0.05
Factor IV (Emotional Stability)	0.12	0.35	-0.06	0.88	-0.10
Factor V (Intellect/Imagination)	-0.01	0.06	-0.03	0.13	0.92

Note: (N = 899) Factors from unipolar factor markers (Goldberg, 1992) were based on 99 rather than 100 adjectives. Coefficients of 0.40 or greater in magnitude are listed in boldface type.

with the Intellect factor producing an impressive 0.92 correlation. The two sets of Big-Five markers produced similar sets of factors, with congruence correlations of 0.93, 0.84, 0.93, 0.85, and 0.86, respectively, for Big-Five factors I-V.

Table 2 provides the factor loadings of the 435 adjectives on each of the five factors; the order reflects the relative size (variance) of the factors (e.g. Factor II is largest), and the sign reflects the relative size of the item subsets at each pole of the factor (e.g. the negative pole of Factor IV has more items). The highest-loading terms are prototypical Big-Five adjectives. Interestingly, the highest-loading terms on the fifth (Intellect) factor were clearly *Intellect* terms rather than *Creativity* terms; the highest-loading terms were Intelligent (0.55) and Intellectual (0.50), whereas Creative and Imaginative have considerably lower loadings (0.33 and 0.31), a pattern very similar to that found in Ostendorf's (1990) analyses of 430 German disposition adjectives.

When more than five factors were rotated, the first five large factors remained nearly invariant. The average correlations of the first five factors with corresponding factors in succeeding solutions of six to 11 factors were 0.95, 0.90, 0.93, 0.91, 0.89, and 0.90, respectively; the average for the 12-factor solution was 0.84. The additional factors appearing most frequently were (i) Informality/Unsophisticatedness, (ii) Adventurousness, (iii) Roughness/Toughness, and (iv) Religiousness. However, none of these factors remained invariant as a greater or lesser numbers of factors were rotated. Other analyses on our part (Saucier and Goldberg, 1994) suggest that factors beyond the Big Five, from lexical variable selections such as the 435-FPA, are difficult to replicate. Such additional factors are very small, with few adjectives loading more highly on them than on the Big Five.

Nothing in these results supports the expert-bias hypothesis. Indeed, with the reduction of a large inventory of adjectives to those adjectives independent judges

Table 2. Factor loadings of 435 familiar personality adjectives on five factors

Adjective	II	I	III	IV-	V
Sympathetic	0.62*	0.02	-0.05	0.07	0.03
Kind	0.60*	0.07	0.06	0.02	0.00
Warm	0.56*	0.26	0.06	0.10	0.07
Understanding	0.53*	0.03	0.10	-0.04	0.13
Courteous	0.53*	-0.07	0.23	0.02	0.00
Compassionate	0.52*	0.12	0.02	0.13	0.18
Cooperative	0.52*	-0.04	0.22	-0.18	-0.03
Polite	0.52*	-0.07	0.30	0.04	-0.07
Affectionate	0.51*	0.21	-0.01	0.21	0.09
Considerate	0.51*	-0.01	0.18	-0.07	0.05
Respectful	0.51*	-0.04	0.31	-0.02	-0.16
Sincere	0.49*	-0.01	0.12	-0.05	0.10
Sentimental	0.48*	0.08	0.01	0.34	-0.09
Cordial	0.47*	0.07	0.01	0.02	0.16
Helpful	0.47*	0.14	0.19	-0.14	0.09
Tolerant	0.46*	-0.17	-0.07	-0.36	0.13
Charitable	0.46*	0.12	0.04	-0.14	0.11
Sensitive	0.46*	-0.10	0.00	0.35	0.23
Agreeable	0.46*	-0.07	-0.01	-0.16	0.03
Pleasant	0.45*	0.22	0.03	-0.22	-0.06
Feminine	0.43*	0.00	-0.06	0.37	0.02
Trustful	0.43*	0.06	0.15	-0.23	-0.13
Loyal	0.43*	0.06	0.13	-0.03	0.09
Thoughtful	0.42*	-0.07	0.20	-0.03	0.15
Peaceful	0.42*	-0.08	0.10	-0.32	-0.02
Obliging	0.41*	-0.08	0.05	-0.11	0.03
Generous	0.40*	0.15	-0.03	-0.15	0.04
Amiable	0.40*	0.08	-0.08	-0.08	0.27
Cheerful	0.40*	0.38	0.03	-0.22	-0.06
Mannerly	0.39*	-0.09	0.34	0.10	-0.02
Flexible	0.39*	0.07	-0.02	-0.20	0.13
Reasonable	0.38*	-0.06	0.25	-0.25	0.12
Modest	0.37*	-0.29	0.18	-0.08	-0.01
Genial	0.37*	0.14	-0.08	-0.03	0.30
Jovial	0.37*	0.36	-0.06	-0.13	0.09
Accommodating	0.35*	0.02	0.03	-0.12	0.01
Humble	0.35*	-0.21	0.12	-0.17	-0.12
Gullible	0.33*	-0.10	-0.28	0.27	-0.18
Moral	0.33*	-0.09	0.26	-0.02	-0.02
Honest	0.32*	0.01	0.22	-0.17	0.04
Religious	0.31*	0.01	0.17	0.06	-0.18
Passionate	0.31*	0.20	-0.04	0.27	0.09
Optimistic	0.31*	0.30	0.09	-0.24	0.02
Lenient	0.30*	-0.15	-0.16	-0.15	0.07
Benevolent	0.30*	-0.09	-0.04	-0.11	0.23
Unselfish	0.30*	0.08	0.06	-0.22	0.05
Conscientious	0.30*	-0.08	0.30	-0.02	0.19
Reverent	0.29*	-0.01	0.20	0.06	-0.14
Tactful	0.29*	-0.06	0.21	-0.02	0.21
Earnest	0.29*	-0.03	0.07	-0.09	0.22
Adaptable	0.27*	0.06	0.11	-0.24	0.13
Truthful	0.26*	-0.01	0.19	-0.22	0.10

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Naive	0.26*	-0.20	-0.21	0.12	-0.18
Altruistic	0.25*	0.00	-0.03	-0.06	0.22
Compliant	0.24*	-0.19	-0.02	0.01	-0.04
Natural	0.23*	0.09	0.03	-0.17	0.14
Suggestible	0.17*	0.00	-0.06	0.07	-0.16
Selfless	0.13*	-0.12	0.00	-0.12	0.00
Cold	-0.50*	-0.33	0.03	-0.02	0.10
Harsh	-0.50*	0.03	0.06	0.08	-0.05
Rude	-0.50*	0.08	-0.15	0.00	0.06
Unsympathetic	-0.48*	-0.14	-0.01	-0.16	0.01
Antagonistic	-0.47*	-0.09	-0.09	0.19	-0.02
Abusive	-0.46*	0.01	-0.11	-0.03	-0.11
Rough	-0.45*	0.16	0.03	-0.23	-0.11
Inconsiderate	-0.43*	-0.06	-0.29	-0.03	0.05
Egotistical	-0.42*	0.12	-0.09	0.18	0.09
Combative	-0.42*	0.19	0.07	0.04	-0.09
Callous	-0.41*	-0.03	0.04	-0.11	-0.21
Domineering	-0.41*	0.40	0.15	0.10	-0.02
Impolite	-0.41*	0.00	-0.25	-0.17	0.15
Belligerent	-0.41*	0.09	-0.03	0.11	-0.11
Ruthless	-0.41*	0.09	0.01	-0.07	-0.16
Coarse	-0.41*	0.01	-0.13	-0.10	-0.17
Abrupt	-0.41*	0.12	-0.10	0.11	0.07
Insincere	-0.40*	-0.08	-0.11	0.01	-0.07
Cruel	-0.40*	0.00	-0.04	-0.06	0.00
Unkind	-0.40*	-0.14	-0.09	-0.12	0.01
Insensitive	-0.39*	-0.09	-0.04	-0.27	-0.02
Impersonal	-0.38*	-0.31	0.06	-0.07	-0.02
Scornful	-0.38*	-0.09	-0.04	0.19	-0.04
Uncharitable	-0.38*	-0.14	0.00	0.00	-0.01
Cynical	-0.36*	-0.17	-0.11	0.04	0.19
Bitter	-0.35*	-0.21	-0.06	0.27	0.06
Uncooperative	-0.35*	-0.02	-0.16	0.05	0.04
Demanding	-0.34*	0.19	0.15	0.31	0.00
Egocentric	-0.34*	0.04	-0.12	0.13	0.12
Conceited	-0.34*	0.11	-0.12	0.18	0.16
Bigoted	-0.34*	0.02	-0.07	0.05	-0.17
Intolerant	-0.34*	0.04	0.04	0.28	-0.08
Unforgiving	-0.34*	-0.12	-0.02	0.13	0.09
Disrespectful	-0.33*	0.00	-0.31	-0.14	0.23
Tough	-0.33*	0.15	0.13	-0.24	-0.05
Sly	-0.33*	0.16	0.04	-0.01	0.00
Stubborn	-0.33*	0.07	-0.04	0.23	0.05
Greedy	-0.33*	-0.05	-0.12	0.27	0.00
Argumentative	-0.32*	0.16	-0.02	0.22	0.01
Bullheaded	-0.32*	0.15	-0.08	0.12	0.03
Boastful	-0.32*	0.29	-0.10	0.17	-0.14
Critical	-0.32*	-0.01	0.06	0.31	0.17
Rebellious	-0.30*	0.15	-0.24	0.08	0.29
Deceitful	-0.30*	0.03	-0.15	0.07	-0.06
Sarcastic	-0.30*	0.03	-0.09	0.16	0.14
Underhanded	-0.29*	0.08	-0.08	-0.05	-0.16

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Vindictive	-0.29*	0.03	0.05	0.11	-0.28
Suspicious	-0.29*	-0.18	0.05	0.24	-0.04
Devious	-0.29*	0.16	-0.10	0.09	-0.11
Thoughtless	-0.29*	-0.07	-0.26	-0.09	0.00
Ungracious	-0.29*	-0.16	-0.19	-0.15	0.01
Prejudiced	-0.28*	-0.01	-0.03	0.07	-0.08
Uncouth	-0.28*	0.02	-0.20	-0.18	-0.08
Tactless	-0.27*	-0.01	-0.21	-0.06	-0.15
Manipulative	-0.27*	0.16	0.08	0.13	0.02
Cunning	-0.27*	0.22	0.09	-0.06	0.02
Opinionated	-0.26*	0.22	0.07	0.11	0.03
Unruly	-0.26*	0.22	-0.25	-0.07	-0.02
Rigid	-0.26*	-0.11	0.24	0.01	-0.18
Obstinate	-0.26*	0.03	-0.05	0.24	0.09
Stingy	-0.25*	-0.13	0.04	0.22	0.01
Nonreligious	-0.25*	-0.08	-0.16	-0.17	0.19
Smug	-0.24*	0.01	0.01	0.10	-0.01
Skeptical	-0.24*	-0.23	0.03	0.11	0.22
Vain	-0.23*	0.05	-0.13	0.21	0.16
Irreverent	-0.18*	-0.05	-0.14	-0.11	0.09
Crafty	-0.16*	0.11	0.06	-0.10	-0.04
Masochistic	-0.14*	-0.08	-0.06	-0.01	-0.08
Self-seeking	-0.11*	0.05	0.04	0.07	0.08
Extroverted	0.06	0.64*	-0.07	-0.01	0.07
Talkative	0.09	0.62*	-0.15	0.13	-0.07
Aggressive	-0.30	0.61*	0.09	0.00	0.02
Sociable	0.27	0.59*	-0.01	-0.04	-0.07
Social	0.25	0.58*	-0.04	0.00	-0.08
Assertive	-0.15	0.53*	0.15	-0.08	0.14
Bold	-0.18	0.53*	0.03	-0.19	0.05
Verbal	-0.03	0.53*	-0.08	0.05	0.11
Enthusiastic	0.29	0.50*	0.02	-0.03	-0.01
Spirited	0.23	0.49*	-0.01	-0.02	0.10
Confident	-0.07	0.49*	0.26	-0.32	0.10
Communicative	0.25	0.49*	0.04	-0.02	0.10
Magnetic	0.22	0.48*	-0.02	-0.05	0.17
Energetic	0.16	0.48*	0.12	-0.13	0.02
Daring	-0.14	0.46*	0.00	-0.20	0.02
Rambunctious	0.00	0.46*	-0.15	0.06	-0.04
Outspoken	-0.14	0.45*	-0.09	-0.03	0.21
Vivacious	0.31	0.44*	0.00	0.03	0.10
Dominant	-0.36	0.44*	0.20	0.05	0.09
Merry	0.38	0.44*	-0.02	-0.15	-0.09
Unrestrained	-0.01	0.43*	-0.17	-0.10	-0.02
Active	0.11	0.43*	0.15	-0.14	0.02
Boisterous	-0.15	0.42*	-0.15	-0.01	-0.07
Assured	0.01	0.42*	0.23	-0.31	0.12
Uninhibited	-0.06	0.42*	-0.16	-0.20	0.20
Playful	0.20	0.41*	-0.12	-0.02	-0.09
Happy-go-lucky	0.21	0.40*	-0.21	-0.22	-0.21
Vigorous	0.04	0.40*	0.05	-0.15	0.12
Friendly	0.37	0.39*	-0.03	-0.17	-0.16

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Flamboyant	-0.04	0.39*	-0.10	0.08	0.01
Adventurous	0.00	0.38*	-0.04	-0.19	0.10
Expressive	0.12	0.38*	0.06	0.14	0.22
Forceful	-0.34	0.38*	0.15	-0.01	0.11
Carefree	0.18	0.37*	-0.22	-0.22	-0.12
Flirtatious	0.03	0.36*	-0.15	0.20	0.00
Competitive	-0.25	0.34*	0.19	-0.03	-0.11
Mischievous	-0.10	0.34*	-0.19	0.02	0.14
Direct	-0.07	0.33*	0.14	-0.13	0.22
Spontaneous	0.09	0.33*	-0.11	-0.04	0.25
Zealous	0.20	0.32*	-0.03	0.00	0.08
Gregarious	0.07	0.32*	-0.10	0.03	0.07
Exhibitionistic	-0.20	0.32*	-0.17	0.06	0.05
Straightforward	-0.02	0.31*	0.10	-0.19	0.19
Humorous	0.15	0.31*	-0.09	-0.13	0.01
Frank	-0.08	0.31*	0.02	-0.09	0.22
Opportunistic	-0.09	0.30*	0.16	-0.04	0.01
Demonstrative	0.03	0.29*	-0.07	0.01	0.15
Enterprising	-0.04	0.28*	0.21	-0.19	0.27
Sexy	0.06	0.28*	-0.01	0.07	0.17
Hearty	0.11	0.28*	0.07	-0.24	0.02
Wordy	0.00	0.26*	-0.09	0.17	0.04
Explosive	-0.25	0.25*	-0.10	0.21	-0.04
Witty	-0.01	0.24*	-0.03	-0.15	0.21
Persistent	-0.10	0.23*	0.20	-0.01	0.12
Proud	-0.09	0.20*	0.16	0.01	0.07
Impetuous	-0.04	0.17*	-0.17	0.12	0.06
Intrusive	-0.13	0.16*	-0.05	0.03	-0.14
Withdrawn	-0.05	-0.67*	-0.04	0.02	0.08
Silent	0.07	-0.66*	0.08	-0.08	-0.02
Introverted	0.02	-0.65*	0.01	0.03	0.10
Shy	0.18	-0.65*	0.06	0.03	-0.01
Quiet	0.15	-0.64*	0.15	-0.09	0.12
Reserved	0.09	-0.60*	0.22	-0.06	0.02
Timid	0.30	-0.60*	-0.01	0.08	-0.11
Bashful	0.22	-0.59*	0.05	0.03	-0.02
Unsociable	-0.17	-0.59*	0.02	-0.04	0.16
Unaggressive	0.35	-0.57*	-0.14	-0.07	0.06
Inhibited	0.09	-0.54*	-0.02	0.15	-0.06
Uncommunicative	-0.18	-0.52*	-0.07	-0.08	-0.01
Passive	0.22	-0.48*	-0.06	-0.03	-0.19
Meek	0.22	-0.48*	-0.08	0.02	-0.22
Restrained	0.12	-0.47*	0.20	-0.10	0.03
Dull	-0.03	-0.46*	-0.05	-0.02	-0.05
Bland	-0.02	-0.44*	0.07	-0.09	-0.19
Sedate	0.07	-0.41*	0.06	-0.11	-0.10
Somber	-0.09	-0.41*	0.12	-0.03	-0.14
Melancholic	0.00	-0.40*	-0.04	0.20	-0.09
Unfriendly	-0.28	-0.40*	-0.03	-0.01	0.15
Unadventurous	0.10	-0.38*	0.01	0.08	-0.08
Detached	-0.18	-0.37*	-0.08	-0.12	0.07
Uncompetitive	0.29	-0.37*	-0.18	-0.07	0.14

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Submissive	0.34	-0.36*	-0.09	0.11	-0.23
Cowardly	0.25	-0.36*	-0.15	0.26	-0.05
Indirect	0.11	-0.35*	-0.14	0.06	0.01
Pessimistic	-0.14	-0.35*	-0.07	0.24	0.02
Negativistic	-0.31	-0.34*	-0.08	0.31	-0.03
Placid	0.12	-0.34*	0.10	-0.20	-0.04
Sluggish	-0.04	-0.33*	-0.19	0.09	-0.11
Nonpersistent	0.16	-0.33*	-0.23	-0.14	-0.04
Serious	0.03	-0.31*	0.31	0.04	0.17
Aloof	-0.20	-0.30*	-0.03	0.03	0.06
Vague	0.03	-0.28*	-0.28	0.11	-0.07
Docile	0.24	-0.28*	0.05	-0.04	-0.19
Secretive	-0.07	-0.28*	0.02	0.11	-0.04
Unimaginative	0.05	-0.25*	0.00	-0.07	-0.22
Wary	-0.06	-0.25*	0.07	0.09	0.18
Lethargic	-0.07	-0.25*	-0.19	0.04	-0.16
Unaffectionate	-0.15	-0.25*	0.00	-0.22	0.13
Prudish	0.13	-0.24*	0.15	0.12	-0.17
Apathetic	-0.08	-0.23*	-0.04	-0.01	-0.18
Humorless	-0.06	-0.23*	0.13	-0.10	-0.06
Impartial	0.08	-0.23*	0.08	-0.17	0.12
Organized	0.08	-0.06	0.65*	0.08	-0.02
Precise	-0.02	-0.01	0.61*	-0.01	0.12
Responsible	0.28	-0.02	0.59*	-0.06	0.08
Thorough	0.04	0.00	0.58*	-0.11	0.13
Efficient	0.09	0.01	0.57*	0.00	0.07
Orderly	0.08	-0.06	0.57*	0.11	-0.06
Self-disciplined	0.12	0.01	0.55*	-0.16	0.09
Practical	0.14	-0.08	0.54*	-0.16	0.04
Systematic	0.05	-0.12	0.54*	-0.04	0.08
Dependable	0.31	-0.05	0.51*	-0.06	-0.01
Reliable	0.33	-0.02	0.49*	-0.07	0.03
Exacting	-0.08	-0.02	0.47*	0.02	0.10
Concise	0.05	0.00	0.46*	-0.13	0.13
Careful	0.19	-0.22	0.46*	0.01	0.01
Prompt	0.16	-0.03	0.46*	0.05	-0.03
Logical	-0.03	-0.04	0.46*	-0.22	0.27
Consistent	0.05	-0.03	0.45*	-0.34	-0.07
Steady	0.17	-0.01	0.44*	-0.33	0.06
Meticulous	0.01	-0.11	0.44*	0.09	0.04
Decisive	-0.03	0.18	0.43*	-0.22	0.15
Punctual	0.14	-0.08	0.40*	0.04	0.03
Firm	-0.17	0.17	0.40*	-0.15	0.08
Economical	0.14	-0.13	0.39*	-0.14	0.01
Cautious	0.14	-0.32	0.39*	0.12	-0.03
Strict	-0.14	-0.04	0.38*	0.12	-0.11
Purposeful	0.11	0.15	0.38*	-0.10	0.19
Dignified	0.06	0.07	0.38*	0.00	0.04
Formal	0.07	-0.09	0.37*	0.14	-0.14
Perfectionistic	-0.07	-0.07	0.37*	0.16	0.13
Mature	0.20	-0.01	0.37*	-0.21	0.20
Industrious	0.07	0.12	0.36*	-0.14	0.25

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Stern	-0.29	0.02	0.36*	0.01	-0.15
Controlled	0.11	-0.17	0.36*	-0.22	-0.02
Alert	0.11	0.16	0.36*	-0.09	0.20
Rational	0.13	-0.08	0.35*	-0.24	0.32
Thrifty	0.12	-0.14	0.34*	-0.12	-0.03
Ambitious	0.04	0.28	0.34*	0.03	0.11
Conservative	0.09	-0.20	0.32*	0.00	-0.28
Wise	0.07	0.08	0.30*	-0.21	0.28
Sophisticated	0.14	0.13	0.30*	0.07	0.18
Foresighted	0.12	-0.02	0.29*	-0.11	0.27
Deliberate	-0.08	0.00	0.28*	-0.09	0.12
Refined	0.25	-0.05	0.27*	0.07	0.15
Principled	0.20	-0.08	0.27*	-0.10	0.15
Cultured	0.21	0.05	0.27*	0.06	0.18
Objective	0.15	-0.04	0.27*	-0.16	0.22
Moralistic	0.23	-0.11	0.26*	0.07	-0.23
Discreet	0.24	-0.26	0.26*	-0.09	0.18
Poised	0.18	0.13	0.26*	-0.11	0.12
Disorganized	0.01	0.01	-0.64*	-0.06	0.07
Haphazard	-0.10	0.04	-0.57*	0.00	-0.09
Disorderly	-0.08	0.05	-0.57*	-0.13	0.05
Careless	-0.09	0.06	-0.57*	-0.01	-0.04
Inefficient	0.01	-0.16	-0.54*	-0.04	0.06
Impractical	-0.06	-0.02	-0.53*	0.11	-0.01
Unreliable	-0.18	0.02	-0.51*	-0.01	0.01
Inconsistent	-0.06	-0.05	-0.51*	0.22	0.06
Absent-minded	0.02	-0.10	-0.50*	0.05	0.09
Scatterbrained	0.13	0.01	-0.47*	0.15	-0.01
Illogical	0.07	0.00	-0.46*	0.14	-0.14
Sloppy	-0.10	-0.01	-0.46*	-0.17	0.08
Undependable	-0.13	0.00	-0.45*	-0.04	0.10
Immature	-0.05	0.00	-0.44*	0.16	-0.09
Erratic	-0.13	-0.01	-0.43*	0.19	0.12
Negligent	-0.16	-0.07	-0.43*	0.03	-0.12
Reckless	-0.21	0.18	-0.43*	-0.03	0.07
Indecisive	0.12	-0.27	-0.41*	0.20	-0.09
Forgetful	0.02	-0.06	-0.40*	0.08	0.02
Lazy	-0.02	-0.24	-0.40*	0.10	-0.02
Unstable	0.00	-0.20	-0.39*	0.28	0.05
Aimless	-0.07	-0.21	-0.38*	-0.16	-0.05
Foolhardy	-0.02	0.14	-0.38*	0.00	-0.18
Impulsive	0.06	0.26	-0.37*	0.21	0.06
Lax	0.02	-0.09	-0.36*	-0.08	-0.09
Wishy-washy	0.07	-0.26	-0.33*	0.14	-0.06
Wasteful	-0.06	0.06	-0.32*	0.09	-0.03
Unambitious	0.06	-0.27	-0.30*	-0.09	-0.03
Frivolous	0.07	0.09	-0.30*	0.21	-0.04
Rash	-0.18	0.11	-0.29*	0.12	-0.04
Unsophisticated	0.03	-0.17	-0.25*	-0.22	-0.10
Dishonest	-0.20	0.01	-0.25*	0.05	0.05
Unobservant	0.04	-0.12	-0.24*	-0.12	-0.23
Indiscreet	-0.11	0.14	-0.21*	-0.03	-0.16

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Lustful	-0.16	0.07	-0.20*	0.12	0.11
Indulgent	0.04	0.11	-0.18*	0.10	0.09
Transparent	0.08	-0.03	-0.13*	0.10	-0.12
Moody	-0.13	-0.17	-0.07	0.53*	0.04
Touchy	-0.06	-0.15	0.01	0.51*	-0.14
Temperamental	-0.20	-0.05	-0.05	0.51*	0.01
Irritable	-0.27	-0.11	-0.01	0.49*	-0.03
Emotional	0.38	0.12	-0.09	0.49*	-0.02
Jealous	-0.09	-0.07	-0.06	0.47*	-0.10
Envious	-0.04	-0.12	-0.10	0.47*	-0.08
Possessive	-0.07	-0.01	0.11	0.46*	-0.07
Fretful	0.07	-0.24	-0.07	0.45*	-0.05
Impatient	-0.23	0.00	-0.02	0.44*	0.01
Self-pitying	-0.03	-0.36	-0.08	0.43*	-0.03
Nervous	0.08	-0.23	-0.05	0.42*	-0.05
Crabby	-0.24	-0.15	-0.01	0.42*	-0.07
Defensive	-0.17	-0.17	-0.04	0.41*	-0.05
Grumpy	-0.27	-0.19	-0.03	0.40*	-0.07
High-strung	-0.03	0.10	-0.08	0.40*	0.03
Insecure	0.06	-0.36	-0.29	0.39*	0.02
Cranky	-0.30	-0.08	-0.05	0.39*	-0.11
Fearful	0.18	-0.24	-0.06	0.38*	-0.12
Faultfinding	-0.31	-0.10	0.05	0.38*	-0.02
Quarrelsome	-0.36	0.11	-0.01	0.38*	-0.05
Anxious	0.05	-0.02	0.00	0.38*	-0.13
Finicky	-0.06	-0.06	0.07	0.35*	-0.02
Snobbish	-0.25	0.00	-0.05	0.33*	0.08
Bossy	-0.31	0.30	0.04	0.32*	-0.02
Gossipy	0.08	0.13	-0.19	0.32*	-0.15
Nosey	-0.04	0.16	-0.15	0.32*	-0.14
Selfish	-0.24	-0.16	-0.14	0.31*	0.21
Excitable	0.22	0.30	-0.07	0.31*	-0.10
Restless	-0.10	0.05	-0.20	0.30*	0.07
Compulsive	-0.02	0.12	-0.26	0.26*	0.02
Hypocritical	-0.16	-0.09	-0.18	0.26*	-0.14
Obsessive	-0.18	-0.05	-0.12	0.25*	-0.04
Meddlesome	-0.05	0.16	-0.08	0.25*	-0.16
Extravagant	0.01	0.21	-0.13	0.24*	0.00
Volatile	-0.05	0.11	-0.08	0.22*	-0.03
Self-indulgent	-0.09	0.08	-0.15	0.22*	0.13
Superstitious	0.05	0.05	-0.08	0.10*	-0.09
Relaxed	0.21	0.17	0.04	-0.48*	-0.02
Unemotional	-0.30	-0.26	0.08	-0.47*	0.05
Patient	0.43	-0.13	0.11	-0.44*	0.07
Masculine	-0.34	0.01	0.05	-0.43*	0.10
Undemanding	0.30	-0.23	-0.13	-0.42*	0.00
Easy-going	0.30	0.22	-0.15	-0.41*	-0.06
Unexcitable	-0.19	-0.34	0.04	-0.41*	0.13
Courageous	-0.08	0.33	0.10	-0.35*	0.07
Brave	-0.09	0.30	0.13	-0.35*	0.07
Informal	0.07	0.01	-0.26	-0.33*	0.23
Down-to-earth	0.24	-0.01	0.14	-0.28*	0.09

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Passionless	-0.19	-0.21	0.03	-0.28*	0.03
Earthy	0.22	-0.03	-0.01	-0.26*	0.18
Nonchalant	-0.01	0.04	-0.09	-0.26*	0.03
Unassuming	0.16	-0.18	-0.14	-0.26*	0.16
Casual	0.12	0.08	-0.16	-0.25*	0.00
Weariless	-0.01	0.18	0.08	-0.23*	0.06
Intelligent	0.03	0.03	0.16	-0.13	0.55*
Intellectual	-0.02	0.04	0.21	-0.08	0.50*
Smart	0.03	0.02	0.18	-0.17	0.49*
Complex	0.00	-0.10	-0.04	0.14	0.48*
Philosophical	0.03	-0.03	0.01	-0.04	0.47*
Innovative	0.04	0.13	0.09	-0.16	0.44*
Bright	0.09	0.12	0.12	-0.12	0.44*
Unconventional	-0.02	0.03	-0.32	-0.10	0.44*
Knowledgeable	0.02	0.05	0.26	-0.16	0.43*
Deep	0.20	-0.07	0.03	0.01	0.43*
Ingenious	-0.02	0.11	0.06	-0.18	0.43*
Inquisitive	0.05	0.09	-0.03	0.00	0.43*
Insightful	0.11	-0.04	0.01	-0.10	0.42*
Nonconforming	-0.09	0.04	-0.17	-0.17	0.42*
Analytical	-0.08	-0.12	0.27	-0.02	0.42*
Introspective	0.12	-0.26	-0.05	0.05	0.41*
Contemplative	0.15	-0.24	0.02	0.03	0.41*
Perceptive	0.14	0.04	0.19	-0.04	0.40*
Articulate	0.07	0.10	0.15	0.01	0.38*
Inventive	-0.04	0.16	0.06	-0.17	0.36*
Creative	0.07	0.10	0.00	-0.08	0.33*
Shrewd	-0.33	0.02	0.02	-0.09	0.33*
Individualistic	-0.17	0.08	0.06	-0.13	0.33*
Clever	-0.09	0.18	0.14	-0.21	0.33*
Intense	-0.02	0.12	0.11	0.12	0.31*
Imaginative	0.05	0.14	-0.04	-0.05	0.31*
Independent	-0.14	0.20	0.18	-0.20	0.30*
Self-critical	0.18	-0.21	0.03	0.24	0.30*
Progressive	0.15	0.16	0.17	-0.08	0.28*
Diplomatic	0.23	0.08	0.13	-0.06	0.28*
Empathic	0.22	-0.01	-0.01	0.03	0.28*
Versatile	0.12	0.16	0.09	-0.23	0.27*
Distrustful	-0.27	-0.19	-0.11	0.18	0.27*
Idealistic	0.18	0.02	-0.10	0.12	0.26*
Eloquent	0.10	0.18	0.16	0.00	0.25*
Artistic	0.12	0.01	0.01	0.01	0.25*
Candid	-0.01	0.15	-0.06	-0.10	0.25*
Worldly	-0.04	0.20	0.09	-0.04	0.24*
Unpredictable	0.03	0.10	-0.17	0.12	0.23*
Scrupulous	0.04	-0.11	0.12	-0.09	0.23*
Curious	0.05	0.13	0.02	0.05	0.23*
Tenacious	-0.06	0.10	0.10	-0.05	0.22*
Animated	0.17	0.13	-0.19	0.05	0.21*
Sensual	0.12	0.16	-0.13	0.16	0.20*
Ethical	0.20	-0.17	0.18	-0.10	0.20*
Autonomous	-0.03	-0.10	0.13	-0.12	0.18*

(continued)

Table 2. (continued)

Adjective	II	I	III	IV-	V
Subjective	0.04	-0.01	-0.02	0.05	0.06*
Simple	0.12	-0.13	0.01	-0.17	-0.45*
Conventional	0.12	-0.13	0.33	-0.06	-0.38*
Traditional	0.14	-0.14	0.28	0.02	-0.36*
Uninquisitive	-0.03	-0.21	0.00	-0.14	-0.35*
Unintelligent	0.07	-0.09	-0.16	-0.02	-0.34*
Surly	-0.24	0.03	0.13	-0.04	-0.31*
Pompous	-0.16	0.12	0.07	0.08	-0.31*
Dependent	0.22	-0.14	-0.07	0.18	-0.29*
Shallow	-0.10	-0.12	-0.09	-0.03	-0.29*
Unintellectual	0.10	-0.10	-0.20	-0.09	-0.27*
Patronizing	-0.02	0.03	0.04	0.06	-0.27*
Ignorant	0.04	-0.07	-0.18	0.02	-0.27*
Inarticulate	0.03	-0.15	-0.12	-0.12	-0.26*
Pretentious	-0.15	0.14	-0.02	0.10	-0.25*
Unscrupulous	-0.06	0.08	-0.06	-0.05	-0.24*
Predictable	0.04	-0.19	0.14	-0.19	-0.22*
Condescending	-0.11	-0.07	0.06	0.06	-0.15*
Dogmatic	-0.10	-0.04	0.06	0.01	-0.11*

Note. $N=899$. * indicates the factor on which each adjective has its highest loading. Loadings of 0.30 and greater in magnitude are printed in boldface. The factors (principal components based on combined ipsatized self- and peer ratings) are presented in the natural order in which they appeared. I, Extraversion; II, Agreeableness; III, Conscientiousness; IV-, Emotional Stability with reversed sign; V, Intellect/Imagination.

considered most familiar, the Big-Five structure remained clear. With respect even to Factor V it converged closely with the results obtained in another language (Ostendorf, 1990).

DISCUSSION

Given the already abundant literature on the lexical basis for the Big Five (e.g. Goldberg, 1990; John, 1990; Ostendorf and Angleitner, 1994a; Saucier and Goldberg, 1995), these analyses require relatively little comment. Among English-language lexical studies, the present composite sample is the largest to date, and the Big Five emerged readily and robustly from a representative set of familiar adjectives. For the first four Big-Five factors—Extraversion, Agreeableness, Conscientiousness, and Emotional Stability—the correlations with Goldberg's (1990; 1992) adjective measures were quite high (0.88 and higher). Because this variable selection probably has an advantage over previous ones with regard to representativeness and familiarity, the results depicted in Tables 1 and 2 provide a potent confirmation of the Big Five.

The fifth 'Intellect' factor does demand some discussion. The correlation of the 435-FPA Factor V with the corresponding 100-cluster Factor V was, impressively, 0.92. However, the correlation between the 435-FPA factor and the corresponding

unipolar-marker factor was only 0.76. The reason for this lower coefficient is clear: the 435-FPA factor is an Intellect factor, with its most highly loading and factor-pure terms having content related to intelligence, complexity, and philosophicalness, whereas adjectives relating to Creativity have lower loadings. In contrast, among the highest-loading and most factor-pure terms on the unipolar-marker factor are those having to do with Creativity (Goldberg, 1992, Table 3).

Intellect and Creativity are substantially correlated, but which is the 'correct' position for the *core* of the factor? This question is the subject of a lively controversy. Johnson and Ostendorf (1993) reanalyzed 15 English- and German-language data sets and drew the conclusion that Creativity 'lies at the core of the meaning of' this factor; later Johnson (1994) labeled this core 'Creative Mentality.' Saucier (1992b) noted that many studies of English-language adjectives located the Creativity adjectives (e.g. creative, original, imaginative) at the core of this factor. Both Johnson (1994) and Saucier (1994c) pointed out that the 'creative' facets of Openness to Aesthetics and to Ideas are also at the factorial core of the Openness scale on the NEO Personality Inventory (NEO-PI-R; Costa and McCrae, 1992). Trapnell (1994) has labeled the pervasive trend toward Creativity interpretations a 'lexical left turn'; it is possible that the variable selections in some studies have been influenced, even if indirectly and inadvertently, by McCrae and Costa's (1987) widely published arguments in favor of an Openness construct.

However, Ostendorf and Angleitner (1994b) noted that these Creativity interpretations were 'frequently based on analyses of scales that had been derived deductively in order to measure the five factors' (p. 346) and employed in highly selective samples of subjects. They cited the appearance of a very clear *Intellect* (*not* Creativity) factor in Ostendorf's (1990) analysis of a representative set of German disposition-descriptive adjectives. Indeed, Ostendorf's fifth factor (1990) has an uncanny similarity to the one emerging from the 435-FPA. Because of cognate terms, even persons not fluent in German can understand: *intelligent*, *intellektuel*, and *unintelligent* had noticeably higher loadings on this factor than did *kreativ* and *poetisch*. Other lexical studies of representative sets of adjectives (De Raad and Szirmák, 1994; Hrebickova *et al.*, 1995; Saucier, 1995) have found a factor that is more like Intellect than Creativity. Indeed, Goldberg's (1992) 100 clusters, rather than his unipolar markers, generated a factor with higher loadings for Intellect than for Creativity terms.

Either axis location, Intellect or Creativity, seems compatible with Saucier's (1994c) linking of this factor to individual differences in what Kant called Imagination, the degree of 'free play of the cognitive faculties' (Kant, 1958, p. 58), but the practical challenge of measuring the factor demands some empirical precision. Moreover, across studies, the fifth lexical factor seems to wobble unpredictably between an Intellect and a Creativity location. Intellect may be opening a competitive lead among the representative lexical studies. However, the number of such lexical studies is still limited; we are likely to gain most clarification from further studies of representative selections of lexical variables.

CONCLUSIONS

Block (1995) has proposed that whether one finds the Big Five is dependent on how well one prestructures the data set; this study undermines that viewpoint. When we

reduced a set of unclustered common English personality descriptors to *only the most familiar* descriptors, we found a crystal-clear representation of the Big Five. Moreover, we found a version of the much-disputed Big Five Factor V closely resembling that which emerged in a key lexical study in another language (Ostendorf, 1990). The present study, therefore, provides strong lexical evidence supporting the Big-Five personality factors.

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