Supplementary Materials

Supplementary Materials 1. *The list of publications containing matrices 1-50 and 51-100.*

Matrices 1-50					
12	Occupational Burnout Among Recreational Diving Instructors: Relationships with Personality and Sociodemographic Variables	Kannenberg, J.	2022	Advances in Cognitive Psychology	18(3), pp. 190-202
17	HEXACO personality correlates of adolescents' involvement in bullying situations	Pronk, J., Olthof, T., de Vries, R.E., Goossens, F.A.	2021	Aggressive Behavior	47(3), pp. 320-331
21	Personality and environmental outcomes: The role of moral anger in channeling climate change action and pro-environmental behavior	Panno, A., De Cristofaro, V., Oliveti, C., Carrus, G., Donati, M.A.	2021	Analyses of Social Issues and Public Policy	21(1), pp. 853-873
25	The moderating role of honesty-humility in the association of agreeableness with interpersonal competency: A study of managers in two countries	Wang, Y., Dunlop, P.D., Parker, S.K., Griffin, M.A., Gachunga, H.	2022	Applied Psychology	71(1), pp. 219-242
25	The moderating role of honesty-humility in the association of agreeableness with interpersonal competency: A study of managers in two countries	Wang, Y., Dunlop, P.D., Parker, S.K., Griffin, M.A., Gachunga, H.	2022	Applied Psychology	71(1), pp. 219-242
25	The moderating role of honesty-humility in the association of agreeableness with interpersonal competency: A study of managers in two countries	Wang, Y., Dunlop, P.D., Parker, S.K., Griffin, M.A., Gachunga, H.	2022	Applied Psychology	71(1), pp. 219-242
25	The moderating role of honesty-humility in the association of agreeableness with interpersonal competency: A study of managers in two countries	Wang, Y., Dunlop, P.D., Parker, S.K., Griffin, M.A., Gachunga, H.	2022	Applied Psychology	71(1), pp. 219-242
31	Effects of six personality factors of ceos at small and medium-sized enterprises on performance in business management: Focusing on learning and growth	Han, M.-P., Seok, B.-I., Kim, J.-H.	2017	Asian Academy of Management Journal	22(2), pp. 97-128
35	Construct and Predictive Validity of an Assessment Game to Measure Honesty–Humility	Barends, A.J., de Vries, R.E., van Vugt, M.	2022	Assessment	29(4), pp. 630-650
42	Rethinking Trait Conceptions of Social Desirability Scales: Impression Management as an Expression of Honesty-Humility	de Vries, R.E., Zettler, I., Hilbig, B.E.	2014	Assessment	21(3), pp. 286-299
53	Evaluating the validity of an integrity-based situational judgement test for medical school admissions	Husbands, A., Rodgerson, M.J., Dowell, J., Patterson, F.	2015	BMC Medical Education	15(1),144
59	Is Empathy Linked to Prosocial and Antisocial Traits and Behavior? It Depends on the Form of Empathy	Brazil, K.J., Volk, A.A., Dane, A.V.	2022	Canadian Journal of Behavioural Science	55(1), pp. 75-80
68	Dissecting work commitment: The role of Machiavellianism	Zettler, I., Friedrich, N., Hilbig, B.E.	2011	Career Development International	16(1), pp. 20-35
74	The relationship between personality characteristics and premenstrual syndrome in female students	Dehghan, F., Kaboudi, M., Rezaie Khosravi, N.	2020	Cogent Psychology	7(1),1835151
80	Push or pull? Unpacking the social compensation hypothesis of Internet use in an educational context	Grieve, R., Kemp, N., Norris, K., Padgett, C.R.	2017	Computers and Education	109, pp. 1-10
83	The role of HEXACO personality traits in different kinds of sexting:A cross-cultural study in 10 countries	Morelli, M., Chirumbolo, A., Bianchi, D., (...), Nikolova, S.P., Drouin, M.	2020	Computers in Human Behavior	113,106,502
91	A psychological predisposition towards populism? Evidence from Canada	Pruysers, S.	2021	Contemporary Politics	27(1), pp. 105-124
94	A study of the relationship between personality traits and theoretical orientation preferences	Ogunfowora, B., Drapeau, M.	2008	Counselling and Psychotherapy Research	8(3), pp. 151-159
94	A study of the relationship between personality traits and theoretical orientation preferences	Ogunfowora, B., Drapeau, M.	2008	Counselling and Psychotherapy Research	8(3), pp. 151-159
95	Traits and states: Integrating personality and affect into a model of criminal decision making	Van Gelder, J.-L., De Vries, R.E.	2012	Criminology	50(3), pp. 637-671
96	On the relationship of mystical experience and personality: A sample of Erciyes University theology Faculty Students	Ulu, M.	2018	Cumhuriyet Ilahiyat Dergisi	22(1), pp. 33-61
98	Psychometric properties of the Polish versions of the HEXACO-60 and the HEXACO-100 personality inventories	Skimina, E., Strus, W., Cieciuch, J., Szarota, P., Izdebski, P.K.	2020	Current Issues in Personality Psychology	8(3), pp. 255-278
98	Psychometric properties of the Polish versions of the HEXACO-60 and the HEXACO-100 personality inventories	Skimina, E., Strus, W., Cieciuch, J., Szarota, P., Izdebski, P.K.	2020	Current Issues in Personality Psychology	8(3), pp. 255-278
106	The role of individual personality in conceptualizing and measuring group characteristics	Deckers, M., Altmann, T., Roth, M.	2022	Current Psychology	41(6), pp. 4054-4065
107	Personality differences between videogame vs. non-videogame consumers using the HEXACO model	Abbasi, A.Z., Ting, D.H., Hlavacs, H., (...), Rehman, U., Arsalan, A.	2022	Current Psychology	41(5), pp. 2733-2746

107	Personality differences between videogame vs. non-videogame consumers using the HEXACO model	Abbasi, A.Z., Ting, D.H., Hlavacs, H., (...), Rehman, U., Arsalan, A.	2022	Current Psychology	41(5), pp. 2733-2746
118	The Role of Personality, Psychopathy, and Previous Experience with Assessment in Intentions to Fake in Psychological Testing	Grieve, R.	2012	Current Psychology	31(4), pp. 414-422
123	Personality and Islamic religiosity: Preliminary survey data of Bruneian Malay Muslim university students and their psychological well-being, unethical behavior, and dark triad traits	Aminnuddin, N.A.	2020	Data in Brief	30,105,486
127	The HEXACO personality domains in the Croatian sample	Babarović, T., Šverko, I.	2013	Drustvena Istrazivanja	22(3), pp. 397-411
136	Unearthing the “Green” Personality: Core Traits Predict Environmentally Friendly Behavior	Brick, C., Lewis, G.J.	2016	Environment and Behavior	48(5), pp. 635-658
152	Comparing Job Applicants to Non-applicants Using an Item-level Bifactor Model on the HEXACO Personality Inventory	Anglim, J., Morse, G., De Vries, R.E., MacCann, C., Marty, A.	2017	European Journal of Personality	31(6), pp. 669-684
152	Comparing Job Applicants to Non-applicants Using an Item-level Bifactor Model on the HEXACO Personality Inventory	Anglim, J., Morse, G., De Vries, R.E., MacCann, C., Marty, A.	2017	European Journal of Personality	31(6), pp. 669-684
215	Impact of HEXACO Personality Factors on Consumer Video Game Engagement: A Study on eSports	Abbasi, A.Z., Nisar, S., Rehman, U., Ting, D.H.	2020	Frontiers in Psychology	111,831
220	How HEXACO personality traits predict different selfie-posting behaviors among adolescents and young adults	Baiocco, R., Chirumbolo, A., Bianchi, D., (...), Morelli, M., Nappa, M.R.	2017	Frontiers in Psychology	7(JAN),2080
248	Predicting Personality Using Answers to Open-Ended Interview Questions	Jayaratne, M., Jayatilleke, B.	2020	IEEE Access	8,9121971, pp. 115345-115355
388	The HEXACO–100 Across 16 Languages: A Large-Scale Test of Measurement Invariance	Thielmann, I., Akrami, N., Babarović, T., (...), Ashton, M.C., Lee, K.	2020	Journal of Personality Assessment	102(5), pp. 714-726
394	Controlling for Response Bias in Self-Ratings of Personality: A Comparison of Impression Management Scales and the Overclaiming Technique	Müller, S., Moshagen, M.	2019	Journal of Personality Assessment	101(3), pp. 229-236
395	The HEXACO Personality Inventory: Validation and Psychometric Properties in the Serbian Language	Međedović, J., Čolović, P., Dinić, B.M., Smederevac, S.	2019	Journal of Personality Assessment	101(1), pp. 25-31
395	The HEXACO Personality Inventory: Validation and Psychometric Properties in the Serbian Language	Međedović, J., Čolović, P., Dinić, B.M., Smederevac, S.	2019	Journal of Personality Assessment	101(1), pp. 25-31
445	HEXACO personality and Schwartz's personal values: A facet-level analysis	Anglim, J., Knowles, E.R.V., Dunlop, P.D., Marty, A.	2017	Journal of Research in Personality	68, pp. 23-31
445	HEXACO personality and Schwartz's personal values: A facet-level analysis	Anglim, J., Knowles, E.R.V., Dunlop, P.D., Marty, A.	2017	Journal of Research in Personality	68, pp. 23-31
525	Research into the Relationship between Personality and Behavior in Video Games, Based on Mining Association Rules	Gao, M., Wang, J., Yang, J.	2023	Mathematics	11(3),772
646	The HEXACO personality traits, cultural intelligence, and international student adjustment	Shu, F., McAbee, S.T., Ayman, R.	2017	Personality and Individual Differences	106, pp. 21-25
702	The IPIP-HEXACO scales: An alternative, public-domain measure of the personality constructs in the HEXACO model	Ashton, M.C., Lee, K., Goldberg, L.R.	2007	Personality and Individual Differences	42(8), pp. 1515-1526
702	The IPIP-HEXACO scales: An alternative, public-domain measure of the personality constructs in the HEXACO model	Ashton, M.C., Lee, K., Goldberg, L.R.	2007	Personality and Individual Differences	42(8), pp. 1515-1526
722	Psychometric properties of the HEXACO personality inventory (Book Chapter)	Lee, K., Ashton, M.C.	2013	Personality Topics in Honor of Jerry S. Wiggins	9780203764312, pp. 329-358
808	Psychometric properties of the hexaco-pi-r self-evaluation form in slovak translation	Lisá, E., Dzúrik, M.	2021	Romanian Journal of Applied Psychology	23(1)
816	The Norwegian Hexaco-Pi-R: Psychometric properties and relationships with the Big Five Inventory	Ørnfjord, M.	2018	Scandinavian Psychologist	5,e15
880	Psychometric properties of the Lithuanian versions of hexaco-100 and hexaco-60	Truskauskaitė-Kunevičienė, Inga; Kaniušonytė, Goda; Kratavičienė, Rima; Kratavičiūtė-Ališauskienė, Aistė	2012	Educational Psychology / Ugdymo psichologija	Vol. 23, p6-14. 9p.
880	Psychometric properties of the Lithuanian versions of hexaco-100 and hexaco-60	Truskauskaitė-Kunevičienė, Inga; Kaniušonytė, Goda; Kratavičienė, Rima; Kratavičiūtė-Ališauskienė, Aistė	2012	Educational Psychology / Ugdymo psichologija	Vol. 23, p6-14. 9p.

Matrices 51-100					
124	Personality Factors and Attitudes Toward Euthanasia in Iran: Implications for End-of-Life Research and Practice	Aghababaei, N., Wasserman, J.A., Hatami, J.	2014	Death Studies	38(2), pp. 91-99
130	Do little annoyances relate to bullying? the links between personality, attitudes towards classroom incivility, and bullying	Spadafora, N., Frijters, J.C., Molnar, D.S., Volk, A.A.	2020	Educational and Developmental Psychologist	37(1), pp. 30-38
132	Associations between trait personality, anxiety, self-efficacy and intentions to exercise by gender in high school physical education	Lodewyk, K.R.	2018	Educational Psychology	38(4), pp. 487-501
132	Associations between trait personality, anxiety, self-efficacy and intentions to exercise by gender in high school physical education	Lodewyk, K.R.	2018	Educational Psychology	38(4), pp. 487-501
135	The HEXACO model of personality and video game preferences	Zeigler-Hill, V., Monica, S.	2015	Entertainment Computing	11, pp. 21-26
139	On the Comparability of Basic Personality Models: Meta-Analytic Correspondence, Scope, and Orthogonality of the Big Five and HEXACO Dimensions	Thielmann, I., Moshagen, M., Hilbig, B., Zettler, I.	2022	European Journal of Personality	36(6), pp. 870-900
143	Relations between HEXACO personality and ideology variables are mostly genetic in nature	de Vries, R.E., Wesseldijk, L.W., Karinen, A.K., Jern, P., Tybur, J.M.	2022	European Journal of Personality	36(2), pp. 200-217
146	Getting Along and/or Getting Ahead: Differential HEXACO Personality Correlates of Likeability and Popularity among Adolescents	de Vries, R.E., Pronk, J., Olthof, T., Goossens, F.A.	2020	European Journal of Personality	34(2), pp. 245-261
150	Lead Us (Not) into Temptation: Testing the Motivational Mechanisms Linking Honesty–Humility to Cooperation	Hilbig, B.E., Kieslich, P.J., Henninger, F., Thielmann, I., Zettler, I.	2018	European Journal of Personality	32(2), pp. 116-127
162	Broad versus narrow traits: Conscientiousness and honesty-humility as predictors of academic criteria	de Vries, A., de Vries, R.E., Born, M.P.	2011	European Journal of Personality	25(5), pp. 336-348
166	Lots of target variance: An update of SRM using the HEXACO personality inventory	De Vries, R.E.	2010	European Journal of Personality	24(3), pp. 169-188
167	More than the Big Five: Egoism and the HEXACO model of personality	de Vries, R.E., de Vries, A., de Hoogh, A., Feij, J.	2009	European Journal of Personality	23(8), pp. 635-654
170	German lexical personality factors: Relations with the HEXACO model	Ashton, M.C., Lee, K., Marcus, B., De Vries, R.E.	2007	European Journal of Personality	21(1), pp. 23-43
178	Does perfectionism lead to well-being? The role of flow and personality traits	Kamushadze, T., Martskvishvili, K., Mestvirishvili, M., Odilavadze, M.	2021	Europe's Journal of Psychology	17(2), pp. 43-57
179	Relating rational and experiential thinking styles with trait emotional intelligence in broader personality space	Jokić, B., Purić, D.	2019	Europe's Journal of Psychology	15(1), pp. 140-158
182	Are extraversion and openness indicators of a slow life history strategy?	Manson, J.H.	2017	Evolution and Human Behavior	38(4), pp. 552-560
185	Personality Traits Associated With Parenting, Mating, and Somatic Investment Decisions	Franklin-Luther, P., Volk, A.A.	2022	Evolutionary Behavioral Sciences	16(3), pp. 245-260
189	How Do Adults' Personality Traits Influence Perceptions and Responses to Infant Faces?	Franklin-Luther, P.	2020	Evolutionary Psychological Science	6(4), pp. 389-398
191	Do Bullies Have More Sex? The Role of Personality	Provenzano, D.A., Dane, A.V., Farrell, A.H., Marini, Z.A., Volk, A.A.	2018	Evolutionary Psychological Science	4(3), pp. 221-232
191	Do Bullies Have More Sex? The Role of Personality	Provenzano, D.A., Dane, A.V., Farrell, A.H., Marini, Z.A., Volk, A.A.	2018	Evolutionary Psychological Science	4(3), pp. 221-232
201	Singles' similarity preferences in an ideal partner: What, when, and why	Liu, J., Zhang, Y.	2023	Frontiers in Psychology	141,088,591
203	Explainable Personality Prediction Using Answers to Open-Ended Interview Questions	Dai, Y., Jayaratne, M., Jayatilleke, B.	2022	Frontiers in Psychology	13,865,841
207	Relationship Between COVID-19 Threat Beliefs and Individual Differences in Demographics, Personality, and Related Beliefs	Butkovic, A., Galesic, M.	2022	Frontiers in Psychology	13,831,199
213	Should Trust Be Stressed? General Trust and Proactive Coping as Buffers to Perceived Stress	Carlander, A., Johansson, L.-O.	2020	Frontiers in Psychology	11,554,962
214	The Main Dimensions of Sport Personality Traits: A Lexical Approach	De Vries, R.E.	2020	Frontiers in Psychology	112,211
224	Connectedness to Nature and to Humanity: Their association and personality correlates	Lee, K., Ashton, M.C., Choi, J., Zachariassen, K.	2015	Frontiers in Psychology	61,003
229	COVID-19 avoidance behavior: The significance of personality and the relation with increases in working from home	de Vries, R.E., Thielmann, I.	2021	Gedrag en Organisatie	34(4), pp. 460-482

230	The validation of a virtual reality situational judgement test (Vr-sjt) for leadership	Rijsdijk, J., Born, M.Ph., Koch, B.P.N., Hiemstra, A.M.F.	2021	Gedrag en Organisatie	34(1), pp. 107-139
233	The simplified HEXACO Personality Inventory and an additional interstitial proactivity facet	de Vries, R.E., Born, M.P.	2013	Gedrag en Organisatie	26(2), pp. 223-245
233	The simplified HEXACO Personality Inventory and an additional interstitial proactivity facet	de Vries, R.E., Born, M.P.	2013	Gedrag en Organisatie	26(2), pp. 223-245
234	The six most important personality dimensions and the HEXACO Personality Inventory	de Vries, R.E., Ashton, M.C., Lee, K.	2009	Gedrag en Organisatie	22(3), pp. 232-274
234	The six most important personality dimensions and the HEXACO Personality Inventory	de Vries, R.E., Ashton, M.C., Lee, K.	2009	Gedrag en Organisatie	22(3), pp. 232-274
237	Diligent and disagreeable? The influence of personality on continuous positive airway pressure (CPAP) adherence for obstructive sleep apnea	Buckingham, R., Corkeron, J.	2020	Heliyon	6(11),e05594
240	Development and validation of a HEXACO situational judgment test	Oostrom, J.K., de Vries, R.E., de Wit, M.	2019	Human Performance	32(1), pp. 1-29
241	Motives for Organizational Citizenship Behavior: Personality Correlates and Coworker Ratings of OCB	Bourdage, J.S., Lee, K., Lee, J.-H., Shin, K.-H.	2012	Human Performance	25(3), pp. 179-200
243	Predicting workplace delinquency and integrity with the HEXACO and Five-factor models of personality structure	Lee, K., Ashton, M.C., De Vries, R.E.	2005	Human Performance	18(2), pp. 179-197
243	Predicting workplace delinquency and integrity with the HEXACO and Five-factor models of personality structure	Lee, K., Ashton, M.C., De Vries, R.E.	2005	Human Performance	18(2), pp. 179-197
263	Haters gonna hate, trolls gonna troll: The personality profile of a facebook troll	Gylfason, H.F., Sveinsdottir, A.H., Vésteinsdóttir, V., Sigurvinsdottir, R.	2021	International Journal of Environmental Research and Public Health	18(11),5722
265	Perfectionism and a healthy attitude toward oneself: Could humor be a resource?	Di Fabio, A., Smith, M.M., Saklofske, D.H.	2020	International Journal of Environmental Research and Public Health	17(1),201
276	Tests of Integrity, HEXACO Personality, and General Mental Ability, as Predictors of Integrity Ratings in the Royal Dutch Military Police	Marcus, B., Jan te Nijenhuis, Cremers, M., Heijden-Lek, K.van..der.	2016	International Journal of Selection and Assessment	24(1), pp. 63-70
277	Path associations between trait personality, enjoyment, and effort by gender in high school physical education	Lodewyk, K.R., Gao, Z.	2020	International Journal of Sport and Exercise Psychology	18(1), pp. 108-119
277	Path associations between trait personality, enjoyment, and effort by gender in high school physical education	Lodewyk, K.R., Gao, Z.	2020	International Journal of Sport and Exercise Psychology	18(1), pp. 108-119
282	A sixth personality domain that is independent of the Big Five domains: The psychometric properties of the HEXACO Personality Inventory in a Japanese sample	Wakabayashi, A.	2014	Japanese Psychological Research	56(3), pp. 211-223
291	Predicting domain-specific risk taking with the HEXACO personality structure	Weller, J.A., Tikir, A.	2011	Journal of Behavioral Decision Making	24(2), pp. 180-201
296	Followers' HEXACO personality traits and preference for charismatic, relationship-oriented, and task-oriented leadership	Breevaart, K., de Vries, R.E.	2021	Journal of Business and Psychology	36(2), pp. 253-265
301	Good Traits, Bad Traits, and 'Ugly' Behavior: Relations between the Dark Triad, Honesty-Humility, Other HEXACO Personality Traits, and Externalizing Problems in Adolescents	Muris, P., Jeurissen, A., Rooswinkel, M., Meesters, C.	2022	Journal of Child and Family Studies	31(12), pp. 3247-3257
311	Risk preferences and personality traits in children and adolescents	Piovesan, M., Willadsen, H.	2021	Journal of Economic Behavior and Organization	186, pp. 523-532
312	On the impact of Honesty-Humility and a cue of being watched on cheating behavior	Pfattheicher, S., Schindler, S., Nockur, L.	2019	Journal of Economic Psychology	71, pp. 159-174
314	Personality and attitudes towards refugees: evidence from Canada	Pruysers, S.	2020	Journal of Elections, Public Opinion and Parties	
691	The impact of the HEXACO personality model in predicting socio-political attitudes: The moderating role of interest in politics	Leone, L., Chirumbolo, A., Desimoni, M.	2012	Personality and Individual Differences	52(3), pp. 416-421

Supplementary Materials 2. ***The theoretic framework of the model***

Scientific investigation is often aimed on generation and description of a low dimensional simple form that is, however, an accurate representation of the structure of numerous empirically obtained variables. The most preferable shapes are just two- or three-dimensional ones because they can be visualized. Furthermore, these shapes must remain simple forms, the examples of such three-dimensional shapes are cubes or spheres or ellipses.

The structure of variables is usually revealed by the analysis of the pattern of correlations among them. In a good deal of empirical studies such analysis is limited to factor analysis of a matrix of pairwise coefficients of correlation. For, at least, the last eight decades the factor-analytic approach has become the most influential method for generating low dimensional representations of individual trait variables. This is a variable-reduction procedure in which many variables are organized by a few factors that summarize the interrelations among them.

When this most widely used method of reduction of dimensionality was applied to such empirical datasets as words-personality descriptors, it revealed five or six factorial dimensions of personality lexicon (i.e., Extraversion, I, Agreeableness, II, Conscientiousness, III, Emotional Stability, IV, Intellect, V, and Self-Assurance, VI). However, the conventional factor analytic and circumplexical approaches operate with circles thus ignoring possibility of difference in length of dimensions of a representation of the structure of individual personality differences. As a result, the words-personality descriptors are not evenly distributed along the circumference of each of the circumplexes formed by pairing factorial dimensions.

The most known example is the circumplex of Conscientiousness (III) and Agreeableness (II). The personality descriptors are absent at the quarters of circumference combining the opposite poles of these factorial dimensions (i.e., III and ii or iii and II) that contrasts with abundance of descriptors at the quarters of circumference combining their positive poles (III and II) or their negative poles (iii and ii).

Moreover, despite the forcing five or six factors into orthogonality by means of rotation, significant inter-correlations are always found among questionnaire scales constructed for assessment of these five or six factors. These inter-correlations were found not only between 5 or 6 scales for assessment of personality, but also between 5 or 6 scales for assessment of sleep-wake abilities that were constructed on the factor-analytic results yielded five or six orthogonal factors.

Therefore, when a researcher performs factor analysis of a long set of personality descriptors, the reality might be confused with the appearance of five or six orthogonal factors. The researcher can interpret this factor-analytic result as revealing a five- or six-dimensional reality. However, the real dimensionality might be much simpler. Particularly, the significant correlations among five or six scales indicate that the dimensionality of the model of personality structure can be reduced.

Putilov (2016, 2018) addressed an issue of uncovering the true shape (topology) of a multi-dimensional structure of the differences between individuals by proposing a structural model of personality and sleep-wake adaptability. He proposed a way of replacement of a six-factor representation of individual differences by a more realistic representation with only three spatial (underlying) dimensions.

In geometric terms, this shape is a triaxial ellipsoid (i.e., an ellipsoid with three inequal axes). For simplicity, such a shape was named “rugby cake” that is one of well-known culinary molds. Evidence for provided for the possibility to map numerous personality-relevant words on the surface of triaxial ellipsoid and to combine narrow

personality traits into six broad personality traits. These words are evenly distributed over the surface of the rugby cake thus solving the problem of gaps between words that appear to be inescapable in the circumplexical representations of personality lexicon. Since the axis of this 3-D structure are inequal in length, the model predicts significant correlations among six scales developed to assess these six broad personality traits.

In a similar way, the model explains the correlations among six scales developed on the result of factor analysis for assessment of sleep-wake ability.

Thus, compared to the traditional 5-6 factorial representations of individual variation, the rugby cake representation seems to be a more realistic, universal, elegant, parsimonious and insightful. There is one very important deduction which follows from the geometry of the rugby cake model. It predicts the pattern of pairwise correlation coefficients among 6 scales. Each pairwise correlation coefficient is proportional to the distance between this pair of scales at the surface of rugby cake shape. The shorter the distance, the stronger the correlation coefficient. Since the center of scale can be shifted relative to the center predicted by the model, the correlation coefficient can deviate from the predicted coefficient.

However, it is also expected that such deviations can be averaged out by calculation of mean correlation coefficient for all pairs of scales divided by the same distance. Therefore, it can be predicted that mean correlation coefficient among scales divided by a shorter distance is stronger than mean correlation coefficient among scales divided by a longer distance. Such a prediction suggests a way of testing whether the empirically derived structure of a six-scale questionnaire corresponds to the structure predicted by the model. If the structure of a given questionnaire corresponds to the structure predicted by the model, 1) the averaged coefficient among the scales located on intermediate distances is significantly weaker than that among the scales on shorter distances, 2) the averaged coefficient among the scales located on intermediate distances is significantly stronger than that among the scales on longer distances, and 3) the averaged coefficients among the scales located on longer distances is significantly weaker than that among the scales on shorter distances. Significance of these three differences indicates that all three dimensions of the structural representation of individual variation assessed with this questionnaire are inequal in length and that this structural representation can be visualized as the rugby cake shape.

Reference

Putilov, A.A. (2016). Three-dimensional structural representation of the sleep-wake adaptability. Chronobiology International 33:169-180.

Putilov A.A. (2018). A 3-D look at the Russian personality traits structure. Current Psychology, 37(3): 528–542. DOI: 10.1007/s12144-016-9535-y.

Supplementary Materials 3. Legends to Supplementary Figures and Supplementary Figures

Figure S1. Correlation coefficients among personality scales divided by different distances.

(A) and (B): Distances between personality scales of the RCIP and HEXACO, respectively, and comparison of correlation coefficients among scales divided by these distances. (A) In the upper part, correlation coefficients (ρ) are shown separately for the 1st and 2nd studies (adjective and noun version of the RCIP, respectively) on the front side 2-D slice shown in Figure 2A. In the lower part, mean for two versions correlation coefficients is shown. (B) In the upper part, correlation coefficients (ρ) are shown for 100 studies on the front side 2-D slice shown in Figure 2A. In the lower part, the results of averaging of coefficients are shown separately for two sets of 50 studies. The correlation coefficients among scales divided by shorter, intermediate and longer distances (along Y-, Z- and X-axis, respectively) were averaged and their strengths were compared to demonstrate that the shorter the distance between scales, the stronger the correlation coefficient among these scales.

Figure S2. Correlation coefficients among the sleep-wake ability scales divided by different distances.

In the upper part, correlation coefficients (ρ) are shown separately for the SWAT's and SWPAQ's scales on the front side 2-D slice shown in Figure 2B. The correlation coefficients (ρ) between scores on the SWAT's and SWPAQ's scales-counterparts are inserted between these scales' names. In the lower part, averaged values for two questionnaires correlation coefficients are shown.

Supplementary Figures

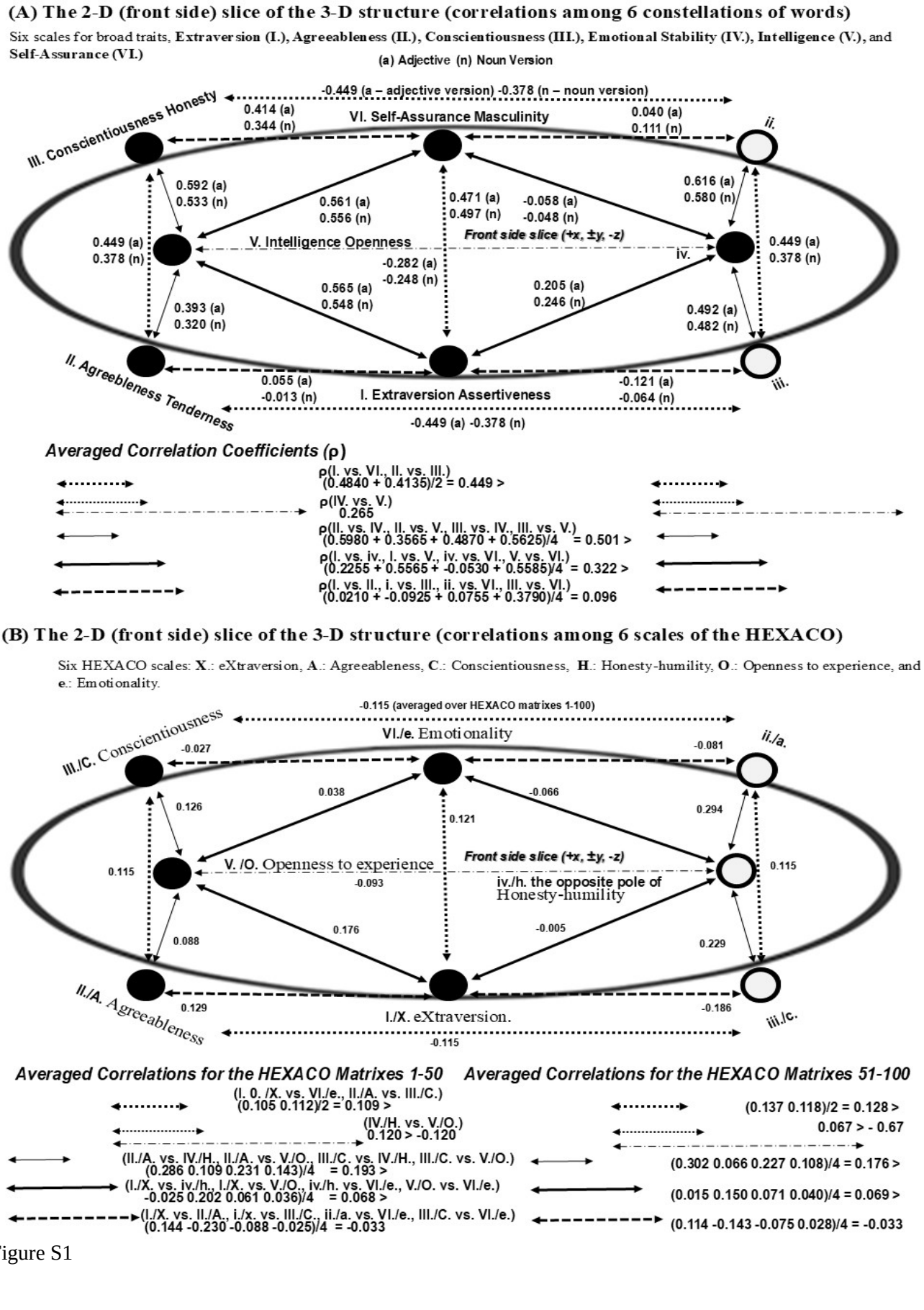


Figure S1

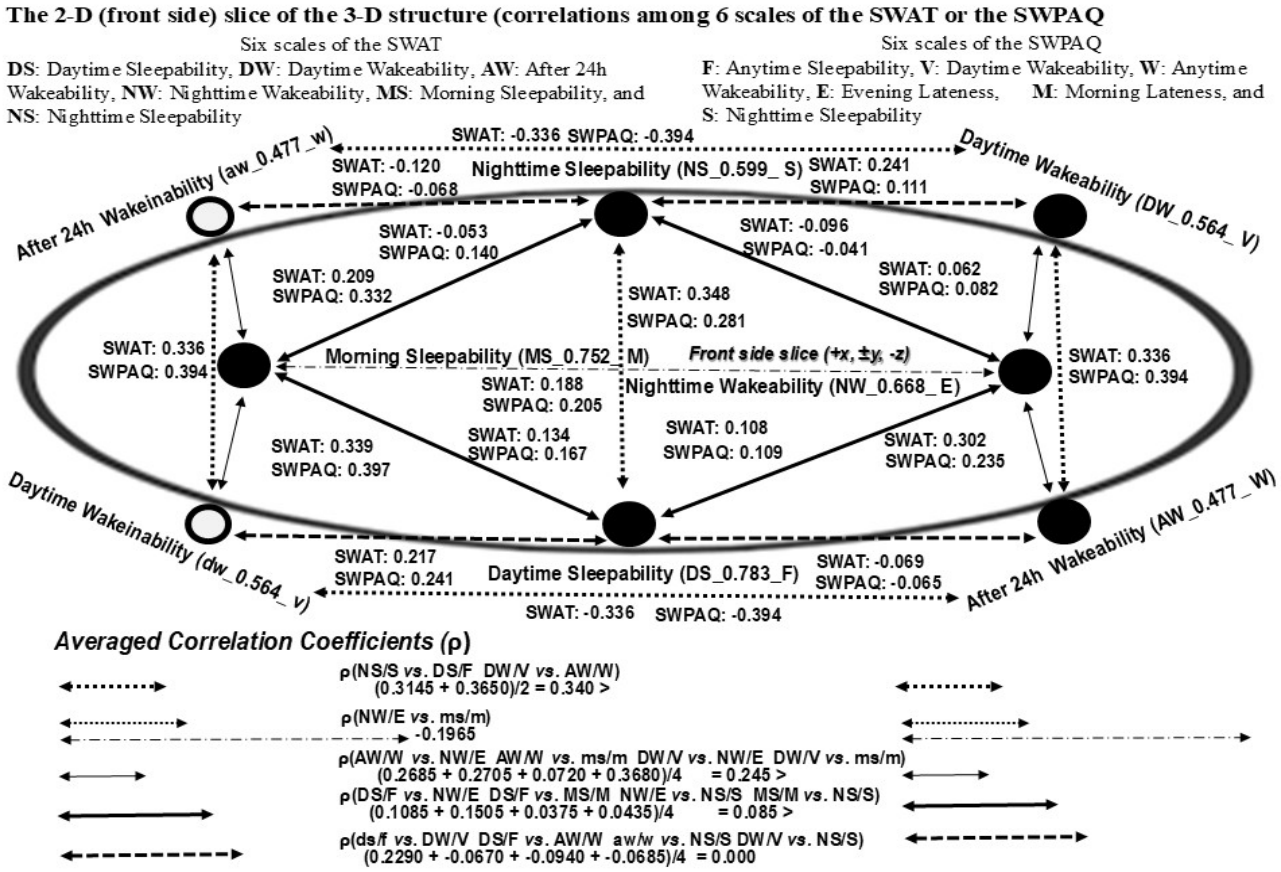

The 2-D (front side) slice of the 3-D structure (correlations among 6 scales of the SWAT or the SWPAQ
Six scales of the SWAT
DS: Daytime Sleepability, DW: Daytime Wakeability, AW: After 24h Wakeability, NW: Nighttime Wakeability, MS: Morning Sleepability, and NS: Nighttime Sleepability
Six scales of the SWPAQ
F: Anytime Sleepability, V: Daytime Wakeability, W: Anytime Wakeability, E: Evening Lateness, M: Morning Lateness, and S: Nighttime Sleepability
SWAT: -0.336 SWPAQ: -0.394
After 24h Wakeinability (aw_0.477_w)
Daytime Wakeability (DW_0.564_ V)
SWAT: -0.120
SWPAQ: -0.068
Nighttime Sleepability (NS_0.599_ S)
SWAT: 0.241
SWPAQ: 0.111
SWAT: -0.053
SWPAQ: 0.140
SWAT: -0.096
SWPAQ: -0.041
SWAT: 0.209
SWPAQ: 0.332
SWAT: 0.062
SWPAQ: 0.082
SWAT: 0.348
SWPAQ: 0.281
SWAT: 0.336
SWPAQ: 0.394
Morning Sleepability (MS_0.752_ M)
Front side slice (+x, ±y, -z)
SWAT: 0.336
SWPAQ: 0.394
SWAT: 0.188
SWPAQ: 0.205
Nighttime Wakeability (NW_0.668_ E)
SWAT: 0.339
SWPAQ: 0.397
SWAT: 0.134
SWPAQ: 0.167
SWAT: 0.108
SWPAQ: 0.109
SWAT: 0.302
SWPAQ: 0.235
Daytime Wakeinability (dw_0.564_ v)
After 24h Wakeability (AW_0.477_W)
SWAT: 0.217
SWPAQ: 0.241
Daytime Sleepability (DS_0.783_F)
SWAT: -0.069
SWPAQ: -0.065
SWAT: -0.336 SWPAQ: -0.394
Averaged Correlation Coefficients (ρ)
ρ(NS/S vs. DS/F DW/V vs. AW/W)
(0.3145 + 0.3650)/2 = 0.340 >
ρ(NW/E vs. ms/m)
-0.1965
ρ(AW/W vs. NW/E AW/W vs. ms/m DW/V vs. NW/E DW/V vs. ms/m)
(0.2685 + 0.2705 + 0.0720 + 0.3680)/4 = 0.245 >
ρ(DS/F vs. NW/E DS/F vs. MS/M NW/E vs. NS/S MS/M vs. NS/S)
(0.1085 + 0.1505 + 0.0375 + 0.0435)/4 = 0.085 >
ρ(ds/f vs. DW/V DS/F vs. AW/W aw/w vs. NS/S DW/V vs. NS/S)
(0.2290 + -0.0670 + -0.0940 + -0.0685)/4 = 0.000

Figure S2