Taxonomy and structure of the Romanian personality lexicon

Burtaverde, Vlad; De Raad, Boele

[Link to publication in University of Groningen/UMCG research database](#)

Taxonomy and structure of the Romanian personality lexicon

Vlad Burtăverde[1] and Boele De Raad[2]

[1]Faculty of Psychology and Educational Sciences, University of Bucharest, Bucharest, Romania
[2]Department of Psychology, University of Groningen, Groningen, The Netherlands

We identified 1746 personality-relevant trait-adjectives in a Romanian dictionary, of which 412 were classified as descriptors of dispositions by 10 judges. Self-ratings were collected from 515 participants on those 412 adjectives, and the ratings were factored using principal components analysis. Solutions with different numbers of factors were analysed. The two- and three-factor solutions, respectively, confirmed the Big Two and Big Three of personality traits. A five-factor solution reflected the Big Five model with a fifth factor emphasising Rebelliousness versus Conventionality. The five-factor solution was related to the International Personality Item Pool-Big Five scales, and the highest correlations were indeed between the corresponding factors and scales. A six-factor solution was indicative of the six-factor model as expressed in the HEXACO model, yet with a weak Honesty-Humility factor. Additional analysis with self-ratings from 218 participants on marker-scales for the six-factor solution and on the six scales of the HEXACO did not produce a clear one-to-one correspondence between the two sets of scales, confirming indeed that the six-factor model was only partially found.

Keywords: Trait-taxonomy; Personality structure; Psycho-lexical approach.

The lexical approach assumes that the most important differences in personality are contained in the lexicon of a language (Goldberg, 1981). By factor-analysing ratings (self- and/or peer-ratings) on a comprehensive set of personality descriptors from that lexicon, a taxonomy of personality dispositions representative for that language and its cultural context may be obtained. The psycho-lexical approach has successfully been applied in over 30 languages (see De Raad et al., 2014; De Raad & Mlačić, 2017).

The distribution of those 30 languages is, however, skewed with about two thirds of the languages being Indo-European languages, and with most of them being geographically European. But even within Europe, the psycho-lexical coverage of languages is not complete. Of the Italic branch of the Indo-European language family, for example, Spanish, Portuguese, French and Italian have each been subjected to the psycho-lexical approach. Besides Catalan (with a relatively small number of speakers), the last language of this branch with around 25 million of speakers is Romanian. This language, also spoken in Moldova, evolved from versions of Latin, separated from Western Romance during the fifth to eighth centuries, was slightly influenced through Balkanisation, and is geographically enclosed by Slavic languages and Hungarian (Uralic language). To this date, in Romania, no studies have been done to investigate the factorial structure of personality traits according to the psycho-lexical approach. The present study aims to fill this gap.

Many of those 30 studies referred to above, particularly in the early 1990s, ended with the publication of a five-factorial structure, with factors considered to represent the Big Five (Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect) or versions of the Big Five. While that model gained a firm position, especially through the work of Costa and McCrae (e.g., Costa & McCrae, 1992), not each of the Big Five factors appeared clearly in the languages involved. Factors can have different emphases (Saucier, Georgiades, Tsaousis, & Goldberg, 2005), and the fifth factor (Intellect/Openness), for example, was not identified or not clearly identified in some languages, as in, Italian (Di Blas & Forzi, 1998) and Czech (Hřebíčková & Ostendorf, 1995).

The psycho-lexical developments have evoked debate in the psycho-lexical arena, related to the dimensionality and representation of relevant trait semantics (e.g. Ashton et al., 2004; De Raad et al., 2014), and related to the inclusiveness of trait-relevant terms (e.g. Almagor, Tellegen, & Waller, 1995).

Almagor et al. (1995), for example, explicitly included evaluative terms and state terms as part of the personality

---

descriptive vocabulary, thus leading to a model with versions of the Big Five and two additional factors, called Positive Valence and Negative Valence (NV). Ashton et al. (2004), excluding such terms, made a case for a six-factor structure, based on systematic comparisons of the contents of six-factor solutions in seven languages. That structure, comprising versions of the Big Five and an additional factor called Honesty-Humility, has become a serious competitor of the Big Five. Applying Ashton's approach to a different set of studies all characterised by an inclusive variable selection, Saucier (2009) arrived at a six-factorial alternative with versions of the Big Five and an additional factor NV. Saucier (2009) argued that Honesty-Humility and NV "share an emphasis on tendencies toward amoral/immoral" behaviour (p. 1606).

Focusing on cross-cultural replicability, De Raad et al. (2014) investigated 11 different psycho-lexically based trait taxonomies, and concluded that across languages a structure with the three factors, Affiliation, Dynamism and Order, makes a better chance of being universally replicable than structures with five or six factors.

Digman (1997), studying the superordinate structure of the Big Five, found a recurrent two-factor solution, with one factor, labelled alpha, related to Big Five Agreeableness, Conscientiousness and Emotional Stability, and the other factor, labelled beta, related to Extraversion and Intellect. Two-factor structures with similar content have been confirmed in, for example, DeYoung (2006), who called the corresponding factors Stability and Plasticity, and Saucier et al. (2005) and Saucier, Thalmayer, Payne, et al. (2014), who used the labels Morality/Social Propriety and Social Self-Regulation for one factor and Dynamism for the other. The distinctions in different wordings are expressive of two fundamental dimensions referred to by Bakan (1966) as *Communion* and *Agency*. Characteristic of *Communion* is its emphasis on social and moral issues; characteristic of *Agency* is its emphasis on individual striving and personal achievement.

In studying the organisation of the Romanian trait vocabulary, we aim to analyse structures with five and six factors in relation to previous psycho-lexical findings, but also, because of their seeming ubiquitous nature, structures with two and three factors.

METHOD

The first aim is to obtain a taxonomy of the Romanian trait-descriptive adjectives and to identify those that represent dispositional characteristics (Angleitner, Ostendorf, & John, 1990). This is reported in Study 1. A second aim is to study the content of these adjectives by exploring the personality structure relying on this taxonomy using self-report ratings of the adjectives that were considered dispositional. That structure is analysed in relation to an independent Big Five measure, but also in relation to

TABLE 1
Frequencies and percentages of adjectives classified and inter-judge reliabilities

Category	Frequency	%	Reliability
1. Dispositions	412	23.5	0.87
1a. Temperament and Character	372	21.30	0.80
1b. Talents and abilities	40	2.3	0.79
2. Temporary conditions	269	15.40	0.88
2a. Experiential states	163	9.33	0.81
2b. Physical states	39	2.23	0.83
2c. Observable activities	67	3.83	0.77
3. Social aspects	764	43.75	0.79
3a. Roles and relationships	39	2.23	0.74
3b. Social effects	391	22.40	0.76
3c. Pure evaluations	264	15.12	0.79
3d. Attitudes and worldviews	70	4	0.78
4. Overt characteristics	100	5.72	0.86
4a. Anatomy and constitution	12	0.68	0.86
4b. Appearance, looks, etc.	88	5.04	0.83
5. Terms of limited utility	201	11.51	0.79
5a. Context-specific	119	6.81	0.77
5b. Metaphorical, vague, etc.	82	4.69	0.75

conceptions of two- and three-factor models. This study is reported in Study 2. A third aim is to investigate the possibility of a six-factor structure, in relation to an independent six-factor measure. This is reported in Study 3.

STUDY 1: SELECTION AND CLASSIFICATION OF ROMANIAN TRAIT TERMS

This first study consisted of two phases. In the first phase, the aim was to arrive at a nearly exhaustive vocabulary of trait-relevant terms that can be used to "distinguish the behavior of one individual from that of another" (Allport & Odbert, 1936, p. 24). From that set, those terms were selected that represent dispositional characteristics (Angleitner et al., 1990). In the second phase, the aim was to classify these terms into different categories of relevance.

Phase 1: Selection procedure and results

For the selection of trait-relevant terms, we made use of the 2009 edition of the DEX, the *Dicţionarul Explicativ al Limbii Române* (Romanian Explanatory Dictionary), which was the newest edition at the time of the study and also the most comprehensive dictionary in the Romanian language. The dictionary counted 1376 pages containing 67,000 entrances.

The first author and a PhD student, independently scanned the dictionary with the instruction to select adjectives that are relevant for their capacity "to describe personality" and "to distinguish the behaviour of one individual from that of another," and "thus not selecting terms that describe states or conditions characteristic to

any human being." When in doubt on the trait-relevance of a term, it had to be included in the selection. Each term selected as possibly trait relevant was evaluated in terms of familiarity, before continuing with the selection of the next term. Regarding the familiarity, a 3-point scale was used, running from "1" (unused) to "2" (rarely used) to "3" (familiar term). Adjectives rated 1 were not selected as well as those that were marked in the dictionary as being "out of use."

Combining the selections of the two judges, a set of 1896 adjectives was found relevant for personality description. Agreement between the two judges was assessed using Cohen's kappa, which was .89. A total of 150 adjectives were removed because they were not selected by both judges, leaving 1746 adjectives for further use.

Phase 2: Classifying the adjectives

The classification of adjectives into categories followed the method proposed by Angleitner et al. (1990). This classification system contains five main categories, with each of them being divided into subcategories (see Table 1). Ten judges (five women and five men, aged between 22 and 55 years) took part in the classification process. The judges were provided with definitions and examples about the meaning of the categories and the subcategories, and about their differences.

The classifications consisted of three steps. In the *first* step the clarity of each of the 1746 adjectives was assessed using a 3-point scale, running from "1" (the meaning of the adjective is not clear enough for me to complete subsequent ratings), to "2" (the meaning of the adjective became clear to me only after giving it some thought)," to "3″ (the meaning of the adjective is clear to me). Because all adjectives received a rating of 2 or 3, with an average clarity-score of 2.94 across the 10 judges, they were all used for the second step.

In that *second* step the personality relevance was assessed, defined as the extent to which each term refers to behaviour, experience, or appearance. The 1746 terms were rated again on a 3-point scale, running from "1" (impossible to imagine), to "2" (unusual; possible to imagine only under certain conditions), to "3" (easy to imagine as a personality descriptor). If a judge rated a term 1 or 2, it was taken as a candidate for being considered as personality irrelevant. Across the 10 judges, the mean rating was 2.86. Of the adjectives, 76% had a mean rating of 3, and 24% had a rating slightly below 3. With such a high average, and with all terms scoring on average close to 3, we decided to entertain a conservative attitude and keep all the 1746 terms for the next step, the classification.

In this *third* step, the judges were told that a term could be included in more than one category, but that it was preferable to have it included in only one category. If at least six of the 10 judges assigned a term to the same category and subcategory, it was classified as being prototypical of that category. A total of 1746 terms were classified. The classification results, together with the percentages and the reliabilities are given in Table 1. The reliability was computed as the internal consistency of the inter-correlations among the 10 judges across all 1746 adjectives. Coefficients ranged from .74 (Roles and relationships) to .88 (Temporary conditions). The classification process lasted 6 months.

The classification results of Table 1 differ from those of other studies, in that both the Dispositions category (1) and the Social aspects category (3) give a clearly higher percentage of terms in Romania, than in, for example, German (Angleitner et al., 1990) and Polish language (Szarota, Ashton, & Lee, 2007). However, in these latter two studies only 47% (German) and 65% (Polish) of the terms ware classified, while in the present study all 1746 resulting from Phase 1 were classified.

STUDY 2: STRUCTURING THE ROMANIAN DISPOSITIONAL TRAIT LEXICON

In order to explore the Romanian trait structure, use was made of the 412 trait adjectives that were considered Dispositions (subcategories 1a & 1b) in Study 1. This was done in relation to a Big Five measure, the 50-item IPIP, stemming from the International Personality Item Pool (Goldberg, 1999).

Participants and procedure

A total of 515 participants took part in the study (mean age = 31.39, ranging from 18 to 74; $SD = 11.61$; 430 women and 85 men). We developed an online assessment form in Google Docs in which we included the two instruments, of which the 412 adjectives list had to be filled out first, and the 50-item IPIP second. The access link was posted in various discussion groups from different social networks, such as Facebook. Regarding the latter, we posted the access link on Facebook city groups from all Romanian geographic areas (*Transilvania, Moldova, Muntenia, Oltenia*). Most of the members of such a group live in the city of which the name is also the name of the group. We assumed that this way of attracting participants would increase the chances of gathering individuals from different Romanian cities in different geographical areas. In Romania, if someone uses internet and has a Facebook account, that person is expected to be at least high school graduate. With most of them coming from urban areas where they have internet access and where the minimum school level for most is high-school, we assume they understood the aim of the study and the items. Along with the access link, we included the instructions, and as an

incentive, a message was included that those who completed the task would receive a personality report. Participants were informed that they must be at least 18 years to take part in the research. In order to receive only fully filled out forms, forms could only be submitted by the participants after responding to all items. The completion of a form would take 35 to 40 minutes. This way 515 completed forms were received.

Materials

The 412 adjectives

The 412 dispositional adjectives were put in a random order. The participants were asked to indicate to what extent each adjective is characteristic to them on a 5-point rating scale running from "1" (does not characterise me at all) to "5" (completely characterises me), with the middle[1] scale point of "3" meaning: "characterizes me to a moderate extent". In case the meaning of an adjective was unclear, they were asked to rate that term with "0" which could be turned into a missing value. We had set the criterion for an adjective to be excluded at 25% 0-ratings. In the end, none of the adjectives met the criterion, and thus none were excluded (put as missing value).

IPIP-50

The IPIP-50 is the 50-item IPIP representation of the Goldberg (1992) markers for the Big-Five factor structure. The Romanian version was obtained through a standard translation-back-translation procedure, done by someone proficient in both Romanian and English. This instrument consists of 10 items per factor. Reliabilities reported by Goldberg (http://ipip.ori.org/New_IPIP-50-item-scale.htm) are .87 for Extraversion (or Surgency), .82 for Agreeableness, .79 for Conscientiousness, .86 for Emotional Stability and .84 for Intellect (or Imagination). The ratings could be given on a scale running from "1" (very inaccurate) to "5" (very accurate).

Results

Structuring through principal components analyses

Before applying principal components analysis (PCA), we inspected the means of the 412 adjectives to see whether there were adjectives with a very low mean; such adjectives would express predominantly evaluative meaning and could better be removed. We set the minimum
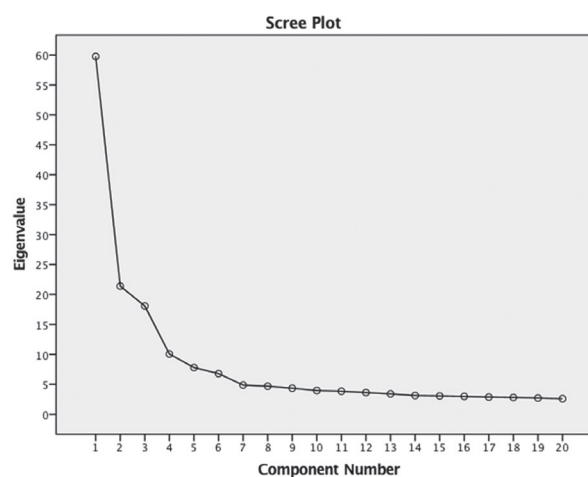

Figure 1. The Eigenvalues for the first 20 factors.

acceptable mean value rather arbitrarily at 1.5. There were 34 terms below that criterion that were indeed mainly evaluative in nature in Romanian, and these were removed (examples are *badaran* (rough), *misel* (cowardly) and *calomnios* (slanderous).

The ratings on the remaining 378 adjectives were ipsatized[1] (within-subject standardised). This procedure controls for individual differences in the use of the response scale (in the elevation and extremity of responses). Moreover, this procedure allows better comparison with results from most other psycho-lexical studies, where typically ipsatization has been applied.

The self-ratings were factor-analysed using PCA, followed by Varimax rotation,[2] and the outcomes were subsequently related to the results of the IPIP-Big Five. The reason to use PCA is twofold. One is comparability to other psycho-lexical studies, since virtually all prior lexical studies used PCA. The other is that the obvious alternative, principal axis factoring (PAF), may be expected to produce highly similar results, because of the large number of variables that are factor-analysed. As a check, we calculated the correlations between factors derived through PCA and factors derived through PAF for both a five-factor solution and a six-factor solution, and those correlations were .99 for all pairs of factors.

For the extraction of trait-factors, we used three criteria, namely eigenvalues and scree test, a hierarchical representation of the emergence of factors from solutions with increasing numbers of factors and interpretability of the factors. The first 20 eigenvalues, given in Figure 1 suggest about six factors to be extracted.

---

[1] Also non-ipsatized (raw) data were analysed; due to space limitations the results are only briefly summarised (see paragraphs on five factors and on six factors).

[2] We also applied Direct Oblimin; the oblique factors were virtually identical, with correlations with corresponding Varimax rotated factors all above .95.
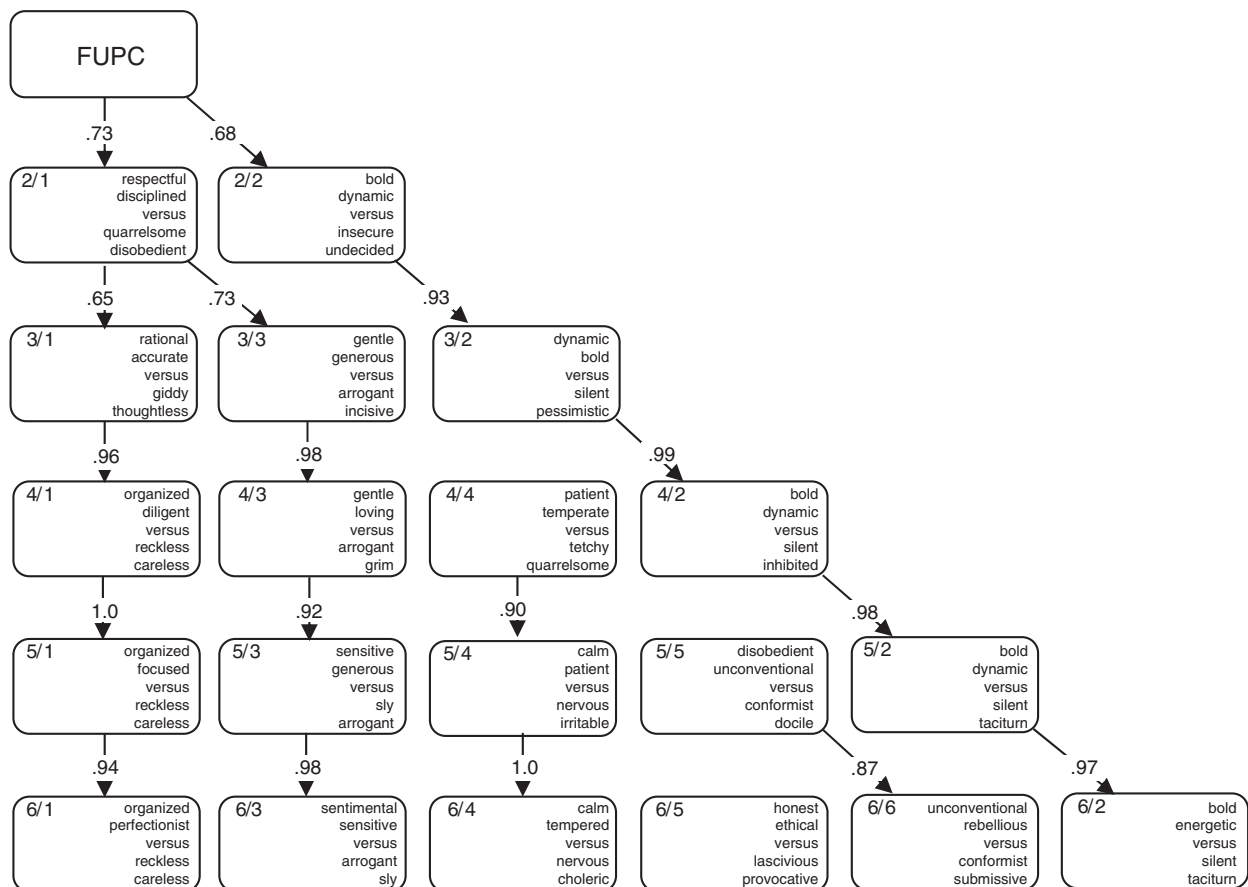
Figure 2. The hierarchical structure of 378 personality-descriptive Romanian adjectives.

The focus was on a structure that adequately describes the Romanian trait-vocabulary, which is possibly done in some five or six factors, like in most psycho-lexical studies. However, because of the growing cross-cultural interest in structures with especially two and three factors, we inspected solutions with two up to six factors. Those different sets of factors were represented in Figure 2, showing the hierarchical emergence of factors. Factor solutions with one to six factors are represented in Figure 2, and correlations between factors from adjacent levels are given to show the relations between those factors. Only correlations of |.40| or higher are given. The boxes in Figure 2 contain factor codes. The code 3/2, for example, stands for the second factor of the three-factor solution.

The hierarchy in Figure 2 shows a stable pattern of components through the different levels of abstraction with a clear split of the first unrotated principal component (FUPC) into 2/1 and 2/2, and of 2/1 into 3/1 and 3/3. At levels with four, five and six factors, the additional new factors, 4/4, 5/5 and 6/5 do not relate substantially to factors at higher levels. Interestingly, by their brief sets of markers the two-, the three-, the five- and the six-factor solution seem to represent rather well the two-factor, the

three-factor, the five-factor and the six-factor models as put forward in the literature.

The FUPC was described by socially desirable terms versus socially undesirable terms with highest loading adjectives such as *balanced, efficient* and *diligent* versus *careless, undecided* and *irresponsible* (cf. Musek, 2007). The factors 2/1 and 2/2 seemed to form good examples of *Communion* and *Agency* of the two-factor model. The three-factor solution seems to exemplify the three-factor model, with Order (3/1), Dynamism (3/2) and Affiliation (3/3).

With five factors, 5/1 and 5/2 seem to be rather typical Big Five versions of Conscientiousness and Extraversion, respectively. The factor 5/3 represents most of the typical Big Five Agreeableness traits, but with an emphasis on sensitivity, with trait terms like *sensitive*, *sentimental*, *emotional* and *affectionate*. Factor 5/4 would be Emotional Stability, but with a strong emphasis on irritability such as *touchy*, *quarrelsome*, *jumpy* on the negative pole. The additional factor that emerged at this level of extraction is an "Intellect" factor, interestingly of the type as observed in Dutch (De Raad, Hendriks, & Hofstee, 1992), and in Italian (Caprara & Perugini, 1994, with the

TABLE 2
Correlations between factors from the two-factor solution and
Big Two markers

Big Two marker scales	Alphas (N of items)	Factor 2/1	Factor 2/2
Communion	.74 (11)	.70	.28
Agency	.87 (11)	.04	.85

TABLE 3
Correlations between factors from the three-factor solution and
Big Three markers

Big Three marker scales	Alphas (N of items)	Factor 3/1	Factor 3/2	Factor 3/3
Order	.83 (9)	.73	.08	.18
Dynamism	.79 (8)	.09	.74	.08
Affiliation	.77 (9)	.15	.13	.75

"rebellious" versus "conventional" colouring of the factor poles.

With six factors, the five factors of the five-solution remained the same. A new factor called Morality here (6/5) represents characteristics of Honesty-Humility (Ashton et al., 2004), with such traits as *honest*, *ethical*, *fair* and *sincere* versus *lascivious*, *provocative* and *theatrical*.

Big Two and Big Three

For a further check of the presence of the two- and three-factor models, we identified markers for *Communion* and *Agency* of the two-factor model (Bakan, 1966), and Affiliation, Dynamism and Order of the three-factor model (De Raad et al., 2014). The markers were selected from the Romanian trait list, taking the corresponding trait lists presented in Saucier, Thalmayer, and Bel-Bahar (2014) as point of orientation. The marker scales (listed in the Appendix) were correlated with the factors of the two-factor and three-factor solution. The results, including the alpha reliabilities, are presented in Tables 2 and 3, and they underline the presence of the two models.

Five factors

We ran PCA on raw, non-ipsatized data to see if that would produce clearer results than PCA on ipsatized data. That was not the case; the only immediately observable difference was that the first factor based on the raw data, although a factor with a clear uni-polar emphasis on Neuroticism, encompassed a wider spectrum of traits typical of Agreeableness, Conscientiousness, and of aspects of morality, thus obtaining an evaluative flavour.

The structure based on ipsatized data turned out to more articulate, and rather well interpretable in terms of labels of the Big Five, except maybe the fifth factor which more narrowly expressed unconventionality and rebelliousness. These ipsatized data based five factors are presented[3] in Table 4.

Correlations with IPIP Big Five scales. For a further identification of their meaning, the five factors were correlated with the IPIP-50 marker scales. The results, including multiple-Rs, are given in Table 5, which also includes the alpha reliabilities of the IPIP-scales. The lexically based factors in the columns, ordered in correspondence with the IPIP-Big Five factors, turn out to have the highest correlations with the IPIP scales; all off-diagonal correlations are considerably lower. The pattern of correlations thus confirms a reasonable representation of the Big Five model in the Romanian trait language, with a relatively low correlation of .44 between IPIP-Openness and Unconventionality. This is possibly related to the fact that IPIP-Openness does not match the semantics of unconventionality well. The multiple correlations suggest that the lexical Big Five explain the variance in the IPIP-Big Five a little better than the other way around.

Six factors

Also in the case of six factors, first both the raw data based and the ipsatized data based structures were inspected for differences. Of the raw-data based factors, the first five were quite the same as those of the five-factor solution, and the sixth factor with just a handful of loadings above .30 seemed to contain some remnants of an Honesty-related factor, but it was difficult to interpret.

Also in this case the ipsatized data based structure was more articulate. Details of the contents of these factors[4] are given in Table 6, with five labels identical to those of the five factor structure, and an additional factor showing characteristics of Honesty, morality or even NV, with traits such as *honest*, *ethical* and *steadfast* versus *lascivious*, *provocative* and *perverted*.

Since we had not included an independent measure of the six-factor model, we sufficed with constructing marker scales for both Honesty and NV, based on Saucier, Thalmayer, Payne, et al. (2014). We identified seven of items in the present study to form the Honesty marker scale (alpha of .75) and also seven items to form the NV marker scale (alpha of .79). The two sets of marker items are given in the Appendix. The correlation of the Honesty scale with the honesty-related adjective based factor was moderate with .43, and the correlation of the NV scale with that factor was weak with .35.

---

[3]In Table 4, only English translations of trait words are given; a list with the original Romanian words can be obtained from the authors upon request.

[4]A list with the original Romanian word scan be obtained from the authors upon request.

TABLE 4
Marker items representing the factors of the five-factor solution

Factor 1: Conscientiousness

\+   organised (.65), focused, diligent, strict, conscientious, disciplined, precise, purposeful, rational, rigorous, persevering, ordered, realistic, lucid, determined, efficient, perfectionist, balanced, methodical, sedulous (.56)

−   reckless (−.62), careless, irresponsible, disorganised, giddy, immature, intemperate, negligent, imprudent, inconstant, neglectful, distracted, thoughtless, undecided, unrealistic, unreasonable, hare-brained, unruly, irresolute (−.47)

Factor 2: Exraversion

\+   bold (.66), unselfconscious, dynamic, energetic, joyful, sociable, talkative, cheerful, uninhibited, charismatic, breezy, happy, brave, convincing, confident, entrepreneurial, daring, exuberant, jovial, sharp (.45)

−   quiet (−.67), taciturn, unsociable, lonely, pessimistic, inhibited, shy, uncertain, hesitant, fearful, panicky, distant, grouchy, timorous, reserved, melancholic, resigned, unfriendly, sceptical, unhandy (−.41)

Factor 3:Agreeableness

\+   sensitive (.61), generous, altruistic, magnanimous, sentimental, loving, considerate, patronal, forgiving, shielding, benevolent, gentle, charitable, touching, amiable, sympathetic, affectionate, friendly, peaceful, good-natured (.46)

−   sly (−.52), arrogant, machiavellian, grim, deceptive, oppressing, selfish, conflicting, impassive, greedy, insensitive, vain, narcissistic, cynical, perverted, forestalling, abusive, hostile, averse, unfaithful (−.36)

Factor 4: Emotional Stability

\+   calm (.52), patient, temperate, flexible, non-aggressive, moderate, untroubled, yielding, nonviolent (.30)

−   nervous (−.55), irritable, peevish, quarrelsome, choleric, grumpy, cantankerous, angry, impulsive, stirred, mouthy, tetchy, capricious, hysterical, dramatic, troublesome, temperamental, overhasty, aggressive, nagging (−.38)

Factor 5: Unconventionality

\+   disobedient (.49), unconventional, rebellious, authentic, deductive, informal (.31)

−   conventional (−.48), flattering, submissive, docile, obedient,compliant (−.31)

Note: Of the listed trait terms only the highest and lowest loadings per factor-pole are given.

TABLE 5
Correlations of ipsatized data based five adjective factors with IPIP-50 factors

		Adjective factors					
IPIP Big Five scales	*Alphas*	*E*	*A*	*C*	*ES*	*U*	*Multiple-R*
Extraversion	.86	**.51**	−.15	−.26	−.37	−.15	**.71**
Agreeableness	.79	−.09	**.55**	−.26	−.03	−.12	**.63**
Conscientiousness	.83	−.25	.04	**.59**	−.15	−.22	**.70**
Emotional Stability	.83	−.01	−.18	−.01	**.65**	.09	**.68**
Openness	.74	−.21	−.10	−.20	−.18	**.44**	**.56**
Multiple-R		**.56**	**.58**	**.62**	**.67**	**.49**	

Note: Correlations higher than .40 are in bold. A = agreeableness; C = conscientiousness; E = extraversion; ES = emotional stability; U = unconventionality.

Discussion

The results showed that the two- and three- factor structures clearly resembled the Big Two and the Big Three. The five-factor structure was similar to the Big Five, the weakest correlation being between Unconventionality and Big Five Openness. The six-factor solution had an additional factor with honesty and morality characteristics, but it was not a typical honesty factor with the pretention and greediness on the low side of the factor. For this reason, it was decided to make some extra effort to see whether a full-blown Honesty-Humility cluster of traits could be discerned in the Romanian trait-vocabulary. This is described in Study 3.

STUDY 3: CORRELATIONS OF LEXICAL SIX FACTORS WITH HEXACO

We selected markers to represent each of the six lexically derived Romanian trait factors, and constructed marker scales of the factors. In addition, we used a version of the HEXACO inventory for an independent identification of the six lexical factors. These two lists were administered to a fresh sample of participants.

Participants

The sample consisted of 218 undergraduate psychology students (180 women and 38 men) aged between 19 and 54 years ($M = 22.85$; $SD = 6.79$).

TABLE 6
Marker items representing the factors of the six-factor solution

Factor 1: Conscientiousness

+   organised (.63), perfectionist, precise, concentrated, diligent, disciplined, efficient, strict, persevering, performing, methodical, rational, rigorous, prudent, painstaking, ordered, realistic, conscientious, hard-working, lucid (.54)

−   reckless (−.66), careless, disorganised, intemperate, irresponsible, unorganised, thoughtless, negligent, imprudent, giddy, imature, hare-brained, distracted, prodigal, untrained, unruly, inconstant, irrational, wildcat, rash (−.44)

Factor 2: Extraversion

+   bold (.68), energetic, unselfconscious, dynamic, joyful, sociable, cheerful, breezy, talkative, happy, uninhibited, brave, confident, charistmatic, convincing, entrepreneurial, lively, voluble, sharp (.44)

−   quiet (−.66), pessimistic, taciturn, lonely, unsociable, unsure, hesitant, shy, anxious, inhibited, panicked, fearfull, melancholic, grouchy, timorous, undecided, distant, sceptical, reserved (−.49)

Factor 3: Agreeableness

+   sentimental (.64), sensitive, generous, loving, altruistic, magnanimous, shielding, forgiving, patronal, gentle, affectionate, tender, benevolent, charitable, touching, amiable, friendly, sympathetic, good-natured, peaceful (.44)

−   grim (−.52), arrogant, sly, macchiavelian, impassive, oppressing, selfish, indifferent, deceptive, cynical, greedy, disobedient, incisive, abusive, hostile, unfriendly, vain, bitter, narcissistic, spiteful (−.33)

Factor 4: Emotional Stability

+   calm (.52), tempered, patient, non-aggressive, flexible, moderate, untroubled, nonviolent (.30)

−   nervous (−.54), choleric, quarrelsome, irritable, peevish, angry, impulsive, tetchy, agitated, mouthy, conflicting, jumpy, capricious, temperamental, hysterical, aggressive, overhasty, dramatic, nagging (−.38)

Factor 5: Morality

+   honest (.43), ethical, fair, correct, steadfast, sincere (.32)

−   lascivious (−.47), provocative, enticing, jolly, jealous, theatrical, histrionic, dissolute, perverted, intriguing, licentious, servile, ostentatious (−.31)

Factor 6: Unconventionality

+   unconventional (.55), rebellious, disobedient, innovative, ingenious, unpredictable, original, sarcastic, inspired, authentic, talented, creative, curious (.30)

−   conventional (−.62), submissive, docile, obediental, conservative, ordinary, banal (−.33)

Note: Of the listed trait terms only the highest and lowest loadings per factor-pole are given.

Materials

Marker-scales of six lexically based factors

We selected marker items for each of the six lexical factors, using the 20 adjectives with the highest loadings per factor, both positive and negative. The internal consistencies of these marker scales ranged from .75 (Morality) to .88 (Dynamism). Scale scores were based on the ratings of the 20 adjectives per factor.

HEXACO 60

The 60 item version of the HEXACO Personality Inventory (Ashton & Lee, 2009) measures six factors with 10 items per factor. The internal consistencies of those scales, given in Ashton and Lee (2009), were .79 (Honesty-Humility), .78 (Emotionality), .80 (Extraversion), .77 (Agreeableness), .78 (Conscientiousness) and .77 (Openness to Experience). The Romanian HEXACO version was achieved by a standard translation-backtranslation method by a researcher proficient in both languages.

Procedure

The 120 lexical trait items were administered to the participants together with the 60 items of the HEXACO 60. All items were rated on a 5-point scale running from "1" (strongly disagree) to "5" (strongly agree). The students were informed in brief about the study aim and those that agreed to participate provided their email address. We developed an online assessment form in Google Docs in which we included the markers for the six factors as well as the HEXACO 60. The access link was sent via email to each student that agreed to participate along with the instructions for each measure.

Results

Table 7 contains the correlations between the six HEXACO scales and the marker-scales of the six lexically derived trait factors, and it contains the alpha reliabilities of the HEXACO scales. The Honesty-Humility scale correlated rather moderately with the lexical Morality scale; yet it was the highest correlation of Honesty-Humility.

This confirms the weak emergence of an honesty factor in the lexical material. HEXACO Openness did not relate substantially with any of the lexically based factors, including the supposedly Openness related Unconventionality. HEXACO Conscientiousness related strongly to the lexical Conscientiousness factor. HEXACO Extraversion related strongly to the lexical Extraversion factor, and so did, but moderately, the HEXACO Emotionality. HEXACO Agreeableness correlated rather moderately with the lexical Agreeableness factor, but also, and more strongly, with the lexical Emotional Stability factor.

The multiple correlations tell that the coverage of the semantics of the HEXACO factor scales by the lexical scales is similar to the coverage of the lexical semantics by the HEXACO. In both sets, the contents of the two corresponding Extraversion and Conscientiousness scales are best covered. In sum, the six-factor solution is only very partially similar to the HEXACO model.

Discussion

Starting from a set of 1746 personality relevant adjectives, selected from a Romanian dictionary, 412 adjectives were considered behavioural dispositions and served to investigate the structure of the Romanian personality lexicon. PCA on self-ratings on the 412 trait adjectives was performed and factor solutions with two to six factors were inspected, with interest in structures with two and with three factors, and with a special focus on a full portrait with some five or six factors. We checked to what extent the lexically derived trait factors related to measures of these four structures.

The main issue of this paper is the structure of the Romanian trait vocabulary. Conclusions about structure are best drawn with reference to the hierarchy of Figure 2. The first differentiation of interest at the factor level is the two-factor solution in which the Big Two was observed, thus confirming the cross-cultural evidence of the *Communion-Agency* distinction. Traits of Extraversion are typical of the *Agency*-related factor. Traits of Agreeableness and Conscientiousness are typical of the *Communion*-related factor.

With three factors, the Big Three was confirmed, with a split of the *Communion*-related factor into a factor emphasising the traits typical of Agreeableness and a factor emphasising traits of Conscientiousness.

These two structures, The Big Two and the Big Three, are of great interest cross-culturally, since thus far those two structures seem to have the best chance to be discerned in the many languages of the world. With a four-factor structure, often a Neuroticism-Emotional Stability factor emerges, but less consistently so. A four-factor model of traits is not generally embraced as a final model of traits. With a focus on the largest number of rather independent factors within a language, one usually considers structures with five or six factors.

The five-factor structure could be considered to reflect the Big Five, with the fifth factor, with traits such as *docile* versus *unconventional*, reflecting the Conventionality reading of the Intellect factor. The fifth factor has shown different faces across languages, not just through different names (e.g. Intellect, Culture, Openness to Experience), but also through different contents, with some emphasising a rebellious tone, and others emphasising imagination, and still others emphasising talents. Yet, these different versions are usually conceived of as cultural or methodological expressions of the same underlying dimensions (see also, De Raad & Van Heck, 1994).

With six factors, Honesty appears, though not in its clearest form. The lexical Agreeableness and Emotional Stability factors (6/3 and 6/4, but also 5/3 and 5/4) are largely made up of items that have positive loadings or negative loadings on both these factors, thus covering trait-semantics that merge into each other.

While the two-, the three- and the five-factor solution all roughly confirm the relevant structures as repeatedly described in the literature, the six-factor structure should be taken with some reservation regarding its representation as the Big Six in Romanian. The correlations of the five-factor structure with the IPIP-Big Five moderately indeed also confirmed the Big Five in Romanian, The six-factor structure, represented through markers of the six lexical factors, did not show a one-to-one correspondence to the HEXACO scales, thus leaving the HEXACO meaning of the structure undecided.

A recurrent issue with psycho-lexical studies is that relatively large samples of hundreds of participants are needed, possibly representative of the large population. At the same time, large numbers (hundreds) of items have to be administered, possibly representative of the semantics of the trait-vocabulary in a language. In the present study the number of participants is sufficient, but the sample may not be representative of the population. The number of items to be administered usually faces problems of time, money and energy on the side of the participants. Compared to other psycho-lexical studies the number of 412 trait-adjectives is quite normal.

The research sample consisted mostly of women, which could be considered as leading to bias of some sort. It may be noted that in the majority of studies on lexical personality structure, the number of female participants is larger. For example, in the case of the Croatian, Greek, French studies there were up to three times more females than males (Mlačić & Ostendorf, 2005; Saucier et al., 2005; Boies, Lee, Ashton, Pascal, & Nicol, 2001) and in a few cases (e.g. Hungarian, Korean) the number of males was just a little larger (De Raad & Szirmák, 1994; Hahn, Lee, & Ashton, 1999). There have been no clear signs that those sample differences had an effect on the structure. Therefore, gender was not expected to have some drastic effect on the study findings.

TABLE 7
Correlations of six ipsatized based trait-adjectives factors with HEXACO scales

HEXACO factor	Alphas	Adjective factors						Multiple-R
		M	ES	E	A	C	U	
Honesty-Humility	.73	**.44**	.32	−.01	.19	.16	−.12	**.50**
Emotionality	.80	.14	−.09	**−.51**	.25	−.08	−.27	**.63**
Extraversion	.79	−.24	.06	**.77**	.11	.30	.08	**.80**
Agreeableness	.72	.22	**.64**	−.11	**.40**	−.04	−.12	**.67**
Conscientiousness	.79	.19	.14	.16	.11	**.80**	−.31	**.80**
Openness	.75	−.07	.15	.08	.14	.01	.27	.35
Multiple-R		**.55**	**.67**	**.82**	**.57**	**.81**	**.52**	

Note: Correlations higher than .40 are in bold. A = Agreeableness; C = Conscientiousness; E = Extraversion; ES = Emotional Stability; M = Morality, U = Unconventionality.

Nevertheless, in a more general sense, samples with imbalanced gender are seen as a limitation in personality research, even though there are conflicting assumptions and findings (Hyde, 2005). In recent years, researchers used complex techniques to test measurement invariance in personality across gender. Ehrhart, Roesch, Ehrhart, and Kilian (2008), for example, who used the 50-item IPIP Big Five measure in a large sample of 1727 college students, found support for invariance of the factor structure across gender. Gustavsson, Eriksson, Hilding, Gunnarsson, and Östensson (2008) used a health-related measure of the Big Five, the HP5, in an even larger sample of 5700 men and women taking part in a diabetes prevention programme, and also this study showed invariance across gender. In both these studies words of caution were used with regard to the generality of the findings on invariance (see also, e.g. Booth & Irwing, 2011). Measurement invariance has not been practise in psycho-lexical taxonomic studies, but gender differences may form an interesting focus of attention in this domain of research.

CONCLUSION

With the taxonomy and the structuring of the Romanian trait-descriptive vocabulary the analyses of Italic branch of the Indo-European languages is virtually completed. The Romanian findings confirm not only those in other Italic languages, but also those in most other European or Western languages. This concerns the Big Five, but it also concerns the structures with two- and with three factors thus providing further evidence of the presence of these factors across languages and cultures.

REFERENCES

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs*, *47*(1), i–171.

Almagor, M., Tellegen, A., & Waller, N. (1995). The Big Seven model: A cross-cultural replication and further exploration of the basis dimensions of natural language of trait descriptions. *Journal of Personality and Social Psychology*, *69*, 300–307.

Angleitner, A., Ostendorf, F., & John, O. P. (1990). Towards a taxonomy of personality descriptors in German: A psycho-lexical study. *European Journal of Personality*, *4*, 89–118.

Ashton, M. C., & Lee, K. (2009). The HEXACO–60: A short measure of the major dimensions of personality. *Journal of Personality Assessment*, *91*, 340–345.

Ashton, M. C., Lee, K., Perugini, M., Szarota, P., De Vries, R. E., Di Blas, L., … De Raad, B. (2004). A six-factor structure of personality-descriptive adjectives: Solutions from psycholexical studies in seven languages. *Journal of Personality and Social Psychology*, *86*, 356.

Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western Man*. (). Boston: Beacon.

Boies, K., Lee, K., Ashton, M. C., Pascal, S., & Nicol, A. A. (2001). The structure of the French personality lexicon. *European Journal of Personality*, *15*, 277–295.

Booth, T., & Irwing, P. (2011). Sex differences in the 16PF5, test of measurement invariance and mean differences in the US standardisation sample. *Personality and Individual Differences*, *50*, 553–558.

Caprara, G. V., & Perugini, M. (1994). Personality described by adjectives: The generalizability of the big five to the Italian lexical context. *European Journal of Personality*, *8*, 357–369.

Costa, P. T., & McCrae, R. R. (1992). *Neo PI-R Professional Manual*. Odessa, FL: Psychological Assessment Resources.

De Raad, B., Barelds, D. P., Timmerman, M. E., De Roover, K., Mlačić, B., & Church, A. T. (2014). Towards a pan-cultural personality structure: Input from 11 psycholexical studies. *European Journal of Personality*, *28*, 497–510.

De Raad, B., Hendriks, A. A., & Hofstee, W. K. (1992). Towards a refined structure of personality traits. *European Journal of Personality*, *6*, 301–319.

De Raad, B., & Mlačić, B. (2017). Psycho-lexical studies of personality structure across cultures. In T. Church (Ed.), *The Praeger handbook of personality across cultures* (pp. 161–192). Santa Barbara: Praeger Publishers.

De Raad, B., & Szirmák, Z. (1994). The Hungarian trait structure and its relationship to the EPQ and the PTS. *European Review of Applied Psychology*, *44*, 17–24.

De Raad, B., & Van Heck, G.L. (Eds.) (1994). The fifth of the Big Five. *European Journal of Personality*, *8*, Special Issue, 225–227.

DeYoung, C. G. (2006). Higher-order factors of the Big Five in a multi-informant sample. *Journal of Personality and Social Psychology*, *91*, 1138.

Di Blas, L., & Forzi, M. (1998). An alternative taxonomic study of personality-descriptive adjectives in the Italian language. *European Journal of Personality*, *12*, 75–101.

Digman, J. M. (1997). Higher-order factors of the Big Five. *Journal of Personality and Social Psychology*, *73*(6), 1246–1256.

Ehrhart, K. H., Roesch, S. C., Ehrhart, M. G., & Kilian, B. (2008). A test of the factor structure equivalence of the 50-item IPIP Five-factor model measure across gender and ethnic groups. *Journal of Personality Assessment*, *90*, 507–516.

Goldberg, L. R. (1981). Language and individual differences: The search for universals in personality lexicons. *Personality and Social Psychology Review*, *2*, 141–165.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, *4*, 26.

Goldberg, L. R. (1999). A broad-bandwidth, public domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe*. (Vol. *7*, pp. 7–28). Tilburg, The Netherlands: Tilburg University Press.

Gustavsson, J. P., Eriksson, A. K., Hilding, A., Gunnarsson, M., & Östensson, C. G. (2008). Measurement invariance of personality traits from a five-factor model perspective: Multi-group confirmatory factor analyses of the HP5 inventory. *Scandinavian Journal of Psychology*, *49*(5), 459–467.

Hahn, D. W., Lee, K., & Ashton, M. C. (1999). A factor analysis of the most frequently used Korean personality trait adjectives. *European Journal of Personality*, *13*, 261–282.

Hřebíčková, M., & Ostendorf, F. (1995). Lexical approach to personality. 5. Classification of adjectives into categories of personality description. *Ceskoslovenska Psychologie*, *39*(3), 265–276.

Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist*, *60*, 581–592.

Mlačić, B., & Ostendorf, F. (2005). Taxonomy and structure of Croatian personality-descriptive adjectives. *European Journal of Personality*, *19*(2), 117–152.

Musek, J. (2007). A general factor of personality: Evidence for the Big One in the Five-Factor model. *Journal of Research in Personality*, *41*, 1213–1233.

Saucier, G. (2009). Recurrent personality dimensions in inclusive lexical studies: Indications for a Big Six structure. *Journal of Personality*, *77*, 1577–1614.

Saucier, G., Georgiades, S., Tsaousis, I., & Goldberg, L. R. (2005). The factor structure of Greek personality adjectives. *Journal of Personality and Social Psychology*, *88*, 856.

Saucier, G., Thalmayer, A. G., & Bel-Bahar, T. S. (2014). Human attribute concepts: Relative ubiquity across twelve mutually isolated languages. *Journal of Personality and Social Psychology*, *107*, 199–216.

Saucier, G., Thalmayer, A. G., Payne, D. L., Carlson, R., Sanogo, L., Ole-Kotikash, L., … Zhou, X. (2014). A basic bivariate structure of personality attributes evident across nine languages. *Journal of Personality*, *82*, 1–14.

Szarota, P., Ashton, M. C., & Lee, K. (2007). Taxonomy and structure of the Polish personality lexicon. *European Journal of Personality*, *21*, 823–852.

APPENDIX

Big Two markers

Communion: good, obedient, kind, generous, respectful, honest, diligent, gentle, careful, polite, disciplined.

Agency: bold, brave, shy, lively, fearful, silent, energetic, sociable, cheerful, pessimistic, dynamic.

Big Three markers

Affiliation: kind, loving, friendly, generous, selfish, arrogant, rude, good-natured, cold.

Dynamism: fearful, shy, anxious, cheerful, reserved, pessimistic, passive, dynamic.

Order: careless, diligent, responsible, absent-minded, rational, reckless, organised, methodical, disciplined.

Honesty-Humility markers

*From Ashton et al. (*2004*)*: greedy, just, boastful, hypocritical, sincere, sly, loyal.

*From Saucier (*2009*)*: wicked, cruel, corrupt, vicious, awful, beastly, inhuman.