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Taxonomy of Hungarian personality traits: Replication and refinement*

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Objective: We aim to replicate the previously published structure that was based on a taxonomy of traits according to psycho-lexical principles (Szirmák & De Raad, 1994). Method: The original list of 561 trait terms was used and administered to 1,503 participants, in part through using a paper version, and in part using an online version of the list. The participants provided self-ratings on these traits, and in addition filled out five questionnaires for purposes of validation and as an aid in identification of the lexically derived factors. Additional analyses were done using the joint sample of the present 1,503 participants and the previously used sample of 400 participants. Results: On ipsatized data, principal components analyses were performed, resulting in a six factor solution considered as the most adequate one. The factors were identified as the Big Five plus an Integrity-Honesty related factor. The analyses using the joint data set strengthened the adequacy of the six-factor solution. Conclusion: The previously published structure was approximately replicated in a new sample of participants. Moreover, the results gave rise to a re-labeling of the previous Integrity factor into Narcissism.

Keywords: trait structure, taxonomy, psycho-lexical approach, Big Five, replication, narcissism

One of the first non-Indo-European personality trait taxonomies was done in Hungarian about 25 years ago (Szirmák & De Raad, 1994; De Raad & Szirmák, 1994). In the context of the then available trait-structures, both questionnaire based and psycho-lexically based, the Hungarian results formed a nuisance with respect to the structure with the magic number of five. A five-factor solution in Hungarian (Szirmák & De Raad, 1994) did not confirm the existence of the Intellect factor, but instead suggested the so-called Integrity factor, with trait terms such as *veracious, just, trustworthy, and humane* versus *hypocritical, swollen-headed, greedy, and overbearing*. In the pertaining analysis, quite a few of those highest loading terms on the fifth factor had, however, substantial secondary loadings on other factors, particularly Conscientiousness and Agreeableness. Factor-pure terms on Integrity were all negative (e.g., *swollen-headed, greedy, conceited, intriguing*). Further analyses (De Raad & Szirmák, 1994) gave evidence of an Intellect factor in a solution with six factors. The six-factor trait structure was received with some skepticism from the Big Five arena; and the authors tried to attribute the additional integrity factor to a cultural-political preoccupation with matters of corruption of that time (De Raad & Szirmák, 1994). This latter explanation lost its meaning later when factors similar to the integrity factor were observed in a series of trait taxonomies a decade later (Ashton et al., 2004). The Hungarian six-fac-

tor trait structure was subsequently conceived of as a preview of the six-factor model put forward by Ashton et al. (2004).

There is not much of a tradition in psycho-lexical work to do replications within the same language, possibly because trait taxonomic work is rather time consuming, the products of which are usually taken as a resource for further research such as for the development of personality inventories. Exceptions are, for example, in Italian (Caprara & Perugini, 1994; Di Blas & Forzi, 1998) and in Chinese (Yu, Wei, & He et al., 2009; Zhou, Saucier, Gao, & Liu, 2009). What we do know is that trait structures vary across languages, even in the culturally-close European languages. Little is known about variation within a language, due to samples, to time, to cohort effects, and so forth. It is important to know whether trait structures in a language are stable over time, and especially also whether their peculiarities reappear. With regard to the Hungarian trait structure it is of specific interest to know whether the six-factor trait structure with its distinct integrity factor shows stability over time and across samples.

The 1994 Hungarian trait structure was based on a relatively large set of trait words (561) judged to be the proper set to represent the semantics of the Hungarian trait vocabulary. Details of the selection procedure of those trait terms can be found in Szirmák and De Raad (1994). We aim to replicate this study, using the same set of 561 trait variables, in combination with a set of different personality questionnaires which had been translated into Hungarian.

While the six-factor trait structure for Hungarian deviated from the expected Big Five, in the years after there have been extensive discussions on the relevance of trait structures with even more factors, but also on structures with fewer factors. For a review in some detail, see De Raad and Mlačić (2017a; 2017b). Much of that discussion took place against the background of the question for cross-cultural replicability of factors, focusing on structures with one, two, or three factors. Another part of the discussion was about specifying the trait structure in a language in a most optimal way, in part also related to the aim to exploit the full potential of the trait vocabulary. In this latter discussion the focus was mainly on structures with six or seven factors.

Those various structures all play their own specific role of interest, theoretically, cross-culturally, and assessment-wise. Therefore, it makes sense to exploit trait taxonomies also to provide answers for the various relevant levels of factor extraction, which can well be done along the “bass-ackwards” procedure (Goldberg, 2006) to construct a hierarchy of factors. So, the main question of replication of the Hungarian structure is now accompanied by a series of secondary questions related to the different hierarchical levels.

Recently, an interest has grown in a general factor of personality (Musek, 2007). This factor would be located at the apex of the hierarchy. Hofstee (2001), who referred to this factor as the “p factor”, suggested that such a factor would describe adequacy of reaction in a variety of situations. Others refer to the factor as Evaluation, combining the positive characteristics of the Big Five factors (e.g., Saucier et al., 2005). In the evaluative terminology, Hofstee (2003) later argued that the first un-rotated factor, which he then called the “Primordial One,” describes the individual’s desirability, reflecting “the extent to which an individual is assessed to have desirable versus undesirably qualities” (p. 249). We endorse this as the more adequate qualification.

The Big Two personality structure gained much interest through Digman’s (1997) higher order structure of the Big Five consisting of a “socialization” factor (called α), capturing common aspects of Agreeableness, Conscientiousness, and Emotional Stability, and a “personal growth” factor (called β), capturing what is common to Extraversion and Intellect. DeYoung (2006) found support for these factors, and interpreted the first factor as “stability”, and the second factor as “plasticity”. Saucier et al. (2014) analyzed nine distant languages (Chinese, Korean, Filipino, Turkish, Greek, Polish, Hungarian, Maasai, and Senoufo) and interpreted the two factors of a two-factor solution as Social Self-Regulation and Dynamism. De Raad et al. (in preparation) found support for the two-factor structure in 11 independently developed trait taxonomies, but they also observed inconsistencies across languages. In particular, Emotional Stability was not a consistent member of any of the two factors.

In recent years, the Big Three model started to become dominant as the structure with the maximum number of factors to be replicable across languages and cultures. Since Peabody (1987) and Peabody and Goldberg (1989), support for a three-factor structure was found in various psycho-lexical studies (e.g., Di Blas, 2005; Mlačić & Ostendorf, 2005; Saucier, 1997). Moreover, cross-cultural support was found in De Raad et al. (2010), De Raad et al. (2014), Peabody and De Raad (2002), and De Raad and Peabody (2005). These “pan-cultural” three were interpreted as abstract versions of

Extraversion, Agreeableness, and Conscientiousness, through the labels Dynamism, Affiliation, and Order, respectively (De Raad et al., 2014).

The five-factor structure has been extensively discussed in the psycho-lexical literature. Although there were some minor differences in labeling of the factors, especially in case of the fifth factor, support for the Big Five has been found in many languages in Europe and in the United States. With a growing distance from western countries, however, the Big Five appeared harder to replicate (e.g., De Raad & Mlačić, 2017a; 2017b). Nevertheless, the Big Five model has had great impact in personality psychology, especially in bringing a certain level of consensus to the field and through demonstrating to be a useful descriptive system.

A model with six factors comes in two versions. One is presented as the HEXACO model (Ashton & Lee, 2001) and the other is presented in Saucier’s Big Six (Saucier, 2009). Since the “Integrity” factor was observed in Hungarian (Szirmák & De Raad, 1994), a factor with similar content, “Trustworthiness”, was found in Italian (Di Blas & Forzi, 1999), in Korean (“Truthfulness”; Hahn et al., 1999), and in French (Boies et al., 2001). Relatedly, in the HEXACO model, a sixth factor, called Honesty-Humility, was added to the Big Five factors. Ashton et al. (2004) concluded to an Honesty-Humility factor using a series of psycho-lexical studies. Saucier (2009), using a wider selection of variables, including words denoting emotional states and words with strong evaluative meaning, analyzed seven languages and interpreted six factors in terms of Big Five-related dimensions plus Negative Valence.

A seven-factor structure was proposed by Tellegen and Waller (1987), who explicitly argued to include evaluative terms and state terms. In Almagor, Tellegen, and Waller (1995), a structure was presented with four of the Big Five, including two versions of Extraversion, plus two additional factors, Negative Valence and Positive Valence. An Intellect factor was lacking. A study in Spanish (Benet-Martinez & Waller, 1997), following the Tellegen-Waller approach, produced Positive and Negative Valence, in addition to versions of the Big Five. In Filipino, Church, Reyes, Katigbak, and Grimm (1997) and Church, Katigbak, and Reyes (1998) gave still another set of seven factors, and so did a Chinese study (Zhou et al., 2009). General consensus on the contents of a seven-factor structure seems as yet difficult to find.

In Dutch, De Raad and Barelids (2008) investigated the trait structure using a truly unrestricted approach regarding the selection of descriptors. This involved a list of 2,365 trait adjectives, trait verbs, trait nouns, and trait descriptive standard expressions. The study resulted in a structure with eight factors, including the Big Five, plus three additional factors describing Virtue, Competence, and Hedonism.

METHOD

Participants

A total of 1,503 persons participated in this study (1,052 females, 449 males, and 2 with gender not reported). Their mean age was 29.7 (*SD* 12.80). The vast majority (78 %) was from urban origin (the capital or another city), and 22 % lived in villages. Education: 8.1 % had elementary or

vocational school level, 26.6 % had high school level, and 65.3 % had university level.

Materials

Of the list of 561 trait terms, one term was accidentally omitted, leaving 560 terms. This list was administered to the participants together with five questionnaires. All instruments, each provided with its own instruction, are specified below. Only self-ratings were requested. The six instruments were preceded by questions on gender, age, place of residence, and educational level. The five questionnaires were selected to enable validation and discrimination; they were partly selected on the basis of immediate relevance (Big Five and Six-factor model related), and partly on the basis of more remote relevance (EPQ, ZKPQ), in order to identify as much as possible the full array of trait clusters that may emerge. All the questionnaires were translated following a standard translation-back-translation procedure.

Trait-list. The trait-list consisted of 560 trait descriptors that resulted from the Hungarian trait taxonomy (Szirmák and De Raad, 1994). Participants were instructed to indicate for each trait-adjective the extent to which it described him- or herself. The answers could be scored on a scale running from "1" (not characteristic) to "4" (characteristic).

BFI. The Big Five Inventory (John, Donahue, & Kentle, 1991; translation by Szirmák) is a 44-item questionnaire, measuring the Big Five factors. Participants were asked for each item to indicate the extent to which the item described them. The scoring possibilities ran from "1" (not at all) to "5" (completely).

ZKPQ-III. The Zuckerman-Kuhlman Personality Questionnaire (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993; translation into Hungarian by Nagy) is a 99 item questionnaire measuring Sociability, Activity, Neuroticism-Anxiety, Aggression-Hostility, and Impulsive Sensation Seeking. Participants were asked to indicate for each item whether it was characteristic for him or her (true or not true).

EPQ. The Hungarian version of the Eysenck Personality Questionnaire (Eysenck & Matolcsi, 1984) is a 90-item list measuring Psychoticism, Extraversion, and Neuroticism (also a Lie scale is included). The participants could answer Yes or No to the items which were formulated in the form of questions.

HEXACO-PI-R. This questionnaire (Lee & Ashton, 2008; translation into Hungarian by Szirmák), measures versions of the Big Five and the additional Honesty-Humility factor in 100 items. The participants were asked to indicate for each item how much it applies to him or her on a scale running from 1 to 5.

FFPI. The Five Factor Personality Inventory (Hendriks, Hofstee, & De Raad, 1999; translation by Nagy and Szirmák) is a 100 item inventory measuring the Big Five. Participants were asked to indicate for each item the extent to which it applied to them, using a scale from 1 to 5.

Procedure

Of the participants 1,012 filled out a paper version of the six instruments and 743 filled out the questionnaire online. Of

the 743 group, 252 were removed because of too many missing data, so that a total of 1,503 remained. The order of the instruments was fixed per version, but different between the two versions. Participants were asked to give honest answers and they were told that the answers could not be right or wrong. Because of the length of the total set of items the participants were allowed to stop whenever they wished, to continue later, or even abandon the task. Also they were informed that the responses would be dealt with confidentially.

RESULTS

Principal Components Analyses (PCA) were performed on the combined (paper & online versions) data sets, separately on raw and on ipsatized data (standardization per person). For a discussion on the use of this form of ipsatization, see e.g., De Raad and Barends (2008). Preceding the combining of the data sets, PCA's were done on the data from the different (paper & online) versions, with no striking differences observed in the results except for the order of appearance of some of the factors. Since the ipsatized (combined) data gave clearer results than the raw data, those ipsatized data based results are presented below.

Factors based on ipsatized data

Different criteria were applied to assess the proper number of components (henceforth called factors). These were the eigenvalues and a scree test, as well as the interpretability of factors. Moreover, following a procedure applied by Zuckerman et al. (1988) and De Raad and Szirmák (1994), we constructed a hierarchy of different factor solutions (the bass-ackwards procedure, cf. Goldberg, 2006), which is a very informative aid in making decisions about the importance of factors.

The eigenvalues for the first ten factors were 45.36, 37.55, 24.31, 15.52, 9.95, 9.76, 6.94, 6.21, 5.67, and 5.24, suggesting five to six factors at most. We inspected varimax rotated solutions with one up to nine factors, and presented various solutions in hierarchical format in Figure 1. The factors are symbolized by the numbers in the boxes. Box number 5/4, for example, represents the fourth factor of the five-factor solution. Between adjacent levels of factor extraction the correlations between factor scores (of $|\geq .40|$ or higher) are given.

Considering the correlations between factors from adjacent levels, the factors are stable from solution to solution, with each next level adding a new factor that generally shows no overlap (correlation) with factors at a higher level of abstraction. The largest "re-distribution" of variance seems to take place between the levels with one up to three factors.

For a proper interpretation of factors, use was made of the highest loading traits but also of the correlations between the factor scores and the scores on the 24 scales of the other five instruments. Those scales are presented in Table 1, together with their coefficient alpha reliabilities. All solutions and the pertaining factors are briefly reviewed below.

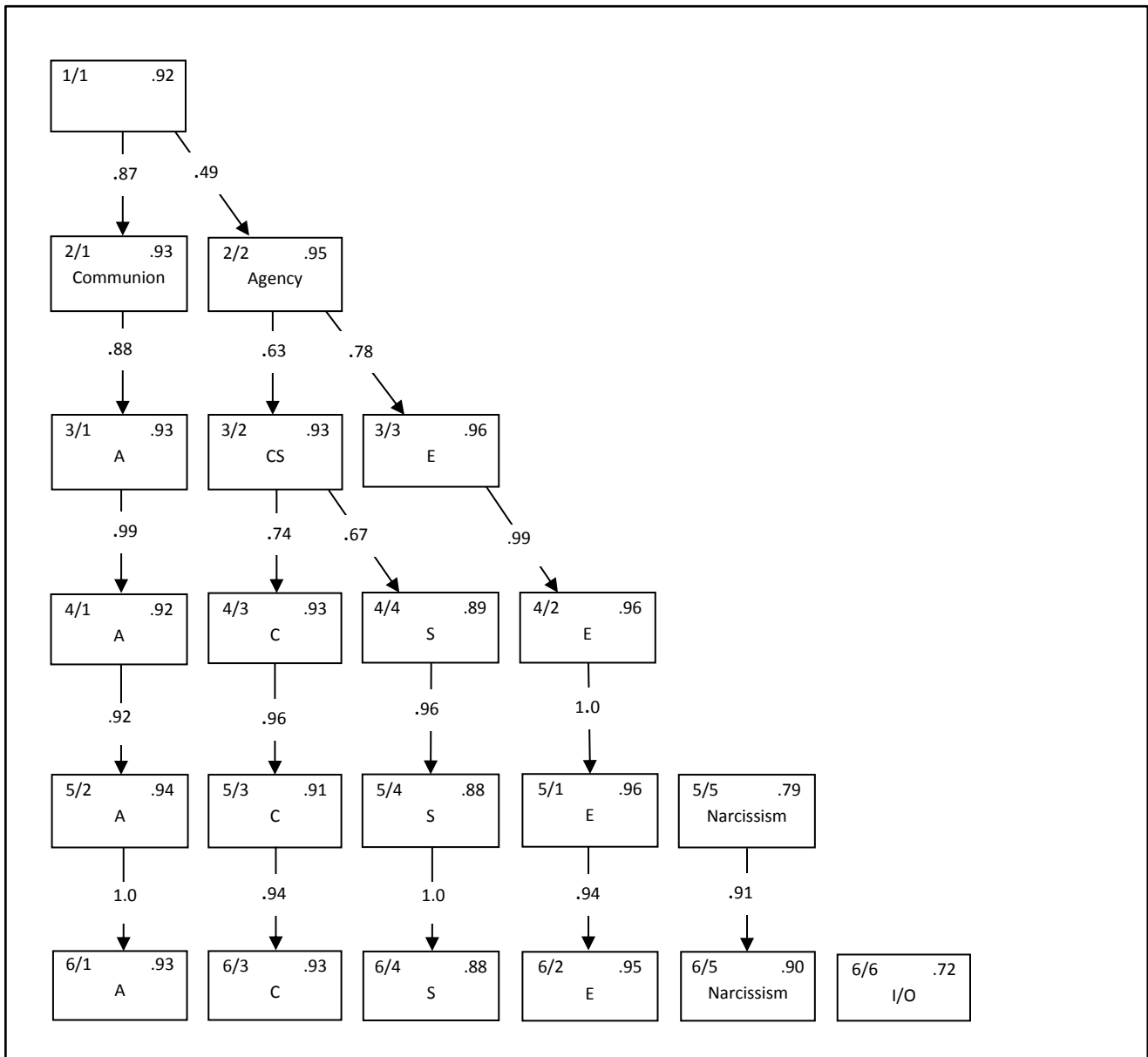


Figure 1. Emergence of factors in 6 solutions (1,503 set). The figures in the boxes are congruencies with the factors from Szirmák & De Raad, 1994; On the arrows the correlations between the related factors are given. A=Agreeableness; C=Conscientiousness; E=Extraversion; S=Emotional Stability; I/O=Intellect/Openness.

The first unrotated factor. This factor 1/1 turned out to be a mix of positive traits from Emotional Stability (S), Conscientiousness (C), Agreeableness (A), and to a lesser extent Extraversion (E). This factor seems to confirm, at least in part, the contents of the Big One.

A two-factor solution. The first factor (2/1) is loaded primarily by Agreeableness terms, Conscientiousness terms, and, to a lesser extent, by Emotional Stability terms. Correlations with the scales (the scales are listed in Table 1) (FFPI-A: .72; BFI-A: .60; HEXACO-A: .56; FFPI-C: .63; BFI-C: .48; HEXACO-C: .45) support especially the Agreeableness and Conscientiousness connection, thus constituting Digman's α dimension, and representing the Communion dimension of Bakan (1966). The second factor is loaded mainly by Extraversion terms, and to a lesser extent by Intellect terms and Emotional Stability terms, thus constitut-

ing Digman's β dimension, and representing the Agency dimension of Bakan (1966). Correlations, especially with corresponding E-scales (HEXACO-E: .76; BFI-E: .74; FFPI-E: .71; EPQ-E: .59), agree with this.

A three-factor solution. Factor 3/1 is most loaded with Agreeableness terms, and the factor correlates substantially with especially the different Agreeableness scales (FFPI-A: .73; BFI-A: .71; HEXACO-A: .63) and with the HEXACO Honesty-Humility scale (.44). The factor 3/2 is most loaded by Conscientiousness traits and Emotional Stability traits, and this factor correlates indeed highest with the corresponding scales (BFI-C: .65; HEXACO-C: .62; FFPI-C: .53; ZKPQ-N: -.60; FFPI-ES: .59; EPQ-N: -.44; HEXACO-Emotionality: -.44). Factor 3/3 is best characterized by Extraversion and to a lesser extent also by Intellect, both in terms of loading trait words and in terms of correlations with

Table 1. Details of 24 scales; alpha reliabilities, correlations with the six lexical factors, and multiple correlations ($N=1,503$)

	N	alpha	6/1, Agreeableness	6/2, Extraversion	6/3, Conscientiousness	6/4, Emotional Stability	6/5, Narcissism	6/6, Intellect/Openness	Multiple-R
EPQ									
Psychoticism	22	.61	-38	-10	-39	23	22	02	64
Extraversion	22	.81	-01	72	-13	00	09	-19	76
Neuroticism	23	.87	-35	-20	-03	-54	-04	13	69
Multiple-R			51	73	41	60	25	22	
BFI									
Extraversion	8	.82	-03	82	03	15	03	-07	84
Agreeableness	9	.73	72	17	04	-06	-13	13	76
Conscientiousness	9	.85	11	10	73	21	-14	00	78
Neuroticism	8	.84	-41	-11	-06	-64	-03	09	78
Openness	10	.81	-05	22	-11	-09	-05	-52	59
Multiple-R			76	83	75	71	22	56	
HEXACO									
Extraversion	16	.86	17	74	10	23	10	-18	83
Agreeableness	20	.82	74	-07	-09	06	-04	07	76
Conscientiousness	16	.83	11	-04	73	11	-05	-15	76
Emotionality	16	.83	05	04	12	-73	-06	11	76
Openness	16	.81	02	03	-14	-08	-04	-46	49
Honesty	16	.83	28	-08	11	08	-48	23	61
Multiple-R			76	80	78	76	51	54	
FFPI									
Extraversion	20	.93	15	81	-03	11	06	-13	85
Agreeableness	20	.86	66	-17	10	-03	-38	08	79
Conscientiousness	20	.89	26	-09	78	02	-11	06	83
Emotional Stability	20	.90	37	27	11	64	00	-18	82
Autonomy	20	.87	-23	40	16	46	-09	-39	78
Multiple-R			78	83	83	73	47	41	
ZKPQ									
Sy	17	.78	07	64	-15	-03	10	-08	67
Act	17	.63	-06	24	33	15	-04	-13	46
N-Anx	19	.86	-22	-16	-13	-67	00	15	75
Agg-Host	17	.73	-64	18	-05	-11	00	-03	68
ImpSS	19	.80	-28	36	-52	02	01	-12	70
Multiple-R			67	69	64	70	12	23	

Note: Sy=Sociability, Act=Activity, N-Anx=Neuroticism-Anxiety; Agg-Host=Aggression-Hostility, ImpSS=Impulsive Sensation Seeking; 6/1 to 6/6 refer to the lexically based factors. For reasons of readability, correlations of $|\geq .40|$ or higher between scales and lexical factors are put in bold.

the relevant scales (FFPI-E: .80; BFI-E: .78; EPQ-E: .75; HEXACO-E: .72; ZKPQ-Sociability: .65; FFPI-Autonomy: .46; BFI-O: .37). The three-factor solution seems supportive of the Big Three model.

A four-factor solution. Of the four-factor solution, the factors 4/1 and 4/2 are the same as the factors 3/1 and 3/3 of the three-factor solution. Factor 4/3 is characterized by traits of Conscientiousness, both in terms of loading traits and in terms of correlations with relevant scales (BFI-C: .71; HEXACO-C: .71; FFPI-C: .69). Factor 4/4 is characterized by Emotional Stability traits, clearly visible also in the correlations with the relevant scales (BFI-N: -.71; HEXACO-Emotionality: -.71; FFPI-ES: .70; EPQ-N: -.60; ZKPQ-N-Anx.: -.69). These A, E, C, and ES related factors of the four-factor solution remain virtually the same all the way to the nine-factor solution; they are not discussed any further.

A five-factor solution. With 5 factors, the factor 5/5 is

characterized by Integrity or Honesty related traits and by Agreeableness traits, with terms loading moderately but highest like *veracious, honest, helpful, natural, trustworthy, and upright* versus *bumptious, conceited, venal, egoistical, and show-off*. The correlation with HEXACO-H is -.53 and -.37 with FFPI-A. This Honesty-Humility related factor has a clear emphasis on the negative pole of the factor with 36 trait terms loading between .30 and .48, as opposed to the positive (Honesty) pole with just 9 terms loading between .30 and .36. Due to this strong emphasis on the negative pole, with many terms referring to egoism, boastfulness, and haughtiness, a more proper label is possibly Narcissism (*narcistic* also loads on this factor-pole).

A six-factor solution. In the hierarchy of Figure 1, five factors of the six-factor solution correlate almost perfectly with the factors of the five-factor solution. In addition, now factor 6/6 emerges, characterized especially with Intellect

Table 2. Six lexically based factors, using ipsatized data ($N=1,503$)

1	peaceful, patient, gentle, nice, forbearing, indulgent, lenient, considerate, humane (3), tender-hearted (2), tolerant (2), benevolent, warm-hearted, calm, generous (2), kind, compliant, conciliatory, tactful, timid, able to compromise, kindhearted, obedient, well-disposed, softhearted, loving, sober-minded, showing solidarity, friendly, obedient, acts in good faith, helpful (2), merciful (2), trustful, generous (2), optimistic, understanding, tender, charitable, cordial, hospitable, polite, well-mannered, solid, devoted, courteous, discreet, respectful, moderate, affected, attentive, decent, self-sacrificing (2), agreeable, well-bred <i>versus</i> hot-tempered, hot-headed, explosive, aggressive, irritable, hard-headed, stubborn (2), pity-less, grumbling (3), rude, arrogant, rude, sarcastic, headstrong, vengeful, obstinate (2), quarrelsome (3), impatient, neurotic (2), impulsive, bully, hasty, stinging, thorny, unforgiving, cursing, cynical, merciless, disdainful, rancorous, tyrannical, opposing, suspicious, insensible, hateful, relentless, mistrustful, recalcitrant, disobedient, grumpy, niggling, high-handed, restless, insolent, unadaptable, clamant
2	sociable, talkative, amicable, lively (2), energetic, chatty (2), jolly, merry, full of life, hot-blooded, hyperactive, rollicking, temperamental, laughing, direct (2), grinning, verbose, dynamic, vehement, passionate, winning, unruly, open, straightforward, daring, zippy, naughty, waggish, facetious, foul-mouthed, sensual, playful, sensual, open-hearted, rascal (2), unrestrained, humorous <i>versus</i> withdrawn, closed, taciturn (2), aloof, quiet (2), reserved, reticent, man of few words, un-talkative, restrained, unsociable, shy, stay at home, uncourageous, inhibited, boring, grey, distanced, awkward, bashful, pessimistic (2), unapproachable, anxious, unknowable, rigid, indifferent, distrustful, unfriendly, solid, coward, unbelieving, fatigued, coy, leisurely, weak-willed, sneaky, weakling, bashful, mollycoddle, formal, broken, weary, cautious, no initiative, misanthropic
3	pedantic, thoroughgoing, precise, diligent (2), task-oriented, responsible, industrious (2), dutiful, orderly, considerate, thoughtful, circumspect, persevering, disciplined, goal-oriented (2), careful, systematic, serious, demanding, consistent, pre-cautious, conscious, meticulous, perfectionistic, ambitious, practical, conscientious, resolute, strong-willed, strict, mature, trustworthy, independent, polished, virtuous <i>versus</i> neglectful, unsystematic, lazy, irresponsible, sloppy, inconsiderate, negligent, lax, unserious, frivolous, improvident, slothful, idle, rakish, playful, fluttering, eccentric, mindless, flighty, infantile, bohemian, incautious, forgetful, hasty, naughty, childish, foolish, silly, unreasonable, long sleeping, superficial, unpredictable, fickle, drowsy, pleasure-seeking, adventurous, inconsequent, unbridled, clumsy, drunken, unassuming
4	having nerves of steel, firm as a rock, self-assured, firm (2), invulnerable, stable, determined, well-balanced, sober-minded, brave, rationalistic, hard-hearted, objective, stone-hard, intrepid, sticks to the essentials, emotionless, calm, rules firmly, stone-hearted, persistent, experienced, cunning, daring, rational, heartless, brutal, boorish <i>versus</i> vulnerable (2), oversensitive, cries easily, easily scared, excitable, moaning, timid, hysterical (2), easily insulted, self-blaming, sensitive, self-condemning, excitable, anxious, easily offended, sentimental, emotional, unsteady, complaining, sulky, hesitant, sighing, dreamy (2), half-hearted, naïve, capricious, unbalanced, credulous, gossipy
5	conceited (2), bumptious, venal, self-satisfied, show off, supercilious, egoistical, power-mad, greedy, ingratiating, power-hungry, high-flown (2), haughty, superior, despotic, ambitious (2), self-important, falsely modest, avaricious, boastful, bookish, argumentative, officious, feigning, narcissistic, disdainful, hypocritical, pushy, bluffing, sophisticated, selfish, ostentatious, intriguing, arrogant, materialistic, honey-toned, vain, pharisaical, stingy, envious <i>versus</i> honest, veracious, discreet, trustworthy (2), decent, natural, comradely, helpful, upright
6	unimaginative (3), uneducated, has no style, illogical, grey, pedantic, good for nothing, boorish <i>versus</i> thoughtful, witty (3), cunning, intellectual, genius, wily (2), crafty, inventive (3), tricky, clever, intelligent, creative, talented, imaginative, fraudulent, astute, bright, perspicacious, polished, versatile (2), mercurial, puzzling, focused

Note: the numbers between brackets indicate the number of times that particular word appeared (after translation) with a substantial loading.

or Openness related traits, as is shown in correlations with relevant scales (BFI-O: -.52; HEXACO-O: -.46; FFPI-Autonomy: -.39).

A seven-factor solution. With seven factors, the additional factor could be given a label such as “Playing the rules” which could summarize its meaning with traits such as *cunning, tricky, fraudulent, wily, lunatic, mysterious, puzzling*, and *adventurous*. The factor explains no more than 1.57 % of the variance after rotation. It has no substantial correlation with any of the questionnaire scales.

An eight-factor solution. With eight factors, the addi-

tional factor here is a rather narrow factor, with just a few terms loading between .30 and .40 on the factor. Those terms refer to being stingy, materialistic, and economical. The factor is too specific, and explains only 1.45 % of the variance after rotation.

A nine-factor solution. The additional factor here seems to describe immoral behavior or depravity, and seems to relate to Negative Valence content, with some ten terms loading above .30 on the factor. These include terms such as *wicked, heartless, brutal, immoral, lying*, and *incorrect*. The factor explains only 1.30 % of the variance after rotation.

Table 3. Factor results based on the 24 scales and the six lexically based factors ($N=1,503$)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Factor 6/2, Extraversion	90	02	-06	01	-03	05
FFPI-Extraversion	90	17	10	02	08	-04
BFI-Extraversion	88	18	-10	05	05	03
EPQ-Extraversion	83	-02	-03	-11	20	-06
HEXACO-Extraversion	81	33	10	14	16	-07
ZKPQ-Sociability	81	-03	07	-15	02	-10
Factor 6/4, Emotional Stability	-01	87	-12	01	-08	08
ZKPQ-Neuroticism-Anxiety	-12	-85	-13	-16	-03	01
HEXACO-Emotionality	06	-83	13	14	-06	01
BFI-Neuroticism	-13	-80	-35	-09	-01	03
FFPI-Emotional Stability	29	79	28	16	11	02
EPQ-Neuroticism	-21	-75	-31	-07	00	06
FFPI-Autonomy	39	50	-34	19	42	17
Factor 6/1, Agreeableness	04	10	89	07	-03	-05
HEXACO-Agreeableness	-02	15	86	-04	03	07
BFI-Agreeableness	22	00	81	11	-05	15
ZKPQ-Aggression-Hostility	16	-23	-77	-10	00	04
FFPI-Agreeableness	-14	01	74	20	04	41
Factor 6/3, Conscientiousness	-02	-01	-08	89	-07	-05
FFPI-Conscientiousness	-09	02	21	88	-10	07
HEXACO-Conscientiousness	-02	12	06	86	16	01
BFI-Conscientiousness	08	20	04	84	-01	15
ZKPQ-Impulsive Sensation Seeking	39	-02	-28	-60	20	07
EPQ-Psychoticism	-11	22	-40	-48	-02	-17
ZKPQ-Activity	28	11	-09	42	30	20
HEXACO-Openness	05	-02	09	-08	86	05
BFI-Openness	24	-04	-01	-05	85	08
Factor 6/6, Intellect/Openness	-02	-11	05	-05	-75	20
Factor 6/5, Integrity/Honesty	05	04	-02	-03	-04	-86
HEXACO-Honesty	-08	09	32	15	-11	73
<i>Variance explained after rotation</i>	17.2	15.5	14.2	13.6	8.3	5.6

In conclusion, the seven-, eight-, and nine-factor solutions do not give much substance, although they are all three quite intelligible. The six-factor solution seems to form the proper choice of factors to represent economically the trait-rating data in the present replication study. Table 1 contains all correlations of the six factors with the 24 scales (see also the section on the correlations between the six factors and the questionnaire scales further on).

Congruencies between the new and the previous factor structures

At this point it makes sense to analyze to what extent factors from solutions with one up to six factors in the previously published study (Szirmák & De Raad, 1994) are similar to the ones presented in Figure 1. Congruencies were calculated after the factors from the previous study were rotated to the factors from the present study. Those congruencies are presented in the boxes in Figure 1. The congruencies demonstrate replication of all factors from the previous study, except for the Intellect factor (I/O). For this factor, showing up as the last factor in the six-factor solution (6/6), the congruence is only .72.

Because the six-factor solution contains all the expected factors, this six-factor solution was represented in detail in

Table 2 by using all trait terms that loaded highest on a certain factor with a minimum of |.30|. The factor representations in Table 2 show a clear set of four Big Five factors (the first four), and two additional factors: The predominantly ego-oriented content of factor 6/5 indicates a Narcissism rather than an Honesty-Humility label for this factor. The contents of factor 6/6 offer a weak version of the Intellect factor.

Correlations of six lexical factors with questionnaire scales

In order to grasp more of the meanings of the six factors, with special attention to the factors 6/5 and 6/6, correlations were calculated between the factors and the 24 scales of the five questionnaires. Table 1 contains those correlations and it gives, in addition, multiple correlations to find out about the coverage of trait semantics in the taxonomic material, and about the extent to which the lexical factors explain the different scales, and vice versa. Considering the row with multiple correlations, which show the extent to which the scales of the five instruments cover the contents of the lexical factors (6/1 to 6/6), it strikes that the information in the first four lexical factors is rather well captured by all the instruments. The contents of the factors 6/5 and 6/6 are, however, generally not well captured by the questionnaires.

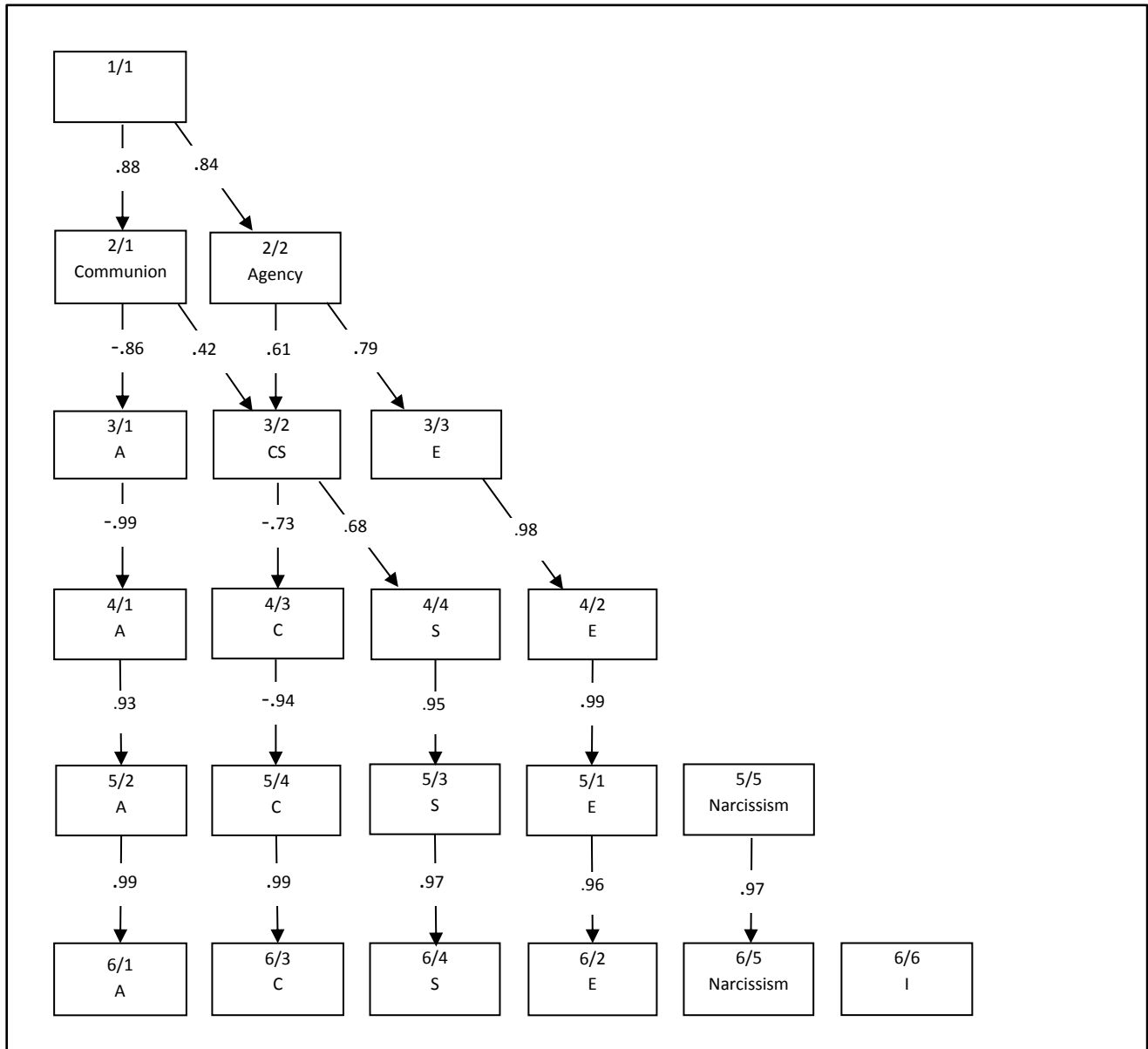


Figure 2. Emergence of factors in 6 solutions (1,903 set); On the arrows the correlations between the related factors are given. A=Agreeableness; C=Conscientiousness; E=Extraversion; S=Emotional Stability; I-Intellect.

Factoring all 24 scales and the six lexical factors

One more way to find out about the trait structure in the Hungarian domain is to combine all scales of the five instruments and the six lexically based factors in one integrated Principal Component Analysis. The results are in Table 3. Some 74.4 % of the variance was explained by the six factors.

The information thus far seems to support the replication of the six-factor structure as published previously including the Integrity/Honesty related factor (De Raad & Szirmák, 1994).

Combining the previous and present data-sets

Since the trait-variable sets for the present study and the previously published trait structure are identical, the data sets can be combined to have an even larger and more diverse

sample of participants. The combined data set counted 1,903 participants who all provided self-ratings. PCA's were performed extracting one up to nine factors, of which six solutions are represented in the hierarchy of Figure 2. The Eigenvalues for the first 10 factors were 44.8, 36.9, 23.7, 15.8, 9.7, 9.1, 7.3, 6.1, 5.6, and 5.2. The hierarchy is virtually the same as the one in Figure 2, with the same labels for the various factors. A solution with seven factors produced an additional factor "playing the rules", a relatively clear factor but explaining only 1.56 % of the variance after rotation. An eight-factor solution gave again a factor describing stinginess and materialism (as opposed to being generous and self-sacrificing), with just a few loadings higher than .30. The factor explained only 1.53 % of the variance after rotation. With nine factors, the additional factor seems to describe again immoral behavior, a factor with Negative Valence content. The factor explains only 1.29 % of the variance after rotation.

Table 4. Six factors based on ipsatized data, combined data-sets ($N=1,903$)

1	peaceful, gentle, patient, humane (3), forbearing, nice, indulgent, benevolent, lenient, tolerant (2), considerate, compliant, generous (2), conciliatory, kind, calm, tactful, warmhearted, kindhearted, tenderhearted (2), able to compromise, friendly, timid, obedient (2), well-disposed, acts in good faith, loving, softhearted, sober-minded, showing solidarity, understanding, helpful (2), optimistic, merciful (2), trustful, tender, hospitable, cordial, polite, charitable, well-mannered, courteous, open-hearted, devoted, respectful, discreet, agreeable <i>versus</i> explosive, hot-tempered, hot-headed, hard-headed, aggressive, irritable, stubborn (2), pity-less, rude (2), obstinate (2), grumbling (3), headstrong, arrogant, vengeful, vehement, quarrelsome (3), impulsive, sarcastic, impatient, hasty, neurotic (2), bully, merciless, unforgiving, stinging, thorny, cynical, cursing, rancorous, hateful, relentless, suspicious, tyrannical, grumpy, mistrustful, opposing, recalcitrant, misanthropic, high-handed, insensible, unadaptable
2	sociable, talkative, amicable, chatty (2), lively (2), energetic, full of life, hot-blooded, laughing, jolly, merry, temperamental, hyperactive, rollicking, verbose, direct, grinning, unruly, vehement, direct, dynamic, passionate, winning, open, naughty, zippy, straightforward, silly, waggish, facetious, sensual (2), rascal (2), foul-mouthed, playful, adventurer, unrestrained, humorous <i>versus</i> withdrawn, taciturn (2), closed, quiet (2), aloof, reserved, reticent, man of few words, restrained, un-talkative, unsociable, shy, stay at home, grey, uncourageous, boring, distanced, inhibited, awkward, bashful, unapproachable, rigid, pessimistic, pessimistic, unfriendly, indifferent, unknowable, distrustful, solid, cold, serious, sneaky, coy, leisurely, fatigued, formal, broken, mollycoddle, weakling, weary
3	thoroughgoing, precise, diligent (2), pedantic, industrious (2), responsible, orderly, dutiful, task-oriented, careful, considerate, circumspect, disciplined, thoughtful, persevering, goal-oriented (2), systematic, precautionary, meticulous, conscious, consistent, serious, conscientious, resolute, practical, moderate, perfectionistic, demanding, strong-willed, well-bred, virtuous, ambitious, mature, strict, respectful, cautious, attentive, aspiring, ascetic <i>versus</i> neglectful, unsystematic, lazy, irresponsible, lax, inconsiderate, sloppy, unserious, improvident, negligent, slothful, frivolous, idle, fluttering, rakish, incautious, eccentric, superficial, flighty, forgetful, naughty, mindless, unreasonable, long sleeping, playful, unpredictable, hasty, bohemian, fickle, weak-willed, pleasure seeking, inconsequent, drowsy, foolish, unbridled, infantile, unassuming, insolent, drunken, disobedient, childish, rakehell, comfortable
4	having nerves of steel, self-assured, firm as a rock, determined, firm (2), invulnerable, stable, brave, rationalistic, stone-hard, objective, sticks to the essentials, daring (2), hard-hearted, cunning, rules firmly, intrepid, experienced, stone-hearted, emotionless, persistent, rational, energetic, focusing, independent <i>versus</i> oversensitive, vulnerable (2), easily scared, cries easily, excitable (2), timid, moaning, self-condemning, self-blaming, anxious, hysterical, sensitive, easily insulted, sentimental, easily offended, complaining, hesitant, hysterical, unsteady, sulky, sighing, emotional, half-hearted, dreamy (2), naïve, cowardly, unbelieving, capricious, credulous, gossipy, protective
5	conceited (2), bumptious, show off, venal, greedy, power mad, power hungry, supercilious, egoistical, self-satisfied, ambitious (3), high flown (2), avaricious, despotic, superior, haughty, self-important, falsely modest, feigning, ingratiating, hypocritical, disdainful, narcissistic, boastful, pushy, selfish, materialistic, vain, ostentatious, officious, argumentative, bookish, envious, eager, sophisticated, stingy, bluffing, pharisaical, intriguing, stingy. Helpless, immoderate, arrogant <i>versus</i> veracious, decent (2), discreet, upright, honest, just, trustworthy (2), natural, comradely
6	unimaginative (2), uneducated, boorish, has no style, good for nothing, pedantic, ill-mannered, illogical <i>versus</i> thoughtful, witty (3), intellectual, cunning, intelligent, clever, crafty, inventive (3), bright, wily, perspicacious, genius, talented, creative, imaginative, versatile (2), tricky, polished, teachable

Note: the numbers between brackets indicate the number of times that particular word appeared (after translation) with a substantial loading.

The contents of the six-factor solution are given in Table 4 by using all trait terms that load minimally $|\lambda_{30}|$. The first four factors represent articulate and typical versions of four of the Big Five, namely Extraversion, Agreeableness, Conscientiousness, and Emotional Stability. The fifth of the Big Five, Intellect, is represented in Factor 6/6. The remaining factor, 6/5, relates to Integrity-Honesty, but with a strong emphasis on the opposite pole, thus again suggesting Narcissism as a more appropriate label.

As a further check of the adequacy of the Narcissism interpretation, we calculated the relative proportions of positive and negative Honesty-related terms in some other tax-

onomies. In a selection of convenience of five six-factor solutions of trait taxonomies, a French (Boies et al., 2001), two Italian (Caprara & Perugini, 1994; Di Blas & Forzi, 1998), a Dutch (De Raad, Hendriks, & Hofstee, 1992), and a Korean taxonomy (Hahn et al., 1999), we selected of the Honesty-Humility designated factors all terms that loaded $|\lambda_{30}|$ or higher. It turned out that the numbers of (positive) Honesty-related terms in all pertaining five Honesty factors was clearly smaller than the numbers of dishonesty-boastfulness-related terms, with an average of no more than one third related to honesty and two-third related to boastfulness.

DISCUSSION

We searched to replicate the Hungarian trait structure as published previously (Szirmák & De Raad, 1994; De Raad & Szirmák, 1994). That previous structure was presented as the Big Five plus an additional factor called Integrity. Much later, Six-factor structures including an additional Integrity related factor Honesty-Humility were observed in several languages in a study by Ashton et al. (2004). The present study confirmed the factors found previously, albeit with the more adequate label of Narcissism instead of the Honesty related Integrity label, thus emphasizing the opposite pole of Honesty. Honesty as a separate factor turned out to play a meager role in the trait semantic coverage. This latter finding may remind of Sisela Bok's (1978) treatise on lying, where she argues that lying and betrayal is normal business in everyday life; the truth is at best a benchmark.

The cluster of the Narcissism traits well reflects central characteristics of the Dark Triad (Paulhus & Williams, 2002), consisting of the three related and socially aversive constructs Narcissism (grandiosity; entitlement; dominance; superiority), Machiavellianism (manipulativeness; disregard of morality), and Psychopathy (impulsivity; antisocial behavior; low empathy; anxiety). Interestingly, a recent study by Hodson, Book, Visser, Volk, Ashton, and Lee (2018) gave support for the idea that especially the present Narcissism interpretation forms a proper designation of what some might prefer to call Honesty-Humility.

Within the Big Five lexical domain, it is the Agreeableness dimension that seems to accommodate a variety of interesting facets, some more comprising than the other, and varying from language (group) to language (group). From that relatively vast Agreeableness domain (sometimes complemented with aspects of Conscientiousness), the Honesty-Humility factor has emancipated in several languages or cultures, and so has, for example, Social Relatedness (Valchev, 2012; Zeinoun, 2016). It seems right to have future psycho-lexical studies focused on arriving at a detailed understanding of the rich contents of Agreeableness, its structure, and its facets, across cultures. In such studies, the possible emergence of Narcissism deserves special attention. Studies such as those from Paulhus and Williams (2002) and Jakobitz and Egan (2006) give some directions as to what one could expect particularly regarding correlations between the Dark Triad and Big Five Agreeableness.

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A previous version of this article with the title “Taxonomy of Hungarian personality traits: Replication, extension, and refinement” had been retracted. The data on which the study was based consisted of one part in which personality ratings were collected through a paper-version of a questionnaire, including 560 trait-items, and a second part for which the ratings were collected through an online version of the questionnaire. The online collected ratings were transferred to an excel file. In that process of transference, a technical error was the reason that ratings obtained for the trait-items beyond item number 500, were not documented in the excel-file. Instead, in the transfer process, for the documentation of the ratings on the last 60 trait-items, the ratings on the first 60 items of the 560 were copied. This resulted in a mismatch of the paper and online versions of the questionnaire. More important, the analyses in turn, caused an additional trait-factor, which was called Morality, an artificial finding referring to the “extension” part in the original title. The present, corrected, article does not contain that Morality factor anymore, calculations have been re-done, and the text has been adapted accordingly. We thank Kibeom Lee for his observation of a possible anomaly in the data file and bringing it to our attention.