

# **Lexical Studies of Indigenous Personality Factors: Premises, Products, and Prospects**

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**ABSTRACT** The rationale for lexical studies rests on the assumption that the most meaningful personality attributes tend to become encoded in language as single-word descriptors. We articulate some key premises of the lexical approach and then review a number of studies that have been conducted examining the factor structure of personality descriptors extracted from dictionaries. We compare lexical studies in English and 12 other languages, with attention to delineating consistencies between the structures found in diverse languages. Our review suggests that the Anglo-Germanic Big Five is reproduced better in some languages than in others. We propose some organizing rules for lexical factor structures that may be more generalizable than the contemporary Big-Five model. And, we propose several candidate structural models that should be compared with the Big Five in future studies, including structures with one, two, and three very broad factors, an alternative five-factor structure identified in Italian and Hungarian studies, and a seven-factor structure represented in Hebrew and Philippine studies. We recommend that in future studies more

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attention be paid to middle-level personality constructs and to examining the effects of methodological variations on the resulting factor structures.

Lexical studies of personality attributes have as their purpose the identification of the most salient aspects of human personality, based on representation of these aspects in the lexicon of a language. Although most lexical studies focus on a single language, the approach affords useful comparisons between languages. In this article, we detail the key premises of the lexical approach to studying personality attributes across cultures. We present a synopsis of research based on the lexical approach, and suggest implications from the pattern of results obtained in these studies.

### **Key Premises of the Lexical Approach**

In a previously published chapter (Saucier & Goldberg, 1996b), we described eight key premises of the lexical approach, as we conceive it. We focus on the applications to personality, although the approach is beginning to be applied to other fields (e.g., Saucier, 2000b; Schmitt & Buss, 2000).

*1. Personality language refers to phenotypes and not genotypes.* Person-descriptive predicates refer to observable (surface) characteristics rather than underlying (causal) properties. As a result, the language of personality can provide a framework for description, but not necessarily for explanation. Moreover, the lexical approach cannot be considered a form of “trait theory” since it makes no a priori assumption that the phenotypic attributes encoded in language are stable ones.

*2. Important phenotypic attributes become encoded in the natural language.* Both Cattell (1943, 1957) and Norman (1967) stated this premise explicitly: As phenotypic attributes are seen as worthy of notice, words for the attributes appear and are maintained by frequent use. As a result, personality concepts in everyday use inevitably form a substantial part of the subject matter of personality psychology. The scientific study of personality, even if it reveals errors in lay use of these concepts, will always have to relate back to such folk concepts (Hampson, 1994). And scientific concepts often evolve from folk concepts. For example, folk concepts, such as height, weight, volume, and age, provide basic but not

exhaustive (necessary but not sufficient) components for a science of physical differences. Similarly, folk concepts of personality provide basic but not exhaustive (necessary but not sufficient) components for a science of personality attributes.

3. *The degree of representation of an attribute in language has some correspondence with the general importance of the attribute.* “In language” can mean either “across languages” or “within a language.” Imagine a phenotypic personality attribute for which there is a corresponding concept found in virtually any language; such an attribute would have a major claim to importance in a pancultural sense. Imagine another attribute for which there is, within one language, a dense cluster of loosely synonymous terms; such an attribute would also have a major claim to importance, at least with respect to the language community within whose language it is so richly represented (Zipf, 1949). Attributes that are represented by multiple terms in a language should appear as factors in multivariate analyses; if the terms are used with high frequency, the importance of the factor is underscored. Finding such factors requires an indigenous, or “emic,” research strategy; analyses are carried out separately within each language using native descriptors alone, rather than by importing “etic” selections of variables from other languages (e.g., English).

4. *The lexical perspective provides an unusually strong rationale for the selection of variables in personality research.* A virtually infinite number of sentence-length personality questionnaire items can be constructed. With so many potential variables, how could one make a strong claim to the representativeness or comprehensiveness of the constructs in a personality measure? How could one know when one is using a biased selection of variables? Because there are a limited number of single terms that refer to personality in any language, one can more easily argue that a selection of variables is actually representative of some larger population of variables (cf. Peabody, 1987). Such arguments provide one way of defining content validity for personality measures. Heavily used predicates in the natural language are a powerful indicator of salient psychological phenomena.

5. *Person-description and the sedimentation of important differences in language both work primarily through the adjective function.* Adjectival concepts describe properties of an object and distinguish between members of the same species (Dixon, 1977). Lehmann (1994) notes that property-denoting predicates are the distinct province of adjectives in languages that have adjectives, but can also be represented in nouns and verbs. As an example, consider the following three related descriptions in English: He is drunk (adjective), He is a drunk (noun), He's been drinking (verb). Because the adjective function does not necessarily require adjectives, studies using the lexical approach should not necessarily limit themselves to adjectives. Some concepts may be represented mainly, or only, in nouns or verbs.

6. *The structure of person-descriptions in phrases and sentences is closely related to that based on single words.* Single terms often function holophrastically, incorporating complex ideas normally expressed in sentences. A set of single terms administered as descriptive stimuli generates implied sentences (e.g., "Courageous" implying "I am typically courageous"), in effect controlling for the various forms of conditionals, contextualizations, and specifications that are found in personality questionnaire items. The language of personality can be understood as a semantic hierarchy consisting of words and phrases at different levels of abstraction versus specification (John, Hampson, & Goldberg, 1991). Single terms (e.g., Sociable) are at a broader, more abstract level in this hierarchy than are the specific predicates (e.g., Likes parties) typically found among personality questionnaire items. It is not surprising, then, that analyses of a large number of diverse personality scales seem to generate much the same factor structure as those based on the higher-level single terms. On the other hand, we expect that personality factors sparsely represented in any language, like "Openness to Experience" (McCrae, 1990; but see Saucier, 1992) are more likely to be culture-bound than are lexical personality factors.

7. *The science of personality differs from other disciplines in ways that make the lexical perspective particularly germane in this scientific context, yet not in others.* Physics, chemistry, and physiology provide concepts that diffuse into common speech, but nowadays these sciences do not base themselves on concepts encoded in natural languages. But the science of personality is different. Atoms, chemical elements, stars,

and bodily organs do not communicate with each other through the medium of language; if they did, scientists would certainly want to study the concepts in their language. Personality psychology is concerned with the behavior of social species—in the human case a highly linguistic species—and not of mute, inanimate objects. Personality involves socially meaningful behavior patterns that tend to become represented in language.

8. *The most important dimensions in aggregated personality judgments are the most invariant and universal dimensions—those that replicate across samples of targets, targets of description, and variations in analytic procedures, as well as across languages.* The lexical approach can be employed to locate patterns of person perception idiosyncratic to certain types of samples, targets of description, and languages. In this respect it is highly compatible with the research goals of cultural psychology (Shweder, 1999). However, in any science, patterns of greater generality are given greater emphasis, and the lexical approach can be harnessed toward the scientific goals of comprehensiveness, parsimony, and replication. Moreover, discovery of nomothetic trends (across cultures) can enable clearer identification of idiographic patterns (within culture). The lexical approach might be used to identify a set of ubiquitous factors in personality description—that is, relatively invariant factors generated from independent emic studies in many languages (Goldberg, 1981).<sup>1</sup>

### **The Search for Ubiquitous Lexical Dimensions**

The Big Five is commonly proffered as a candidate for a set of ubiquitous lexical dimensions. This model includes five factors—usually labeled Extraversion (I), Agreeableness (II), Conscientiousness (III), Emotional

1. The hypothesis of ubiquitous lexical dimensions can be stated in two separable forms. First, factors of a specific nature (factor axes located in specific sets of variables) could replicate across structures indigenous to various languages. Alternatively, a descriptive hypersphere or “space” of a certain dimensionality (e.g., three dimensions) could replicate across languages; this form is more liberal with respect to rotational algorithms and indeed would allow the use of factors that have not been rotated at all. Lexical studies to date have usually emphasized the first form, but some studies (Di Blas & Forzi, 1999; Hofstee, De Raad, & Goldberg, 1992; Peabody & Goldberg, 1989; Saucier, 1992a, 2000a; Saucier, Peabody, & Ostendorf, 2001) have stressed the second.

Stability (IV), and Intellect (V)—that were most clearly identified in studies of the related languages of English (Goldberg, 1990; Saucier & Goldberg, 1996a) and German (Ostendorf, 1990). After its identification in early lexical studies, this Big Five has formed the template for a highly influential personality inventory (NEO-PI-R; Costa & McCrae, 1992). So far, this Big Five is the most widely tested structure in lexical studies of indigenous personality factors.

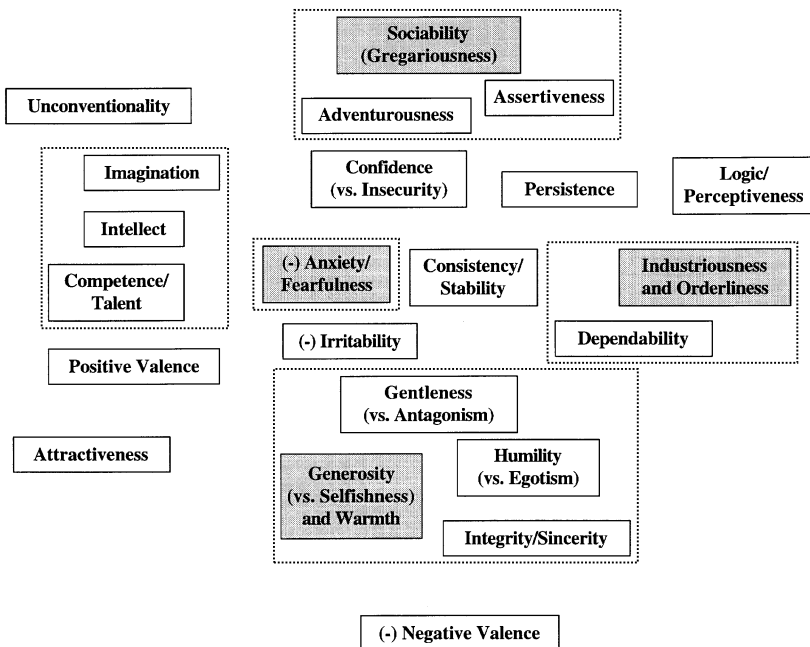
Cross-language studies of the five-factor framework have used both etic (imported) and emic (indigenous) procedures (Berry, 1969). In the former, an imported (usually Western) framework is tried out in the new culture to see how well it fits (e.g., a Big-Five measure is translated into another language to see whether people in the new language community can employ the dimensions). In contrast, emic approaches permit the indigenous framework to emerge without imposing constraints (e.g., a representative sample of the language's person-descriptive adjectives is analyzed). In most lexical studies, investigators use an emic approach to identify the indigenous factors of personality description, and then use an etic measure to compare these dimensions with ones found in other languages. The present review is focused only on emic studies and thus does not include studies primarily designed to develop measures of the English Five-Factor Model in another language (e.g., Benet-Martinez & John, 1998; McCrae & Costa, 1997). For an earlier review of this literature, the reader is referred to a chapter by Saucier, Hampson, and Goldberg (2000).

Emic lexical research studies have been conducted to date in over a dozen languages. The method of choice for these emic studies is exploratory factor analysis (EFA), which seeks the optimized structure "indigenous" to a data set. Unfortunately, results of EFAs that have used both differing sets of variables and differing samples of subjects are difficult to compare. Use of imported markers is a standard remedy, but there are two key limitations of this otherwise praiseworthy strategy: (a) it is not clear which reference structure (e.g., version of the Big Five) should be imported, and (b) in cross-language comparisons the necessity of adequately translating these markers is a complicating element. Confirmatory factor-analytic approaches, which could provide the opportunity to test the generalizability of many reference structures, are severely limited by the difficulty of finding large subsets of widely translatable terms. And, in any case, correlations between sets of broad factors may provide insufficient descriptive information on how factors are similar and

different from each other. Factors are ways of grouping variables, and it would be instructive to examine a set of specific subcomponents or “clusters” making up the broad factors, to see how the grouping of these clusters into factors is similar or different from one language to another. We conjecture that the theme represented in a cluster is likely to transfer better between languages than will a single word, which often has multiple denotations and connotations.

### A Framework for Comparing Factor Structures

In this review, we will refer to the set of clusters depicted in Figure 1. Most of these clusters are derived from a study identifying subcomponents of the Big Five that generalized well between German and English-language lexical data sets (Saucier & Ostendorf, 1999). The clusters from



**Figure 1**

Person-descriptive facets used in reviewing lexical studies (dotted lines indicate Anglo-Germanic Big Five groupings of these facts where these groupings are unambiguous; ungrouped facets are those that tend most strongly to be ‘blends’).

that study are supplemented by (a) a few adaptations of those utilized by Peabody and De Raad (2000) to analyze content differences between five-factor solutions derived from six European languages, and (b) some clusters apparent in studies that have included a wider selection of variables. The set of clusters in Figure 1 is not proposed as final or authoritative, but only as an heuristically useful one, given the studies to date.<sup>2</sup>

We will examine the extent to which one can form general rules about how the clusters in Figure 1 group into factors in one language versus another. Our review owes a significant debt to the detailed review of Peabody and De Raad (2000). Our review, like that of Peabody and De Raad, does rely heavily on English translations of terms from other languages; we would welcome refined interpretations more carefully attentive to the meanings of native terms.

To simplify our review, we will state in advance a few empirically induced rules about the ways that these clusters have grouped into factors in published lexical studies to date.

*Rule 1. If only one factor is extracted, the favorable poles of all the clusters are aligned in the same direction.* This unrotated factor can be labeled Evaluation—the contrast between socially desirable and undesirable qualities. Rule 1 is akin to the well-known finding (Osgood, May, & Miron, 1975) that, in judgments about diverse objects using semantic differential scales from a wide array of cultural settings, a global evaluation factor is the single largest factor.

*Rule 2. If two factors are extracted and rotated, the clusters in Figure 1 tend to split diagonally.* The upper and left clusters divide from the lower and right clusters, yielding two separate groupings. Candidate labels for these factors are Dynamism and Social Propriety (Saucier, 2000); the “dynamism” label is also derived from Osgood’s work, where it indicated a combination of Activity and Potency. Social Propriety (or Socialization) reflects a set of

2. The clusters in the far right and far left of Figure 1 may be correlated with one another, as may be those in the far top and far bottom of the figure. Representations like those in Figure 1 might be statistically formalized via graph-theoretic approaches, but such formalization is beyond the scope of this article.



favorably evaluated attributes that are not extreme in either activity or potency.

Rule 3. *If three factors are extracted and rotated, these factors approximate a Big Three—broad versions of Extraversion, Agreeableness, and Conscientiousness.* This rule may need to be limited to data consisting of ratings of persons by others, rather than self-ratings where it seems to apply with less than perfect consistency.

Rule 4. *As more factors are extracted, groupings are formed such that no rotated factor includes a combination of any two of the following: (a) Sociability (Gregariousness), (b) Warmth and Generosity, (c) Orderliness and Industriousness, and (d) Anxiety-Fearfulness.* These appear to be the most cross-language generalizable nuclei of the factors that emerge as more factors are retained—as few as four or as many as eight, depending on the language and the variable selection. (The four key clusters are shaded in Figure 1.) However, the particular additional clusters that are associated with each of these four mutually independent clusters varies considerably between languages and between studies.

Rule 5. *An additional factor is found (among the first seven extracted and rotated) that includes at least one of the following clusters: Intellect, Imagination, or Unconventionality.* The “or” makes this a permissive rule. There is apparently no consensual core for this factor across languages, although the clusters involved (like Openness to Experience) all appear to be attributes more distinctly emphasized and valued in modern individualistic societies than in other cultures.

Rule 6. *To the extent that a substantial number of relevant variables are included and as many as seven factors are retained, a separate factor including the Negative Valence items will be found.* This rule must be stated somewhat tentatively because only a minority of studies have included relevant variables. An unresolved issue is the meaning of high versus low scores on Negative Valence (e.g., is it a kind of “infrequency” scale?). In addition, under wide variable-selection conditions, an Attractiveness factor might also be found, but an even smaller number of studies have included the relevant variables.

The studies we describe indicate that these rules appear to be more generalizable than the Big-Five structure found in English and German (the “Anglo-Germanic Big Five” or AGB5): Studies that have generated widely different five-factor structures have still conformed to these organizing rules.

The following synopsis of studies does not include ongoing projects for which reports are not yet published; for example, lexical studies are presently being carried out in French, Portuguese, Quechua, Romanian, Croatian, Greek, Chinese, Norwegian, and Slovak. Our review includes only studies that carried out variable selection from a lexicon (dictionary). We classify the studies and languages reviewed into two groups, based on their five-factor solutions: Those with (a) an Anglo-Germanic Big-Five pattern of grouping the clusters in Figure 1, and (b) an alternative pattern with Agreeableness subdivided into two large factors. We will separately consider those studies that employed very wide variable-selection conditions.

### **Group 1: Studies with Structures Resembling the Anglo-Germanic Big Five Studies in English**

Norman (1967) extracted person-descriptive terms from a newer edition of the same unabridged English dictionary that Allport and Odbert (1936) had used in an earlier study. Norman’s research team refined the 18,125 extracted terms by excluding those classified as pure evaluations and as physical and medical terms and categorizing the remainder as (a) stable traits, (b) temporary states and activities, or (c) social roles, relationships, and effects. Through this process, Norman identified a basic set of roughly 2,800 stable trait terms. Goldberg (1976, 1982) reduced Norman’s stable-trait pool to 1,710 by eliminating the least commonly used terms and those that seemed the least dispositional in nature. Using these same criteria, Goldberg later developed a 540-term set that was employed in a number of studies in which university students described themselves and others (Goldberg, 1990); these studies gave evidence of a replicable Big-Five structure from clusters formed from these descriptors.<sup>3</sup> Subsequently,

3. The data used in this study were ipsatized: Each respondent’s ratings were Z-scored, giving each case a mean of 0 and a variance of 1. Ipsatization removes individual differences in response-scale usage that may be due to acquiescence or extremeness vs. moderation responding. A potential disadvantage of ipsatizing is that differences between

Saucier and Goldberg (1996a) analyzed the most familiar subset of 435 adjectives in a combined sample of over 500 self descriptions and nearly 400 descriptions of others, and found a five-factor structure that resembled those from earlier studies. In Factor I (Extraversion), Assertiveness, Adventurousness, and Confidence blended with Sociability. In Factor II (Agreeableness), Gentleness and Humility blended with Warmth and Generosity. In Factor III (Conscientiousness), Consistency/Stability and Dependability blended with Orderliness and Industriousness. In Factor IV (Emotional Stability), Irritability (reversed) blended with Anxiety/Fearfulness (reversed). Finally, Intellect and Imagination formed Factor V. Some Clusters—Unconventionality (III-/V+), Perceptiveness (III+/V+), and Persistence (I/III)—were found in the interstices between the factors, and yet other clusters (Negative Valence, Positive Valence, and Attractiveness) were represented too insufficiently to be considered.

Not all lexical studies in English have, however, led to the same precise groupings. Peabody (1987) developed 53 bipolar scales to represent a large pool of adjectives that included Goldberg's 540 terms. Four college students made judgments of semantic similarity between all of the terms from each pole and each of the bipolar scales. Analyses of these judgments of "internal structure" revealed the Big-Five factors, plus a small "Values" factor. The first three factors (Assertiveness [Extraversion], Agreeableness, and Conscientiousness) were, however, much larger than the remaining ones. Although further analyses of these bipolar scales in self- and peer descriptions consistently found the Big-Five factors (Peabody & Goldberg, 1989), the first three factors (i.e., Extraversion [I], Agreeableness [II], and Conscientiousness [III]) remained substantially larger than the other two (Emotional Stability [IV] and Intellect [V]). In terms of Figure 1, Irritability was grouped with II- rather than IV-, and

respondents in mean or variance may represent in part valid differences (e.g., some people may have more extreme traits, or happen to score validly higher on the traits indicated). Ipsatizing is discussed in detail by ten Berge (1999). All studies described in the following review involved ipsatized data, with these exceptions: (a) Peabody's (1987; Peabody & Goldberg, 1989) studies in English that employed bipolar scales, (b) the studies of Dutch nouns and verbs by De Raad and his colleagues (e.g., De Raad & Hoskens, 1990; De Raad, Mulder, Kloosterman, & Hofstee, 1988; De Raad & Ostendorf, 1996), and (c) Saucier's (2000a) studies of eight American data sets that used *both* raw and ipsatized data sets, and in some cases bipolar scales. Di Blas and Forzi (1999) indicated their results were similar in either raw or ipsatized data.

Persistence with III, while the secondary associations of Intellect and Imagination with factors other than V increased. The sixth “Values” factor relates to Integrity/Sincerity in Figure 1.

The comparative replicability of factor solutions based on English adjectives was further examined by Saucier (2000a), who combined eight American samples (total  $N = 3,062$ ) with variable selections emphasizing “stable dispositional” personality attributes. He found that structures of one, two, and three factors were all more replicable than five-factor structures; their superior replicability was especially evident in peer-rating samples. The factors in the three-factor structure closely resembled the first three of the Big Five. Smaller fourth and fifth factors, independent of these first three, were identified with Anxiety (Anxiety/Fearfulness in Figure 1) and Autonomous Intellectuality (combining Intellect and Unconventionality from Figure 1).

### *Studies in German*

Lexical studies have a long genealogy in Germany. Klages (1932) articulated the lexical rationale, and Baumgarten (1933) created the first list of German personality descriptors, both of which influenced the work of Allport and Odbert (1936). In the 1980s, Angleitner, Ostendorf, and John (1990) extracted 5,101 personality-relevant adjectives (e.g., cynical), 2,212 type nouns (e.g., cynic), and 3,607 attribute nouns (e.g., cynicism) from a comprehensive dictionary and supplementary lexical sources. Judges classified the adjectives into five broad and 13 subordinate categories, a now widely used refinement of Norman’s (1967) category system.

Ostendorf (1990) studied 430 German adjectives that had been classified as either “temperament and character traits” or “abilities and talents.” Over 400 adult participants completed self-reports using the 430 adjectives and measures of the Big Five, and 95% of those individuals were described by from one to three acquaintances. Analyses of the 430 adjectives generated five highly replicable factors in ratings of either self or acquaintances. Correlations of these factors with the corresponding factors from the American-English Big Five averaged over .70 (see Ostendorf & Angleitner, 1994, Table 1). Included in Figure 1 is an indication of which clusters have the most consistent associations with each of the Anglo-Germanic Big Five.

In terms of Figure 1, the German factors resembled those from English in Saucier and Goldberg (1996a), except that Factor IV was smaller (Irritability associated with II), and Factor V included Competence/Talent descriptors. The three-factor solutions (resembling the Big Three; Saucier, Ostendorf, & Peabody, in press) were at least as replicable as those with five factors.<sup>4</sup>

### *Studies in Polish and Czech*

Polish and Czech are both Slavic languages.<sup>5</sup> In a study by Szarota (1996; Szarota & Ostendorf, 1997), two judges extracted 1,811 person-descriptive adjectives from a Polish dictionary; to this set were added a further 28 terms taken from other lists of Polish personality descriptors. Ten judges then rated these 1,839 terms for clarity of meaning and personality relevance, and classified them using the system developed by Angleitner, Ostendorf, and John (1990). Of these 1,839 terms, the 290 adjectives categorized as dispositions were used for self- and peer ratings in a sample of 369 high-school students. In both the self- and the peer ratings, five factors similar to the AGB5 factors could be identified. The review of Peabody and De Raad (2000) suggests that Emotional Stability (IV) was concentrated on Irritability rather than Anxiety/ Fearfulness content, but it is not clear that much Anxiety/Fearfulness content was included in the variable selection.

Hřebíčková, Ostendorf, and Angleitner (1995) provided a preliminary report on a lexical analysis of Czech adjectives. Four thousand one hundred forty-five potentially personality relevant terms were extracted from a standard Czech dictionary. Those 366 terms that the majority of judges classified as dispositions (using the German system) were rated for self-descriptiveness by 397 persons. Factor solutions with five and more factors were examined and interpreted both by inspection of the

4. In raw-data analyses in German, an Emotional Stability factor did not appear until at least six factors were extracted and rotated; in the raw-data five-factor solutions, Agreeableness was split into two factors, labeled SD- (low social desirability) and "Warmherzigkeit" (Warm-heartedness) (Ostendorf, 1990, p. 178). Only at the three-factor level were all factor-comparability coefficients for both ipsatized and raw data above .90.

5. Studies in Russian (see Shmelyov & Pokhil'ko, 1993) used exclusively judgments about concepts rather than about people, and did not report five-factor solutions, making comparability with the other studies reviewed here difficult.

high-loading terms and by correlations with expert prototypicality ratings with respect to the Big Five. The grouping of clusters into factors resembled those in the AGB5, although the Czech version of Emotional Stability was broad and was related also to Agreeableness and Intellect when correlated with the prototypicality indices for these factors.

### *Studies in Turkish*

The Turkish language, a member of the Altaic group, was studied by Somer and Goldberg (1999; Goldberg & Somer, 2000). Five native speakers culled 2,200 person-descriptive adjectives from three modern abridged Turkish dictionaries. Most terms describing physical attributes, sheer evaluations, and slang terms were removed; the remaining 1,300 terms were judged for familiarity as personality descriptors by 150 university students. Studies were conducted with different subsets of the most familiar of these 1,300 terms.

Somer and Goldberg's (1999) Study 1 used 474 familiar adjectives grouped into 358 synonym clusters and arranged as 179 pairs of antonym clusters. Ratings of self, liked peers, and disliked peers were obtained for both poles of the antonym clusters from 232 university students. Two-, three-, four-, five-, six-, and seven-factor solutions were examined. Analyses of the self and liked targets produced a solution that resembled the AGB5, whereas analyses of the liked plus disliked peers produced a five-factor solution in which the fifth factor appeared as a blend of Openness-Imagination with Attractiveness. The three-factor solution in both cases produced a recognizable Big Three. In Study 2, the 358 terms were reduced to a smaller set of 235, and self and peer ratings were obtained from a much larger sample (945 university students); roughly half of the sample described themselves, and the other half described either liked, disliked, or neutrally evaluated peers. Solutions for one to seven factors were obtained. In combined self and liked peer targets or among combined peer targets, the five-factor solution resembled the German lexical Big-Five solutions in particular, but with Factor V closer to Openness than Intellect. For both sets of ratings, the three-factor solution reproduced the Big Three.

Goldberg and Somer (2000) conducted a follow-up study. When the item pool was restricted to terms that were less pejorative and more

clearly related to personality traits, Big-Five factors were obtained, with again the fifth factor blending Intellect with Unconventionality.<sup>6</sup>

The Turkish studies demonstrate that the AGB5 can be reproduced in an emic study in a non-Indo-European language, at least under three conditions: (a) ipsatized ratings are employed, (b) more latitude for variability of content is allowed for Factor V, and (c) the language-community has experienced some degree of Westernization. The Turkish samples consisted of university students in a nation where these are a small minority of the adult population.

### *Studies in Dutch*

Lexical studies in Dutch were carried out by Brokken (1978) and Hofstee (Hofstee, Brokken, & Land, 1981), with further data and analyses provided by De Raad, Hendriks, and Hofstee (1992). In the original studies, 8,690 person-descriptive adjectives were extracted from a large dictionary, and then reduced to 6,055 terms that were judged by at least one of four individuals to be stable traits. At a later stage of the project, those 1,203 adjectives that fit best into key sentence stems (“He/she is \_\_\_\_\_ by nature”; “What kind of person is he/she? \_\_\_\_\_”) were retained. Using the 1,203 adjectives, 200 pairs of university students who knew each other well rated both themselves and their partners (Brokken, 1978). Later, De Raad (1992) collected 200 additional self-ratings from university students on 551 of the 1,203 adjectives selected by more stringent use of the same criteria used by Brokken. Ratings of these 600 participants (400 self, 200 acquaintance) were pooled in a factor analysis of the 551 adjectives; four, five, and six factors were rotated. In each of these solutions, the first four factors could be identified with Extraversion (I),

6. When raw-data instead of ipsatized ratings were analyzed in this study of Turkish descriptors, a Big Five structure could not be identified, due to the fusion of aspects of Extraversion and Intellect into a single factor (probably related to Dynamism, Self-Assurance, Assertiveness, and Positive Valence factors found in other lexical studies) beginning at the two-factor level. The raw-data five-factor solution included this Dynamism factor, plus factors that might be labeled Social Propriety, Unpleasant Affect, Conscientiousness, and Emotionality; the two-factor solution included the first two of these, and the three-factor solution the first three of these. Thus, the raw-data analyses in the second study supported neither the Big Five nor the Big Three, but did find a two-factor structure resembling that in analyses of descriptors from other languages (e.g., Saucier, 2000a).

Agreeableness (II), Conscientiousness (III), and Emotional Stability (IV) from the AGB5.

In terms of Figure 1, the Dutch five-factor solution featured a large Factor II as in German, but more narrow versions of Factor I (primarily Sociability) and Factor III (primarily Orderliness and Dependability), and an especially broad Factor IV (including Consistency/Stability, Persistence, and Confidence contrasted with Anxiety/Fearfulness). The fifth factor in this solution contrasted intellectual autonomy and independence with conventionality; it combined the Figure 1 clusters of Imagination, Unconventionality, and at least in part Assertiveness and Perceptiveness.

Dutch is a Germanic language highly related to both German and English, and we might expect lexical studies in these three languages to suggest a similar indigenous structure. Hofstee, Kiers, De Raad, Goldberg, and Ostendorf (1997) compared Dutch, English, and German Big-Five structures and concluded that the Big Five replicated across these three quite similar Germanic languages, although the degree of equivalence was not perfect. The greatest inconsistencies were found in Factor V.

De Raad and his colleagues have pioneered the application of the lexical approach to personality-type nouns (De Raad & Hoskens, 1990; De Raad & Ostendorf, 1996) and personality-relevant verbs (De Raad, Mulder, Kloosterman, & Hofstee, 1988). Some of the noun factors (labeled "Malignity") are reminiscent of Negative Valence from the Big Seven. The verb studies led to a two-factor representation, with (a) one factor defined by verbs like "Care [for]" and "Cooperate" (versus "Curse" and "Threaten"), and (b) the other factor defined by verbs like "Decide" and "Lead" (versus "Flee" and "Brood"). These verb factors were correlated, respectively, with (a) Big-Five Agreeableness and Conscientiousness, and (b) Big-Five Intellect (Autonomy in this Dutch case), Extraversion, and Emotional Stability. How generalizable are these two verb factors? Hřebíčková et al. (1999) studied the structure of Czech personality-relevant verbs. The two-factor solution was similar to the Dutch two-factor verb structure, consistent with our Rule 2.



## Group 2: Studies With Two Agreeableness-Related Factors

### *Studies in Italian*

Two independent taxonomic projects were conducted in Italy—the “Roman” project of Caprara and Perugini (1994) and the “Trieste” project of Di Blas and Forzi (1998, 1999). Despite methodological differences, these two studies led to structures having some similarity (De Raad, Di Blas, & Perugini, 1998); an interesting commonality is that these structures divide the Big Five’s unitary Agreeableness factor into two factors.

In Rome (Caprara & Perugini, 1994), an abridged dictionary was scanned for person-descriptive adjectives and 8,532 were selected. Ratings of utility for describing personality, first by four experts and then by 22 lay judges, were used to reduce the number of terms to 492; these terms were administered to 274 research participants for self-ratings. The five-factor solution from analyses of these data included Big-Five Extraversion [I] and Conscientiousness [III] factors, with clusters grouped much as in the German studies. A third factor was labeled Quietness [or Peacefulness] versus Irritability. A fourth factor, labeled Selfishness versus Altruism, included adjectives related to tough-mindedness and emotionality, as well as Warmth, Generosity, and Integrity/Sincerity. The fifth factor, labeled Conventionality, included descriptors related to conformity and traditionalism, resembling the fifth factor in Dutch.

In Trieste (Di Blas & Forzi, 1998), five judges extracted 11,010 person-descriptive terms from an unabridged Italian dictionary. Adjectives (3,780) and the adjectives that can be used as type-nouns (1,428) were further scrutinized. The 1,586 most personality-relevant, frequently used, and least ambiguous of these terms (as determined by ratings by 10 or more students) were classified by university students into the 13 categories of the German system. A set of 314 prototypically dispositional adjectives was administered to a heterogeneous sample of 427 individuals for self-ratings and another sample of 277 secondary school students for ratings of someone they knew well. The two data sets were analyzed both separately and jointly, with three- to nine-factor solutions being examined. Self- and other ratings produced comparable three-factor solutions that were similar to Big-Five Factors I, II, and III (a Big Three). In the five-factor solutions, Extraversion and Agreeableness each split into a pair of more specific factors (Assertiveness and Sociability;

Quietness [or Peacefulness] and Tender-mindedness). There was no single “Emotional Stability” factor: Aspects of Fearfulness were associated with the negative pole of Assertiveness, and aspects of Irritability were associated with the negative pole of “Quietness.” No factor resembling “Intellect” emerged until at least seven factors were rotated.

Subsequently, Di Blas and Forzi (1999) attempted to replicate this structure in a study of self-ratings from 369 participants using a set of 369 terms, including some adjectives that can be used as type-nouns and excluding terms with very skewed response distributions. Again the five-factor solution failed to yield the AGB5, whereas the three-factor solution yielded a Big Three.

Findings from the two Italian projects differ from each other with regard to the nature of the Extraversion factor and the identification of a factor comparable to Big Five Intellect. However, in both Italian studies, Agreeableness split into two distinct factors: One factor (Altruism, Tender-mindedness) included the Warmth, Generosity, and Integrity/Sincerity clusters from Figure 1, and the other (“Quietness”) included the Humility, Gentleness, and (reversed) Irritability clusters.

### *Studies in Hungarian*

Szirmák and De Raad (1994) reported the findings from lexical studies in Hungarian, a Finno-Ugric language. Over 8,000 person descriptors were extracted from dictionaries. The 624 trait-descriptive adjectives with the highest mean ratings (from five judges) on familiarity, personality-relevance, and stability (trait versus state) were retained. Self-ratings on 561 of these 624 terms were provided by 400 university students. Three-, four-, five-, and six-factor solutions were examined (De Raad & Szirmák, 1994). The three-factor solution resembled a Big Three. In the four-factor solution, the factors resembled AGB5 Extraversion (I), Agreeableness (II), Conscientiousness (III), and Emotional Stability (IV). In the five-factor solution, Agreeableness divided into two factors, one (labeled Agreeableness) emphasizing Irritability, and the other (labeled Integrity) emphasizing variables apparently related to the Humility (vs. Egotism) and Integrity/Sincerity clusters in Figure 1. The six-factor solution added an Intellect factor. The similarities to the Italian structures have been noted by De Raad (2000). As in these structures, Agreeableness variables were split into two factors in the five-factor solution.

*Studies in Korean*

A study of Korean (Hahn, Lee, & Ashton, 1999) generated results that fit partly into Group 1, and partly into Group 2, depending on whether the five- or six-factor structure is examined. The investigators obtained terms from two dictionaries, as well as from personality descriptions written by university students. Physical attributes, evaluations, and temporary states were excluded, as well as some synonyms of the included terms, resulting in about 1,000 terms; these were reduced to 785 based on four judges' ratings of familiarity and adequacy for describing personality. The 785 were rated for frequency of use by 125 university students, and 406 of high familiarity were selected. Undergraduates ( $N = 435$ ) from three Korean universities rated themselves on these 406 terms. Three- to seven-factor solutions were examined and correlated with Korean Big-Five factors (from 46 Korean markers) to assist in their interpretation.

The Korean three-factor solution reproduced a Big Three. In the four-factor solution, the Korean emic factors were labeled Extraversion (correlating .91 with Big-Five Extraversion), Agreeableness (correlating .87 with Big-Five Agreeableness), Conscientiousness/Precision (related to both Big-Five Conscientiousness and Intellect), and Masculinity/Emotional Stability. This latter factor (correlating .79 with Big-Five Emotional Stability markers including a term translated as "Masculine") included a number of gender-related terms (e.g., Manly, Feminine), along with those reflecting self-efficacy or potency (e.g., Strong, Weak); it could represent a combination of the Persistence, Confidence, Assertiveness, and (reversed) Anxiety/Fearfulness clusters in Figure 1. If so, it would uphold the "four mutually independent clusters" rule. In the five-factor solution, the Extraversion, Agreeableness, and Masculinity/Emotional Stability factors remained much the same, whereas instead of Conscientiousness/Precision there was a Methodical Intellect factor and a second factor (also related to Conscientiousness) emphasizing Dependability; by loose standards, this solution resembles the AGB5. The six-factor solution produced a factor labeled Truthfulness that the investigators judged to be similar to the Integrity factor identified in Hungarian (Szirmák & De Raad, 1994). The investigators concluded that the Korean personality factors were quite similar to the Big Five, but clearly there were many divergences from the AGB5, both with respect to the axis locations of several factors and to the blends of clusters in Figure 1. And

as in the other Group 2 studies, Agreeableness clusters were found on two different factors in the six-factor solution.

### Studies Utilizing a Wider Selection of Variables

The studies we have already cited restricted themselves to terms for “stable dispositional” personality attributes (excluding most states, social evaluations, and physical and appearance characteristics). In this section we review studies that cast a wider variable-selection net. We focus upon the extent to which the findings from these studies bear on the organizing rules we inferred, and upon the extent to which each study seems to fit into one of the Group 1 or Group 2 structures.

In a study by Tellegen and Waller (1987; summarized also by Waller & Zavala, 1993) of English descriptors, an abridged dictionary was divided into sections, and noncontiguous pages from each section were randomly selected. On each selected page, the first adjective that could be fit into the stems “tends to be \_\_\_\_” and “is often \_\_\_\_”, or otherwise appeared to be person-descriptive, was extracted.<sup>7</sup> A set of 400 terms was selected, including terms describing social effects, pure evaluations, and temporary states, as well as stable traits. Self-reports using these 400 terms were provided by roughly 600 university students. Because many of these terms would be unfamiliar to most native speakers, participants were presented with portions of the dictionary definitions. Factor analyses (5 to 20 factors) of the 400 variables were conducted, and a seven-factor solution was retained. The seven factors were judged to correspond to the Big Five, plus orthogonal dimensions labeled Positive Valence (e.g., Important, Outstanding) and Negative Valence (e.g., Evil, Vicious)—a “Big Seven.” The last two factors drew on the “pure evaluation” descriptors excluded in all previous lexical-factor studies. Because no report providing the item-by-item content of these factors has been published, we cannot discuss this study in more detail.

7. The inclusion of the phrase “tends to be” and the adverb “often” may serve to bias the selection against attributes that are relatively nonfluctuating, such as those referring to physical attractiveness. If this hypothesis is correct, it might explain some of the differences between the “Positive Valence” factor found in this study and the “Attractiveness” factor found by Saucier (1997).

We do not advocate the page-sampling method in this and other “Big Seven” studies (for a critique, see Saucier, 1997; Saucier, Hampson, & Goldberg, 2000). However, the inclusion of a wider range of variables was an important innovation, as the next set of studies will suggest.

### *Studies Indicating Big Three Robustness Across Variable Selections*

Saucier (1997) included the widest range of variables of any lexical study to date. He found a structure resembling the AGB5 in a set of familiar English adjectives restricted to dispositions and states. When a wider range of terms, including social evaluations and physical attributes, was included, two additional factors emerged (a) Attractiveness and (b) a factor resembling Negative Valence. Similarly, Goldberg and Somer (2000) administered the 498 most familiar single descriptor terms from their initial set of 1,300 Turkish person-descriptive adjectives to over 600 university students for self-ratings. In the total item pool, the AGB5 factors were evident, along with a broad Attractiveness factor and another (Negative Valence) factor composed of items of extremely low endorsement rates—replicating Saucier (1997).

In both of these studies, whether one obtained the Big Five or the related seven-factor structure depended upon the variable selection. In contrast, in both studies a three-factor solution was replicable across variable selections. These Big-Three factors (Extraversion, Agreeableness, and Conscientiousness) were each somewhat broader than those from the AGB5, as in Peabody’s studies, Intellect and Imagination joined the Factor I grouping.<sup>8</sup>

The replicability of the Big Three across variable selections may be exemplified in a Spanish study that utilized page-sampling (Benet-Martinez & Waller, 1997). Every fourth page of a 1,666-page dictionary

8. It is important that readers understand that this “Big-Three” factor structure is *not* equivalent to the dimensions of Psychoticism, Extraversion, and Neuroticism proposed by Eysenck (1991) as “basic super-factors.” In the two models, only Extraversion is the same. Psychoticism has been shown to be a blend of the orthogonal Big Five Factors II and III (Goldberg & Rosolack, 1994), whereas Neuroticism (the opposite pole of Big Five Emotional Stability) is not one of the “Big Three” lexical factors. However, in some self-report data with lexical variable selections, the three-factor solution may essentially consist of Dynamism, Social Propriety (II and III), and something resembling Neuroticism (centered on Anxiety/Fearfulness content) *if* this content is well-represented enough to saturate the third unrotated factor.

was inspected and 299 adjectives were selected. The adjectives were accompanied by a synonym or short definition. Self-ratings were elicited from a sample of 894 university students from Catalonia (Barcelona). Solutions of five to eight rotated factors were examined, and the seven-factor solution was emphasized. Correlations between the seven indigenous factors and those from an imported Big Seven inventory were between .60 and .79 for “Pleasantness” (clearly centered on the Sociability cluster), broad versions of Conscientiousness (labeled “Temperance”) and Agreeableness, and Positive Valence (which also included the Competence/Talent cluster). The other three indigenous factors were substantially smaller in size. One of them correlated moderately (.47) with Negative Valence markers, whereas the other two factors, labeled Engagement and Openness, had low correlations with the remaining imported factors. The five-factor solution did not yield a Big Five; it included Agreeableness, Conscientiousness, Conventionality, and Negative Valence factors, along with a large factor contrasting Positive Valence and Positive Emotionality with Negative Emotionality (this appears to resemble Dynamism). In this Spanish study, the seven-factor solution might be seen as a replication of the Big Three, as well as Positive Valence and (more weakly) Negative Valence. This structure probably fits better into Group 1 than Group 2 because there was a single broad Agreeableness factor. But there was no Emotional Stability factor as in the Group 1 structure. Indeed, we wonder if Anxiety/Fearfulness is represented in any of these factors; if not, this would be at odds with our “four mutually independent clusters” rule (Rule 4).

#### *Hebrew and Filipino: Unexpected Convergence on a Seven-Factor Structure*

Hebrew, a member of the Semitic language group, was studied by Almagor, Tellegen, and Waller (1995) using page-sampling. Every fourth page of a 1,600-page Hebrew dictionary was searched, extracting the first personality-descriptive adjective, verb, or noun that was encountered. The resulting 326 terms were reduced to 252 after removing synonyms. University students ( $N = 637$ ) used the 252 words (62% were adjectives) for self-ratings. The Hebrew factors labeled Agreeability (II) and Dependability (III) were fairly similar to corresponding AGB5 factors. A Negative Valence factor was bipolar and unusually broad, apparently including content from the Integrity/Sincerity and Dependability clusters

from Figure 1. The terms with the highest loadings on a Positive Valence factor were all related to Intellect (e.g., Sophisticated, Sharp, Knowledgeable). Anxiety/Fearfulness terms were found both on factors labeled Positive Emotionality/Agentic (e.g., Depressed, Sad) and Negative Emotionality (e.g., Bad-tempered, Angry; the Irritability cluster). The other factor, Positive Emotionality/Communal, included content highly related to Sociability (e.g., Likeable, Enthusiastic, Friendly, Talkative). Using alternative labels, we might say this structure includes factors of Sociability (Gregariousness), Self-Assurance (vs. Depression), Irritability (Temperamentalness), Altruism (Concern for Others), Conscientiousness, Intellect/Positive-Valence, and Negative Valence.

Only one native language of a Pacific Island or tropical region has been examined in a lexical personality study. In the first lexical study of an Austronesian language, Church, Katigbak, and Reyes (1996) searched a comprehensive Filipino dictionary. They extracted 6,900 person-descriptive adjectives, which were classified using the German system. The 682 most familiar and personality-relevant of these were used for self-ratings by both college and high school students (Church, Reyes, Katigbak, & Grimm, 1997). Their preferred seven-factor solution included factors labeled Gregariousness (the Sociability cluster), Concern for Others versus Egotism (most of the Agreeableness clusters), Conscientiousness (Orderliness and Industriousness plus low Unconventionality), Self-assurance (probably Assertiveness, Adventurousness, Confidence, and low Anxiety/Fearfulness), Intellect (Intellect plus Competence/Talent), Negative Valence/Infrequency, and Temperamentalness (identifiable with the Irritability cluster on Figure 1). When only five factors were rotated, they were labeled Gregariousness, Egotism, Socialization, and Perceived Competence; a fifth Negative Valence factor was composed entirely of pejorative terms.

In a replication study (Church, Katigbak, & Reyes, 1998), 740 Filipino college students provided self ratings using a revised set of 502 terms, which also included some highly desirable and highly undesirable terms. The students also rated themselves on translations of Big-Five marker scales. The seven-factor solution closely replicated that in the earlier study; Positive Valence markers (Big Seven) blended with terms related to Intellect and Competence/Talent to form a broader Factor V in this representation. The five rotated factors here were Gregariousness, Concern for Others, Conscientiousness, Perceived Competence (Intellect/Self-Assurance vs. Temperamentalness), and Negative Valence.

With respect to the seven-factor structure preferred by their authors, the Filipino studies do support the “four mutually independent clusters” rule and also yield an Intellect factor. The clusters grouped with the four key clusters seem, however, quite dissimilar to the Anglo-Germanic grouping pattern. Conscientiousness was a smaller factor than in other studies. As in Polish, Irritability content formed a factor separate from other Agreeableness clusters. As in the Italian (Trieste) and Korean studies, the Sociability cluster was on a different factor than the Assertiveness, Adventurousness, and Confidence clusters.

The Filipino structure seems similar to the Hebrew structure. The alternative labels for the seven Hebrew factors that we proposed are in fact those used by Church et al. (1997, 1998) for their seven-factor structure. The similarity of these two structures has perhaps gone unnoticed due to the “jangle fallacy” (Kelley, 1927)—two things that are the same carrying different labels. These two seven-factor structures seem most related to our Group 2 structures: As in the Italian studies, there were separate Altruism and Irritability factors. As in the Trieste study, the Sociability cluster anchored a separate factor from the other Extraversion clusters in Figure 1. Unlike the other Group 2 structures, however, there was a Negative Valence factor due in part to the wider variable selection. To some extent, the Hebrew and Filipino structures may be a hybrid of Group 1 and Group 2 structures. At any rate, Hebrew and Filipino are unrelated languages associated with different cultural contexts, so the apparent structural convergence is worth noting.

### **Making Sense of the Findings**

The Anglo-Germanic Big Five is the structure that has been most often tested. The studies reviewed might be interpreted as indicating that the Anglo-Germanic model is most predictably replicable, in exploratory factor analyses representing indigenous structures, when all of the following conditions are present: (a) the language has its origin in northern Europe,<sup>9</sup> (b) the variable selection is (at least predominantly) limited to disposition-descriptive terms, and (c) the data consists of ipsatized self-ratings. The replicability of the Big Three does not seem contingent on these conditions. A fairly consistent Big Three has been found in three-

9. It may be that utilizing university students with high exposure to Western—and especially northern European and North American—culture is sufficient to create this condition.



factor solutions in English and Turkish (in these cases replicating across variable selections) as well as German, Italian, Hungarian, and Korean—a wider scope of replication than has accrued to the Big Five. Is the Big Three superior to the Big Five?

There are three reasonable objections to a “ubiquitous Big-Three” hypothesis. First, the Big Three is, by necessity, less comprehensive than the Big Five; it omits whatever content is found in the fourth and fifth unrotated factors—representing the residual aspects of Emotional Stability and Intellect that are uncorrelated with the Big Three. These two unrotated factors are presumably not as highly replicable across languages, but their omission (within any language) restricts the behavioral reference of the Big Three relative to a five-factor structure. Second, the degree of replication of the Big Three in variable selections that include noun and verb descriptors is not yet clear. And third, it is not yet clear whether three-factor structures always include a distinct Conscientiousness factor. Thus, our Rule 3 needs wider tests.

The advantage of the Big Three over the Big Five is part of a larger pattern. The more terms that are associated with a particular factor, the more replicable should that factor be. By this principle, the most ubiquitous factor should be the first unrotated one. Unfortunately, only a few lexical studies have characterized the one-factor structure in their data, so we cannot report as much support for Rule 1 as we suspect actually exists.

Two-factor solutions from several lexical studies also suggest a consistent pattern: One factor tends to involve attributes associated with dynamism and individual ascendancy, whereas the other tends to involve attributes associated with socialization, social propriety, solidarity, and community (Di Blas & Forzi, 1999; Digman, 1997; Goldberg & Somer, 2000; Hřebíčková et al., 1999; Paulhus & John, 1998; Saucier, 1997, 2000a; Shweder, 1972; White, 1980). The reproducibility of this two-factor solution (and our Rule 2) in diverse languages needs much more attention.

Our Rule 4 specifies four mutually independent clusters (Sociability, Generosity and Warmth, Orderliness and Industriousness, and Anxiety/Fearfulness), but our review indicates that non-Big-Five structures (such as those in our Group 2 studies, or in Hebrew or Filipino) can also be consistent with this rule. Thus, Rule 4 seems to have wider application than the Anglo-Germanic Big Five. However, Rule 4 is a much looser rule than Rules 1 to 3, which specify the character of all the factors in a

solution. Rule 4 specifies only that the four key clusters are found on independent factors in solutions with 4 to 8 factors—and there are many imaginable sets of factors that might be consistent with this rule. The looseness of the rule speaks to the considerable diversity of structures found in lexical factors when more than three factors are extracted. Rule 5 gives “or” options for Factor V and is thus also quite loose.

Even if the Anglo-Germanic version of a Big-Five structure is incompletely supported in studies of other languages, a considerable edifice of construct validity has accrued around this model, an edifice that should not be dismantled precipitously. Each of the five factors, for example, appears to reflect considerable genetic influences. It might also be argued that personality is usually assessed by means of questionnaire, and studies of personality factors in questionnaires lend considerable support to a five-factor model. On the other hand, we should avoid premature consensus on a potentially suboptimal model.

### **Suggestions for Future Studies**

In addition to one-, two-, and three-factor structures, we have identified two other non-Big-Five structures that should be placed in competition with the Anglo-Germanic Big Five in future lexical studies. One is the Italianate structure common to results from projects originating in Rome and Trieste, for which De Raad, Di Blas, and Perugini (1998, Table 4) have provided potential marker terms. This structure typifies the Group 2 studies, having two Agreeableness-related factors and no Intellect factor. The other structure can be derived from commonalities between the Hebrew and Filipino studies and pertains to wider variable selections. This structure also has two Agreeableness-related factors (e.g., Altruism and Irritability), but also two Extraversion-related factors (e.g., Sociability and Self-Assurance), no single Emotional Stability factor, and both Intellect and Negative Valence factors. It seems possible that, if appearance descriptors are included, an Attractiveness factor could emerge independent of these seven. We will learn more if future studies test the Anglo-Germanic Big Five in comparison (and competition) with these alternative candidate structures.

More attention should be given to “middle-level” constructs, such as those in Figure 1. Such constructs carry most of the load in everyday personality description (John, Hampson, & Goldberg, 1991). Two important questions pertain to middle-level constructs. First, which con-

structs are represented by common lexemes in the widest range of human languages? For example, does every language have a word synonymous with “sociable” or “irritable”? Second, given measures of a consensual set of clusters representing these middle-level constructs, how do the correlation matrices of these clusters differ when comparing languages?

Lexical studies have differed not just in the variable selections they have employed and in the populations they have sampled, but also with respect to many potentially important aspects of methodology. These aspects include the methods for selecting terms, the size and representativeness and inclusiveness of the selected terms (e.g., states, evaluations, or physical characteristics, in addition to stable traits), the procedures used to cull and reduce the sets of terms, the type of judgments obtained (i.e., internal or external data), the targets of description (e.g., self or others), the particular rating scales employed, the ways that missing data and semantically inconsistent subjects are handled, the methods for addressing individual differences in response scale usage (e.g., by ipsatizing), the type of factor analysis, the number of factors extracted, and the methods used to compare factors across pairs of languages. Discrepancies in findings from one lexical study to another could be due to methodological factors alone. Future studies should closely examine the impact of methodological variations on the results of lexical studies, both for the broad factors and for the middle-level clusters.

### **The Informativeness of Emic-Indigenous Structures**

Psychology is the study of mind and behavior of humans in general, not just of humans in a narrow range of sociocultural settings. Unfortunately, considerations of convenience influence research. Our understandings of human social behavior disproportionately reflect the way in which such behavior is manifested in a limited set of populations—those that are most near at hand for scientists in Western countries. This state of affairs compromises the scientific ideals of generalizability and replicability.

If a factor structure based on indigenous lexical studies of personality attributes were to prove to be ubiquitous across language communities, it would have a special status. This structure would provide a culturally decentered model, usable in diverse cultural settings without markedly imposing the norms or standards of one culture into the context of another

culture (as in the etic approach of McCrae & Costa, 1997). Representing dimensions shared by many cultures, it would not only enable useful cross-cultural comparisons but would aid in the identification of culturally specific features of personality structure. For example, it might be useful to understand why a broad personality factor (e.g., Dynamism) is differentiated into a particular set of specific factors in one language community but into a different set in another language community. Might this not reveal something about the differing sociocultural contexts and psychological preoccupations of these communities?

Many assume that a scientific theory should be replaced once its limitations and internal contradictions become clear. One might argue that because the Anglo-Germanic Big Five has a much weaker replication record in emic studies than in etic studies like those of McCrae and Costa (1997), it should be replaced by another model. However, when a theory has been shown to have utility as well as limits, it makes more sense to integrate it into a larger theory, within which it is nested as a special case. For example, Einstein's physics did not entirely replace Newton's physics, but rather created a larger framework within which Newton's theoretical predictions are seen to be valid under a set of specified conditions. Similarly, the Big Five may not need to be replaced so much as to be located within a broader, more generalizable framework. We believe the best framework would be a culturally decentered one that might arise from lexical studies in a wide array of languages.

## CONCLUSIONS

Lexical studies of personality attributes have been highly generative. The addition of another dozen or two lexical studies should vastly increase their contributions. However, future lexical studies should be more than mere imitations of those already conducted. It would be useful if future studies placed more emphasis on non-student samples, on targets of description besides only self-report, and on person descriptors that are not limited strictly to trait terms or to adjectives. Nor should future lexical studies primarily be a continued sampling of the national languages of Europe. More studies are needed in languages used in tropical regions, and in non-European languages that either have a large number of speakers (e.g., Bengali, Hindi, Arabic, Japanese) or come from other important language families (e.g., Niger-Congo, Nilo-Saharan, Austro-Asiatic, Daic, Dravidian). As lexical studies gain a footing in a progres-

sively wider range of languages, a steadily more useful (and culturally decentered) personality model might result.

Studying the common words in a language can be a useful avenue to better understanding personality. If this is true for one language, it should be all the more true when multiple languages are considered. Patterns of representation common to multiple languages can be a powerful guide to salient phenomena that are necessary components of an adequate descriptive model of personality. The combined results of studies in multiple languages can suggest the optimal organization for such a taxonomy. Such a taxonomy, in turn, will provide a strong base, both for variable selection and for the construction of maximally efficient personality inventories that are useful across a wide variety of cultural contexts.

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