Spirrison, C. L., Gordy, C. C. (1994). Nonintellective Intelligence and Personality Variance Shared by the Constructive Thinking Inventory and the Myers-Briggs Type Indicator. *Journal of Personality Assessment*, 62, 352-363.

Trull, T. J., Widiger, T. A. (1997). *Structured Interview for the Five-Factor Model of Personality (SIFFM). Professional manual.* Odessa, FL: Psychological Assessment Resources, Inc.

Tupes, E. C., Christal, R. E. (1961). Recurrent personality factors based on trait rating. *USA F ASD Tech., Rep*, s. 61-97.

Uchnast, Z. (1992). *Myers-Briggs Skala Typów Psychicznych*. Lublin: Katedra Psychologii Osobowości KUL (tłumaczenie *The Myers-Briggs Type Indicator Manual*, Princeton, NJ: Educatioanl Testing Service).

Wiggins, J. S. (1979). A psychological taxonomy of trait-descriptive terms: The interpersonal domain. *Journal of Personality and Social Psychology*, 37, 395-412.

Wiggins, J. S. (2003). *Paradigms of personality assessment*. New York–London: The Guilford Press.

Zuckerman, M., Kuhlman, D. M. Thornquist, M., Kiers, H. (1991). Five (or three) robust questionnaire scale factors of personality without culture. *Personality and Individual Difference*, 9, 929-941.

Waldemar Klinkosz
Andrzej E. Sękowski
Instytut Psychologii KUL

NATIONAL TAXONOMIES, ADJECTIVE MARKERS AND INVENTORIES: THREE DIRECTIONS OF APPLICATION OF THE LEXICAL APPROACH TO PERSONALITY

The lexical approach to personality that follows a simple rationale: "All significant individual differences are embodied in language" (De Raad, 2000, p.16) is now considered as one of the focal points in personality psychology. The approach has a long history, dating from Galton (1884), and then following the interrupted trajectory of development for almost a century, to be settled in the mainstream of personality research with the seminal studies of Goldberg (1981, 1982, 1990). In this paper, I will review the three directions of application of the lexical approach to personality, with special emphasis, and with applications from research in Croatia. These three directions are: various national taxonomies of personality-descriptive words, adjective markers derived from such taxonomies (or developed independently from the taxonomies) and the common item format for cross-national comparisons of individual differences.

1. *National taxonomies of personality descriptive words*

Following the studies of Allport and Odbert (1936), Cattell (1943, 1945) Fiske (1949), Tupes and Christal (1958, 1961) and Norman (1967); Goldberg (1981, 1982, 1990) conducted a series of explorations in the language of personality and concluded that any structural model of personality will have to encompass something similar to the "Big-Five" dimensions. These factors were: Extraversion, Agreeableness, Conscientiousness, Emotional Stability and Intellect (Goldberg, 1990). After that, the lexical approach spread to Europe, with various national taxonomies following two types of related methodologies: Dutch (e.g. Brokken, 1978; Caprara & Perugini, 1994; De Raad, 1992) and German (e.g. Hřebíčková, 1995; Ostendorf, 1990; Szarota, 1996) or used some combination of the two approaches (Di Blas & Forzi, 1998; Szirmak & De Raad, 1994).

The results of such taxonomies and other studies in the field have supported the validity of the Big-Five model. However, it should be noted that lexical studies with results that depart more or less from the original Big-Five structure are not uncommon (Boies et al. 2001, Church et al., 1998; Di Blas & Forzi, 1998, Szirmak & De Raad, 1994). However, the dispute about the optimal model of personality description is beyond the scope of this paper.

2. *Application: the croatian personality taxonomy*

Mlačić (1999) and Mlačić & Ostendorf (2005) described the development of the Croatian taxonomy of personality-descriptive terms through three studies. In the first study three judges extracted person-descriptive terms from a standard dictionary of the Croatian language. In the second study, seven judges classified the personality-descriptive adjectives into 13 different categories of descriptors. In the third study, 515 University of Zagreb students used the 483 adjectives that the majority of judges in the second study classified as dispositions to describe themselves and they were also described by 513 their best acquaintances with the same adjectives. In separate analyses of both self and peer ratings, the Croatian emic lexical factors from both data sets were interpreted to be similar to the Big-Five factors: Agreeableness, Extraversion, Conscientiousness, Intellect and Emotional Stability (Mlačić & Ostendorf, 2005). The inspection of factor content of the Croatian emic factors and their relation to imported Big-Five measures revealed high correspondences for all five Croatian factors.

The first and largest factor in self-ratings was labeled Agreeableness and was defined by adjectives such as: good-hearted, regardful, charitable, humane, warm and generous versus greedy, perfidious, selfish, ruthless, vindictive, and arrogant (Mlačić & Ostendorf, 2005). The second factor in self-ratings was labeled Extraversion and defined by terms such as communicative, extraverted, loquacious, sociable, energetic and dynamic versus reserved, unsociable, untalkative, introverted, shy and passive (Mlačić & Ostendorf, 2005). The third factor in self-ratings was labeled Conscientiousness and defined by adjectives such as organized, industrious, thorough, hard-working, responsible and systematic versus disorganized, irresponsible, lazy, unsystematic, disorderly and unconscientious (Mlačić & Ostendorf, 2005). The fourth factor in self-ratings was labeled Intellect and included adjectives such as talented, bright, intellectual, creative, intelligent and ingenious versus uncreative, ungifted, unintelligent, unintellectual and unimaginative (Mlačić & Ostendorf, 2005). Finally, the fifth factor in self-ratings was labeled Emotional Stability and was defined by adjectives such as unemotional, tranquil, unirritable, stable, cool-blooded and even-tempered versus oversensitive, irritable, quick-tempered, explosive, impulsive and rash (Mlačić & Ostendorf, 2005). The order of the factors in peer-ratings was: Conscientiousness, Agreeableness, Extraversion, Emotional Stability and Intellect (Mlačić & Ostendorf, 2005).

This study showed a clear relation between all the five Croatian emic factors and the five respective American Big-Five factors. The average correlation of the Croatian factors with the corresponding factors from the imported measures was around 0.70, however with some rotation in the plane defined by Agreeableness and Emotional Stability (Mlačić & Ostendorf, 2005).

Nevertheless, the Croatian personality taxonomy provided substantial support to the generalizability of the Big-Five structure.

3. *Adjective markers (or how to measure your personality dimensions economically)*

The typical number of variables that served as the basis for the personality taxonomies was around 400-500 personality descriptive terms (mostly adjectives). Although the number of adjectives per personality dimension is important because it indicates the relative importance of the dimensions, the long list of adjectives becomes a drawback for future research simply because it is too long. There-

fore, it is desirable to develop a smaller set of variables or factor markers that would consistently yield a desired structure. Goldberg (1992) developed a set of unipolar and bipolar factor Big-Five markers that were proven robust across diverse samples of self and peer-descriptions that was extensively used in subsequent research (Garcia et al., 1994; Mlačić, 2002; Saucier, 1994; to name but a few). Perugini and Di Blas (2002) developed a set of Big-Five markers in Italian language, Kashiwagi (2002) developed a set of Japanese Big-Five markers.

4. *Application: goldberg's Big-Five markers in Croatia*

In a series of research in Croatia, we used the translation of Goldberg's (1992) Big-Five bipolar markers as an "imported" measure of the Big-Five. In the first study (Mlačić & Knezović, 1997) we verified the five-factor structure of the opaque version of Goldberg's Big-Five markers and related it to Eysenck's model empirically. In the second study (Mlačić & Knezović, 2000) we compared the opaque version of Goldberg's (1992) Big-Five markers with the transparent one and found the robust five-factor structure for both versions. Finally, in the third study (Mlačić, 2002) we investigated the factor structure of Goldberg's (1992) transparent Big-Five markers in self and peer-ratings. The analyses of self and peer-ratings showed robust five-factor structures for both types of ratings and high reliabilities (Mlačić, 2002).

Therefore, Goldberg's (1992) Big-Five bipolar markers could be effectively used for self- and peer-ratings in Croatia.

5. *New application: the development of the Croatian markers for the Big-Five model*

Although Goldberg's (1992) Big-Five markers were proven useful in Croatia, they represent the "imported" or the "etic" Big-Five measure (Berry, 1969). Therefore, we wanted to develop a set of Croatian "emic" Big-Five markers, based on the results of the before mentioned Croatian personality taxonomy (Mlačić & Ostendorf, 2005). We (Mlačić & Šakić, in press) developed a set of 120 unipolar and 60 bipolar factor markers to cover the five Croatian "emic" factors (Mlačić & Ostendorf, 2005) and the classification system of Peabody & De Raad (2002). A sample of students used these scales to describe themselves, and they were also described by their best acquaintances on the same instruments. All

four data sets (self-ratings and peer-ratings with bipolar and unipolar markers) showed clear five-factor structures (Mlačić & Šakić, in press). These factors were clearly and strongly related on a one-to-one basis with the respective factors from the American Big-Five model, measured with the Croatian translation of IPIP Big-Five markers (Mlačić & Goldberg, 2007).

The relations of factor structures of the Croatian Big-Five markers between self and peer ratings confirmed the equivalency of Big-Five correspondent dimensions in both rating procedures. (Mlačić & Šakić, in press).

6. *The common item format for cross-national comparisons of individual differences (IPIP)*

Goldberg (1999) started the development of a scientific collaboratory for advanced measures of personality traits and other individual differences and named it International Personality Item Pool (IPIP). During the last decade, the IPIP web-site (http://ipip.ori.org/) has become a source of a large set of measures, all in the public domain, available to scientists worldwide. The IPIP web-site is also a source of a large set of items (over 2,000), each consisting of a short verbal phrase (e.g., Act as I please, Blend into the crowd, Can keep a secret, Dislike changes). One rationale for the use of this common item format is that it should be easily translated into the diverse languages (Hendriks et al., 1998).

Some of the most frequently used IPIP measures have been those targeted at constructs that already were in the public domain, especially Goldberg's (1992) Big-Five markers.

7. *Application:the IPIP Big-Five factor markers in Croatia*

Translations of the IPIP version of the Big-Five markers are now available in many languages (Goldberg, 2007). However, there were no scientific publications on the characteristics of these translations. In the study of Mlačić & Goldberg (2007), we reported findings from the first translation in Croatian. A large sample of university students (N = 519) used the translated Croatian version of the 100-item IPIP Big-Five inventory to describe themselves, and they were also described by 515 of their acquaintances that used the same instrument.

Self- and peer-ratings were factor analyzed separately and the 100-item and 50-item versions of these IPIP measures showed clear five-factor orthogonal

structures that were nearly identical to the American structure (Mlačić & Goldberg, 2007). There was a clear relation between all the five Croatian IPIP factors and the five respective factors derived from a Croatian translation of Goldberg's bipolar rating scales (Mlačić & Goldberg, 2007).

8. *New application: the IPIP Big-Five factor markers*
   with adolescents subjects

Following the previous study (Mlačić & Goldberg, 2007) that provided substantial support for the generalizability of the five-factor IPIP-structure in Croatia, we developed a version of the IPIP Big-Five markers for use with adolescents (Mlačić et al., 2007). We also related that measure with self-esteem, using adolescents as target subjects. A large sample of adolescents (N = 706) used the revised Croatian version of the 50-item IPIP Big-Five inventory to describe themselves, and they were also described by 592 of their parents on the same instrument (Mlačić et al., 2007). The adolescents and their parents also used the translated version of Rosenberg's Self-Esteem Scale (Rosenberg, 1965) to describe the target subjects. Self- and parental ratings were factor analyzed separately and the IPIP measures showed clear five-factor orthogonal structures that were nearly identical to the Croatian adult structure and American community sample structure (Mlačić et al., 2007). Self- and parental ratings on IPIP Big-Five markers were strongly related on a one-to-one basis for all five corresponding factors. Five personality factors were moderately, yet consistently, related to self-esteem. The relation between the dimension of Emotional Stability and self-esteem was the strongest while the relation of Agreeableness and self-esteem was the weakest (Mlačić et al., 2007).

9. *Conclusions: where to go next in this field of research?*
   National taxonomieso f personality descriptive words

This direction of research would profit from the development of personality taxonomies in more languages. Lexical studies developed so far mostly represent languages with origin in Northern Europe (Germanic, Romanic & Slavic). Only recently (Saucier, 2006) a lexical study exploring the language families of sub-Saharan Africa is developing. It would be also important that the future studies go beyond narrow trait selections and beyond "adjectives only".

10. *Adjective markers*

For the purpose of comparison of various national taxonomies as well as any other future research, since adjective markers have some practical advantages (being easier and faster for applied purposes), this direction would profit from the development of factor markers that represent already developed (or future) personality taxonomies.

11. *Common ITEM format (IPIP)*

Since the format of short behavior-descriptive phrases is more contextualized and should be much easier than single trait-descriptive adjectives to translate into the diverse languages of the modern world, this direction would profit from the publication of scientific reports on the characteristics of IPIP translations. Also, one important fact regarding the IPIP measures is that they are in the public domain, available to scientists worldwide. Finally, future cross-cultural studies should compare the characteristics of these measures in highly educated samples (i.e., university students) with more representative samples from the total population under study (i.e., adolescents, subjects from less urbanized areas etc) (Mlačić et al., 2007).

REFERENCES

Allport, G. W., Odbert, H. S. (1936). Trait names: A psycho-lexical study. *Psychological Monographs*, 47 (Whole No. 211).

Berry, J. W. (1969). On cross-cultural comparability. *International Journal of Psychology*, 4, 119-128.

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

Brokken, F. B. (1978). *The language of personality*. Unpublished doctoral dissertation. Meppel, The Netherlands: Kripps.

Caprara, G. V., Perugini, M. (1994). Personality described by adjectives: Generalizability of the Big Five to the Italian lexical context. *European Journal of Personality*, 8, 357-369.

Cattell, R. B. (1943). The description of personality: Basic traits resolved into clusters. *Journal of Abnormal and Social Psychology*, 38, 476-507.

Cattell, R. B. (1945). The description of personality. Principles and findings in a factor analysis. *The American Journal of Psychology*, 58, 69-90.

Church, A. T., Katigbak, M. S., Reyes, J. A. S. (1998). Further exploration of Filipino personality structure using the lexical approach: Do the big-five or big-seven dimensions emerge? *European Journal of Personality*, 12, 249-269.

De Raad, B. (1992). The replicability of the Big-Five personality dimensions in three word-classes of the Dutch language. *European Journal of Personality*, 6, 15-29.

De Raad, B. (2000). *The Big Five personality factors: The psycholexical approach to personality*. Göttingen: Hogrefe & Huber Publishers.

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.

Fiske, D. W. (1949). Consistency of the factorial structures of personality ratings from different sources. *Journal of Abnormal and Social Psychology*, 44, 329-344.

Galton, F. (1884). Measurement of character. *Fortnightly Review*, 36, 179-185.

Garcia, O., Aluja, A., Garcia, J. F. (2004). Psychometric properties of Goldberg's 50 personality markers for the big five model: A study in the Spanish language. *European Journal of Psychological Assessment*, 20, 310-319.

Goldberg, L. R. (1981). Language and individual differences. The search for universals in personality lexicons. In: L. Wheeler (ed.), *Review of personality and social psychology* (vol. 2, pp. 141-165). Beverly Hills, CA: Sage Publications.

Goldberg, L. R. (1982). From ace to zombie. Some explorations in the language of personality. In: C. D. Spielberger, J. N. Butcher (Eds.), *Advances in personality assessment* (vol. 1, pp. 203-234). Hillsdale, NJ: Lawrence Erlbaum.

Goldberg, L. R. (1990). An alternative "Description of personality": The Big-Five factor structure. *Journal of Personality and Social Psychology*, 59, 1216-1229.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment*, 4, 26-42.

Goldberg, L. R. (1999). A broad-bandwith, 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: Tilburg University Press.

Goldberg, L. R. (2007). *International personality item pool. A scientific collaboratory for the development of advanced measures of personality traits and other individual differences* (http://ipip.ori.org/). Internet Web Site.

Hendriks, A. A. J., Hofstee, W. K. B., De Raad, B. (1998). Short behaviour-descriptive sentences as units of personality neasurement. In: J. Bermudez, B. De Raad, J. De Vries, A. M. Pérez--Garcia, A. Sánchez-Elvira, G. L. Van Heck (Eds.), *Personality psychology in Europe* (vol. 6, pp. 40-50). Tilburg: Tilburg University Press.

Hřebíčková, M. (1995). *The structural model of personality based on the lexical analysis: A Czech replication of the five-factor model based on a comprehensive taxonomy of personality-descriptive adjectives*. Unpublished manuscript, Institute of Psychology, Academy of Sciences of the Czech Republic, Brno.

Kashiwagi, S. (2002.). Japanese Adjective List for the Big Five. In: B. De Raad, M. Perugini (Eds.), *Big Five Assessment* (pp. 305-326). Göttingen: Hogrefe & Huber.

Mlačić, B. (1999). *Hrvatska taksonomija deskriptora osobina ličnosti. Croatian taxonomy of personality descriptive terms*. Unpublished doctoral dissertation, University of Zagreb, Croatia.

Mlačić, B. (2002). Faktorska struktura samoprocjena i procjena druge osobe na Goldbergovim markerima [Factor structure of self and peer ratings with Goldberg's markers]. *Društvena istraživanja*, 11, 23-46.

Mlačić, B., Goldberg, L. R. (2007). An analysis of a cross-cultural personality inventory: The IPIP Big--Five factor markers in Croatia. *Journal of Personality Assessment*, 88, 168-177.

Mlačić, B., Knezović, Z. (1997). Struktura i relacije Big-Five markera i Eysenckova upitnika ličnosti: Empirijska usporedba dvaju strukturalnih modela ličnosti [The structure and relations of the Big-Five markers and Eysenck's personality questionnaire: Empirical comparison of two structural personality models]. *Društvena istraživanja*, 6, 1-21.

Mlačić, B., Knezović, Z. (2000). Utjecaj rasporeda čestica na faktorsku strukturu i skalne rezultate Goldbergovih markera: Prilog međukulturalnoj validaciji velepetorog modela ličnosti [The effect of item formats on factor structure and scale scores of Goldberg's markers: A contribution to cross-cultural validation of the Big-Five model]. *Društvena istraživanja*, 9, 633-661.

Mlačić, B., Milas, G., Kratohvil, A. (2007). Adolescent personality and self-esteem: An analysis of self-reports and parental-ratings. *Društvena istraživanja*, 16, 213-236.

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

Mlačić, B., Šakić, I. (in press). Razvoj hrvatskih markera velepetorog modela ličnosti [The Development of Croatian Markers for the Big-Five Personality Model]. *Društvena istraživanja*.

Norman, W. T. (1967). *2800 personality trait descriptors: Normative operating characterstics for a university population.* Ann Arbor, MI: Department of Psychology, University of Michigan.

Ostendorf, F. (1990). *Sprache und Persönlichkeitstruktur: Zur Validität des Fünf-Faktoren-Modells der Persönlichkeit* [Language and personality structure: Towards the validity of the Five-Factor model of personality]. Regensburg, Germany: Roderer-Verlag.

Peabody, D., De Raad, B. (2002.). The substantive nature of psycholexical personality factors: A comparison across languages. *Journal of Personality and Social Psychology*, 83, 983-997.

Perugini, M., Di Blas, L. (2002.). The Big Five Marker Scales (BFMS) and the Italian AB5C taxonomy: Analyses from an etic-emic perspective. In: B. De Raad & M. Perugini (Eds.), *Big Five Assessment* (pp. 281-304). Göttingen: Hogrefe & Huber.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton University Press.

Saucier, G. (1994). Mini-markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment*, 63, 506-516.

Saucier, G. (2006). *Toward a Cross-Culturally Genarlizable Taxonomy of Personality Dispositions.* Keynote address. 13th European Conference on Personality, Athens, Greece, July 23rd.

Szarota, P. (1996). Taxonomy of the Polish personality-descriptive adjectives of the highest frequency of use. *Polish Psychological Bulletin*, 27, 343-351.

Szirmak, Z., De Raad, B. (1994). Taxonomy and structure of Hungarian personality traits. *European Journal of Personality*, 8, 95-117.

Tupes, E. C., Christal, R. E. (1958). *Stability of personality trait rating factors obtained under diverse conditions* (USAF ASTIA Document No. AD 151 041), U.S. Air Force, Lackland, Air Force Base, TX.

Tupes, E. C., Christal, R. E. (1961). *Recurrent Personality Factors Based on Trait Ratings* (USAF ASD Technical Report, No. 61-97), U.S. Air Force, Lackland Air Force Base, TX.

Boris Mlačić
Institute of Social Sciences Ivo Pilar, Zagreb, Croatia