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## THE STRUCTURE OF THE LEXICAL PERSONALITY DESCRIPTORS IN SERBIAN LANGUAGE<sup>1</sup>

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*Two studies, both originating from a larger psycholexical study in Serbian language, are presented here. Two questionnaires, Lexi and PL have been constructed in the psycholexical study. The questionnaires differ by the formulation of their respective items: while the items of the Lexi contain adjectives, the items of the PL are in the form of statements. The first study presented in this paper examines the latent structure of the Lexi questionnaire, while the second one deals with the latent structure of the PL. In both studies, principal component analysis was applied, and the number of components to be retained in the analysis was determined according to the Scree criterion. Also, Promax rotation was applied in both studies. Seven components which were extracted in the first study have been interpreted as Negative Valence, Negative Emotionality, Aggressiveness, Conscientiousness, Positive Emotionality, Positive Valence and Openness to Experience. The content of these dimensions is obviously similar to the dimensions of Tellegen and Waller's Big Seven model. In the second study, five components were extracted, and interpreted as Sociability, Anxiety, Aggressiveness, Activity and Impulsivity. The content of the dimensions extracted in the second study corresponds with the dimensions of Marvin Zuckerman's Alternative Five – Factor Model.*

**Key words:** lexical hypothesis, Big Seven model, Alternative Five – Factor model

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## INTRODUCTION

The essential problem that the personality psychologists coming from diverse research paradigms are facing is defining the initial set of variables adequately representing the universe of descriptors needed for taxonomy of basic personality dimensions. From the very beginning, lexical research has been characterized by its exploratory approach. In all phases of lexical research, strictly empirical criteria are used to provide answers for questions such as: what are the basic personality dimensions and what is their structure? The basic premises of the lexical approach are that the vast majority of important and widespread phenotypic descriptions of personality are encoded in the language, and that their level of representation in the language corresponds with their relative importance (Saucier & Goldberg, 1996).

So far, three different research strategies have been implemented within the psycholexical research tradition.

The first group of studies relies on technique that was originally used by Allport and Odbert (cf. Waller, 1999) who have conducted the seminal psycholexical study of the English language by classifying 18,000 words in four distinctive categories. The first category consisted of stable personality traits; the second category consisted of temporary states and moods; the third of evaluative words, and the fourth category consisted of ambiguous and metaphoric words. According to Allport and Odbert, only the first category of words should be of interest to psychologists, an opinion that has since dominated most lexical research. Studies conducted on Dutch (DeRaad et al., 1992), Italian (Caprara and Perugini, 1994) and Hungarian (Szirmak & DeRaad, 1994) have relied on criteria set by Allport and Odbert and have included selections of descriptions of stable personality traits. Neuroticism, Extraversion, Conscientiousness, and Agreeableness, and were generally easily identified. However, the very existence or the content of the dimension Openness varied from study to study.

Another group of studies that was performed on German (Ostendorf & Angleitner, 1993; cf. Saucier, 1997), English (Saucier & Goldberg, 1996) and Czech (Hrebickova, Ostendorf, Angleitner, 1995; cf. Saucier, 1997) included words relating to abilities and talents, as well. This contributed to extraction of latent dimensions resembling the "Big Five" factor structure, with clearly defined Intellect dimension.

Both groups of studies were based on a comprehensive list of personality descriptors that was derived from the dictionary. Following the procedure of Allport and Odbert, evaluative words and words describing transitory states and moods were excluded from the list. When larger samples of words were used (from 274 to 899), the 5-factor structure was extracted, as a rule.

The third group of studies used less restrictive criteria for variable selection. Cattell (1945; cf. Waller, 1999) was the first to object to an *a priori* decision on what words represent an adequate selection from a given linguistic corpus. He thought that in the process of building an adequate model, the initial array of variables

should consist of the complete universe of descriptors and that all descriptors are relevant, being encoded in words of a given language. Faced with technical problems while conducting his ambitious project, Cattell amended descriptions from Allport and Odbert's list with states, moods and some clinical descriptions. However, study by Tellegen and Waller (Waller, 1999) is a prototype for this type of research. They criticized Allport and Odbert's taxonomy as a hypothesis that was lacking its empirical foundation. That is, Allport and Odbert's claim that only descriptors from their first list form a basis for relevant selection of variables describing personality has never been tested empirically. For many years, researchers were accepting Allport and Odbert's subjective criterion at its face value.

Instead, Tellegen and Waller formulated few rules before conducting a lexical study. First, there was no "black list" of descriptors. All descriptors, except synonyms were included in the list. The second rule, insisted that it is more important to have a representative sample rather than a comprehensive list of descriptors. For that purpose, they have divided the dictionary into 25-page sections, and 7 or 8 noncontiguous pages from each section were randomly selected. On each selected page, the first personality descriptive adjective that could be fit into the stems *tends to be* \_\_ and *is often* \_\_ was extracted (Waller, 1999). This approach has yielded a seven-factor personality structure, quite similar to the "Big Five" dimensions supplemented with two new evaluative categories that were named Positive Valence and Negative Valence. Although it may look not as important at first, this finding pointed at the difference between rivaling theoretical approaches. Evaluation obviously is not a single bipolar dimension (evaluating oneself by the terms good or bad). Evaluation is more adequately represented with two dimensions. For instance, high scores on Positive Valence express positive self-evaluation (exceptional, deserving admiration, etc.), while low scores on Positive Valence express modesty. High scores on Negative Valence express exceptional negative self-evaluation (a bad person, emphasizing shortcomings etc.), while low scores on Negative Valence express self-evaluation of an ordinary person. Within the realm of this factorial solution, dimension which was correspondent to the opposite pole of Openness to experience was labeled as Conventionality. Other dimensions are content-wise very close to dimensions of the Big Five model. This study also introduced novelty in naming of the factors. Tellegen and Waller thought that Negative Emotionality was a better name for Neuroticism and that Positive Emotionality was a better name for Extraversion, as suggested by previous research on factorial structure of affectivity (Tellegen, 1985).

However, the ensuing research on Hebrew (Almagor et al., 1995) and Spanish (Benet and Waller, 1995) have not confirmed the identical seven-factor structure. Although this disparity in findings can be attributed to cultural differences, the problem of the initial selection of variables in lexical research still remains to be of interest (Saucier, 1997). Three factors: Extraversion, Conscientiousness, and Agreeableness are always extracted, irrespective of the manner in which the initial array of variables is defined. Other personality dimensions have not demonstrated this cross-cultural stability.

The first lexical study in Serbian language (Smederevac, 2000; 2002) was fashioned after Tellegen and Waller's study, using the Serbo-Croatian dictionary of 1975. The initial array of variables consisted of 292 items that were selected in accordance with the nonrestrictive criteria of Tellegen and Waller. All nouns, adjectives and verbs from each 10<sup>th</sup> page of the dictionary were included in the initial array. Dimensions that were extracted were named as Negative Emotionality, Positive Valence, Negative Valence, Conscientiousness, and Agreeableness (-), Emotional Control and Conventionality. The main drawback of this solution was that indicators of Positive Emotionality, and Agreeableness and Positive Valence all grouped within a single dimension. In the ensuing study, following inclusion of evaluative words, a rather clear-cut five-factor structure was extracted (Čolović et al., 2005). However, the problem of indicators constituting Extraversion remains unsolved. In the Serbian culture, positive emotionality is the dominant feature of Extraversion while frequency of social contacts and the intensity of gratification from social contacts belong to the Agreeableness domain.

Objective of the present study is to provide answers for some of the key questions arising within the lexical paradigm. The first question deals with the representativeness of the initial array of variables. One possible explanation for the unique factor pattern found in the Serbian sample may be the dictionary used. The language is an ever evolving system. It is quite possible that the Serbian language has become significantly enriched over the last 30 years. Therefore, the present study used the more recent Serbian dictionary (Moskovljević, 2000). The first description of personality appearing on each of 874 pages of the dictionary was selected, resulting in a list of 264 words.

The second question presented itself following the word selection. Formulation of items can significantly affect the way people respond to each item. In a classic design, within the lexical research, initial set of variables consisted of adjectives (Ashton & Lee, 2005). However, including nouns and verbs complicates formulation of questionnaire items. An item can be formulated as a specific word, or as a phrase or a sentence describing some common behavior. Therefore we have decided to design two separate questionnaires. One questionnaire consisted of standard descriptions of words chosen from the dictionary in their most literate form (Lexi). The other questionnaire consisted mostly of statements describing behavior or emotional states in compliance with linguistic description (PL). The example of this process is shown in Table 1.

Table 1.

Word	Lexi	PL
active	I am a very active person	I live a very active life
rebellious	I am a rebellious person	This environment keeps giving me reasons to rebel
exemplary	My behavior is exemplary	My behavior can often be an example to others
tolerant	I am tolerant	I don't mind if people act or think differently
lie	I lie frequently	Often, I was forced to tell lies
give orders	I like to give orders	I like telling other people what to do

Additionally, decision to design two separate questionnaires was inspired by the status of dimensions Positive and Negative valence. These two dimensions consist of extreme self-evaluations. Therefore, as pointed out by McCrae and Costa (1995), one can expect skewness of their distributions. For that reason, items were formulated in such way to facilitate agreement or disagreement with extremely evaluative statements. For instance, in the first version the statement reads *I am a rebellious person* while in the second it reads *This environment keeps giving me reasons to rebel*. The second formulation provides an excuse from the social environment that may somewhat facilitate responder's agreement with the statement.

The third reason for the decision to design two questionnaires stems from critiques of the lexical approach. For some, adjectives often have unclear and ambiguous meanings (Bandura, 1999; Block, 1995) that are not equally understood by research subjects. As an example, aggressiveness may be taken as assertiveness by some and as hostility by the others. Answering this type of criticism, Ashton (Ashton & Lee, 2005) remarked that high correlations between self-evaluation and evaluation done by other people indirectly support the consensus about the meaning of certain words. Nevertheless, in spite of significant conceptual differences, theoretical models that were developed using personality descriptors based on adjectives (John & Srivastava, 1999) are not very different from theoretical models that were developed using personality descriptors based on sentences (McCrae & Costa, 1999). One advantage of adjective use compared to use of dictionary statements lies in potentially limitless number of possible behaviors that can be described in such way. At the same time, potential number of adjectives is limited by the dictionary content (Saucier & Goldberg, 1996). On the other hand, some authors question the use of adjectives in lexical studies, since their use in the every day's spoken language is less frequent than the use of longer semantic units such as phrases or sentences (Trapnell, 1994). An illustrating example for the difference between use of adjectives and the use of phrases and sentences relates to dimension Openness. The content of this dimension is much broader when phrases or sentences are used. Therefore, this dimension is sometimes named Intellect (John & Srivastava, 1999). Clarification of these methodological and conceptual problems of lexical research was one of the basic motives of the second study presented here. If the different

formulation of the same initial array of variables (sharing potentially the same content) results in a similar factor structure, this will be an important argument supporting basic premises of lexical approach in personality research.

## STUDY I

### Objective

The main objective of this study was to establish latent structure of subjects' responses to items of questionnaire Lexi. These items were formulated as simple descriptions that almost literally reflect words describing personality in Serbian language.

### Sample

This study was conducted on 275 men and 325 women aged between 18 and 74; the mean age was 32.33.

### Questionnaire

The *Questionnaire of lexical personality descriptions* containing 264 items that were evaluated on a 5-point scale was used. The format and the content of the items almost literally represent personality descriptions selected in compliance to non-restrictive criteria of Tellegen and Waller. The descriptors were selected from Moskovljević's Serbian dictionary (2000).

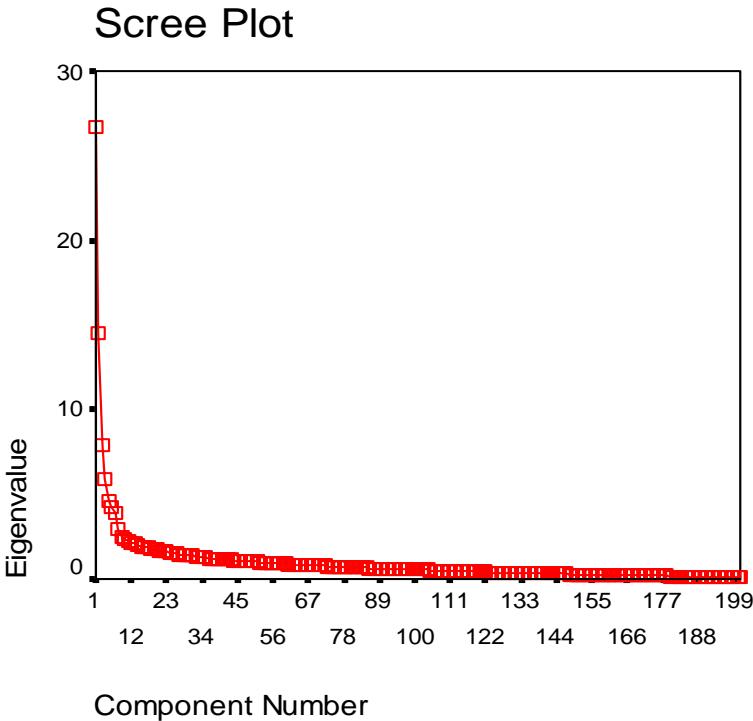
### Results

Principal component analysis of the questionnaire LEXI yielded 51 principal components with eigenvalues higher than 1. According to the Scree-test, it was decided to retain 7 principal components, explaining 33.67% of the total variance.

Table 2. Principal components of the Lexi questionnaire – characteristic roots and % of explained variance

Component	Initial eigenvalues			Eigenvalues after rotation
	Total	% variance	cumulative %	
1	26.642	13.255	13.255	19.215
2	14.548	7.238	20.493	17.219
3	7.866	3.913	24.406	13.504
4	5.921	2.946	27.352	13.629
5	4.554	2.265	29.617	11.593
6	4.260	2.119	31.737	9.675
7	3.883	1.932	33.668	7.117

Figure 1. Scree plot





**Table 3. Pattern matrix of the 1<sup>st</sup> Promax component of the Lexi questionnaire**

<b>item</b>	
I frequently lie.	.633
I have no problems cheating other people.	.603
I often use other people.	.595
I often entice others.	.555
I am a hypocrite.	.554
Sometimes I plot against others, a bit.	.538
Sometimes I steal.	.534
I look down on other people.	.530
Sometimes I like harming others.	.528
I think that I am a real villain.	.525
I often ridicule other people.	.505
I often get stoned drinking.	.503
I like to gamble.	.496
I am an honest person.	-.495

The first Promax component covers description of various socially undesirable behaviors. Such self descriptors indicate negative evaluation of one's own character and moral features. This component was named Negative Valence.

**Table 4. Pattern matrix of the 2<sup>nd</sup> Promax component of the Lexi questionnaire**

<b>Item</b>	
I am often bothered by sad thoughts.	.704
I often feel bitter.	.692
I am often sad.	.677
I often feel anxiety.	.669
There are many things that I miss in my life.	.608
I always long for something.	.603
I feel like a loser.	.602
I did many things in vain.	.587
My future looks pretty dark.	.569
I always get the hardest chores.	.556
I suffered a lot in my life time.	.535
I think that I get less than I deserve.	.533
I often cry.	.515
I often regret what I've done.	.513

The second Promax component covers various indicators of negative self-directed emotions such as sorrow, anxiety and bitterness. It was named Negative Emotionality.

*Table 5. Pattern matrix of the 3<sup>rd</sup> Promax component of the Lexi questionnaire*

Item	
I easily loose temper.	.699
I often get mad.	.623
I am a mild person.	-.615
I argue a lot.	.592
You can say that I am a difficult person.	.562
When I get mad, I simply loose control.	.533
I am a noisy person.	.523
I am a nervous person.	.501
I am often hard to please.	.487
I often taunt other people.	.484
I am a stubborn person.	.476
I can be very patient.	-.475
I like giving orders.	.471
I often contradict other people.	.464

The third Promax component involves descriptions of various forms of aggressive and antagonistic behavior. A high score on this component indicates harsh temper and an inclination towards open expression of hostility towards other people. Negative pole of this component corresponds with the Big Five dimension of Agreeableness, a tendency to be compassionate and cooperative. This component was named Aggressiveness.

*Table 6. Pattern matrix of the 4<sup>th</sup> Promax component of the Lexi questionnaire*

Item	
I am very thorough in what I do.	.582
I tend to procrastinate.	-.577
I always fulfill my duties.	.545
I am very industrious and hardworking.	.518
I am very autonomous and independent.	.497
I am rather hesitant.	-.482

I am rather careless.	-.481
I like rules.	.477
I am very persistent.	.475
I have a strong will.	.458
I am ready for anything that may happen to me	.427
I often doubt.	-.426
I am a lazy person.	-.426
I am very organized.	.424

The fourth Promax component involves control and regulation of our impulses: purposeful planning, persistence and reliability. The negative pole of this component involves indicators of hesitation, poor impulse control and unreliability, lack of ambition, and failure to stay within the lines. This component was named Conscientiousness.

*Table 7. Pattern matrix of the 5<sup>th</sup> Promax component of the Lexi questionnaire*

Item	
I am very sociable.	.573
I am very cordial.	.493
I like bringing people together.	.492
I think that I am a good comrade and a friend.	.483
I always find time for joy and play.	.479
I am a good person.	.463
I am benevolent.	.455
I am very kind.	.446
I like cooperating with other people.	.440
I forgive easily.	.437
I am a kind person.	.435
I am talkative.	.432
I am a cheerful person.	.408
I am often useful to others.	.401

Content of the fifth Promax component is dominated by indicators of sociability, cheerfulness and joviality. One part of the content is defined by indicators of warmth and cooperation. In the Big Five theoretical model, these indicators define dimension of Agreeableness. Here, this component was named Positive Emotionality.

**Table 8. Pattern matrix of the 6<sup>th</sup> Promax component of the Lexi questionnaire**

Item	
I am an esteemed person.	.637
I am an important person.	.597
I deserve admiration.	.578
I am an exceptional person.	.539
I am an enlightened and educated person.	.498
I think that I am a part of the elite.	.481
Many people think that I am a wonderful person.	.459
Generally, I am better than other people.	.456
I like to triumph.	.447
I am an influential person.	.438
I am a powerful person.	.438
I was a born as a frontrunner.	.426
I expect others to appreciate my virtues and merits.	.416
I am a charming person.	.416

The sixth Promax component defines extreme high positive self-evaluation, belief in one owns power, superiority and brilliance. It was named Positive valence.

**Table 9. Pattern matrix of the 7<sup>th</sup> Promax component of the Lexi questionnaire**

Item	
People think that I am a mysterious person.	.483
I am interested in spiritual arts and secrets.	.448
I think that I am somewhat zany.	.447
Many people think that I am an eccentric.	.430
I have a lively imagination.	.425
I am often pensive.	.422
I keep improving and excelling.	.421
For me, it is important to get to the core of a problem.	.412
I often search for information and things that I am interested in.	.411
I am a creative person.	.400
I like arts.	.393
I set high standards for myself.	.375
I have my secrets.	.373
I often feel an urge to be alone.	.369

The seventh Promax component has a somewhat more complex content and is characterized by unusual interests and behaviors, proneness to mysticism, lively imagination and creativity, but also curiosity and striving towards constant self improvement. It involves some sort of eccentricity but also some indicators that other theoretical models name as Openness to experience, Conventionality, Intellect or Culture. Here, it was named Openness to experience.

**Table 10. Intercorrelations of Promax components extracted from the Lexi questionnaire**

Component	Negative valence	Negative emotionality	Aggressiveness	Conscientiousness	Positive emotionality	Positive valence	Openness
Negative valence	1.000	.244	.450	-.257	-.111	-.004	.143
Negative emotionality	.244	1.000	.105	-.352	-.320	-.050	-.066
Aggressiveness	.450	.105	1.000	-.128	.015	.169	.229
Conscientiousness	-.257	-.352	-.128	1.000	.217	.168	.047
Positive emotionality	-.111	-.320	.015	.217	1.000	.195	.079
Positive valence	-.004	-.050	.169	.168	.195	1.000	.202
Openness	.143	-.066	.229	.047	.079	.202	1.000

The highest inter-factor correlations were found between Aggressiveness and Negative Valence (.450), Negative emotionality and Conscientiousness (-.352), and between Negative emotionality and Positive Emotionality (-.320). Openness to experience was significantly correlated to Aggressiveness (.229) and Positive Valence (.202). Positive Emotionality significantly correlated with Positive Valence (.195).

**Table 11. Means, standard deviations, representativeness and reliability coefficients for the scales of Lexi questionnaire (N = 600)**

Scale	Mean	SD	MSA	$\alpha$
Negative valence	80.303	23.106	.931	.936
Negative emotionality	81.214	21.711	.933	.923
Aggressiveness	63.847	16.65	.922	.899
Conscientiousness	64.335	14.815	.892	.884
Positive valence	73.356	12.526	.905	.879
Positive emotionality	52.332	10.985	.857	.847
Openness	64.597	9.874	.800	.780

Seven different Lexi scales were defined in accordance to high factor loadings of respective Lexi items. Coefficients of representativeness and reliability indicate favorable psychometric properties. Coefficients of representativeness range from .80 for the Openness to .93 for the Negative Emotionality and Negative Valence. Reliability coefficient was lowest for the Openness ( $\alpha = .78$ ), and highest for the Negative Valence ( $\alpha = .94$ ).

## **Discussion**

Analysis of principal components of the Lexi questionnaire yielded a seven-factor structure. The factors were named Negative Valence, Negative Emotionality, Aggressiveness, Conscientiousness, Positive Emotionality, Positive Valence and Openness. By their names these factors basically corresponded to dimensions of the 7-factor model of Tellegen and Waller (Waller, 1999). However, content-wise this correspondence was less than perfect making the two solutions not entirely equivalent. Factors Positive Valence and Negative Valence had content quite similar to the content of those dimensions in the model of Tellegen and Waller. The very existence of these two dimensions is questioned by the advocates of the Big Five model. In this study surprisingly, Negative Valence was the factor explaining the highest proportion of the total variance.

Contents of factors Conscientiousness and Negative Emotionality also largely matched analogue dimensions of the seven-factor model. However, this did not hold for factors Aggressiveness, Positive Emotionality and especially for the factor Openness. Factor Aggressiveness significantly corresponded with the negative pole of the factor Agreeableness, as it was defined in the seven-factor model. In addition, dimension Positive Emotionality reported here, also overlapped with some significant aspects of Agreeableness, as defined in the seven-factor model. Here, Aggressiveness has emerged in a somewhat more basic manifestation relative to aggressiveness that is defined as the negative pole of Agreeableness in the five and the seven-factor models. Aggressiveness reported in this study covers mostly a tendency to get infuriated and to directly confront others as opposed to harsh temper and competitiveness. Dimension Positive Emotionality covers indicators of sociability and vivacity joint with indicators of affective warmth, mild temper and enjoying closeness with other people. It seems that the nature of this dimension is closer to affiliation than to gregariousness, a usual component of Extraversion. Thus, here Sociability and Aggressiveness described essentially the same space that is described by Extraversion and Agreeableness in other models. Since this finding basically replicates our earlier findings (Smederevac, 2002), it is quite possible that this overlap between contents of Positive Emotionality and Agreeableness can be explained by some important cultural differences. It may well be that sociability (as a typical indicator of extravert behavior) in the Serbian culture, is more associated with good communication manners, cooperation and benevolence than what is the

case in some Western cultures. On the other hand, the negative pole of Aggressiveness, that should basically cover such descriptions of behavior, is defined more narrowly in our studies – as patience and lack of tendency for confrontation with others.

Dimension Openness had the greatest content-wise discrepancy relative to other models presented in the literature. The fact that this factor had a significant (although low) correlation with dimensions Aggressiveness and Positive Valence may suggest that it involves eccentricity and defiance to much greater extent than usually reported in contents of dimensions Openness, Intellect and Culture in other models. Here, Openness is primarily defined as an interest for alternative methods for explaining reality and only secondary as intellectual curiosity, creativity and intellectual tolerance. Subscale Openness also had somewhat worse metric characteristics relative to other subscales of the Lexi questionnaire.

## STUDY 2

### Objective

The main objective of this study was to establish latent structure of subjects' responses to items of questionnaire PL. Items of the PL questionnaire were formulated as sentences including descriptions of common behaviors and emotional states in given situations, and were derived from words describing personality in Serbian language..

### Sample

The questionnaire was administered to 800 people, (476 women and 324 men), aged 18 to 73, with the mean age of 30.16.

### Questionnaire

*Questionnaire of lexical statements about personality* (PL) consisted of 264 items that were rated using a 5-point scale. The form and the content of items corresponded to common behaviors and emotional states in given situations. The items operationally define words describing personality that were selected using non-restrictive criteria of Tellegen and Waller from Moskovljević's dictionary (2000).

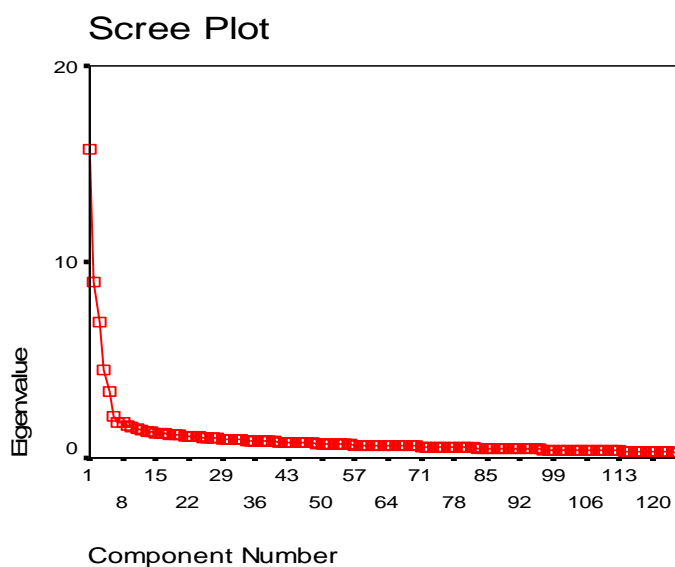
### Results

Principal component analysis yielded 28 components with eigenvalues that were higher than 1. According to the Scree-test, 5 principal components explaining 31.6 % of the total variance were retained in the model. Promax rotation was applied.

*Table 12. Principal components of the PL questionnaire – eigenvalues and % of explained variance*

Component	Initial eigenvalues			Eigenvalues after rotation
	Total	% variance	cumulative %	Total
1	15.732	12.585	12.585	11.404
2	8.987	7.189	19.775	12.013
3	6.917	5.533	25.308	8.443
4	4.500	3.600	28.908	7.732
5	3.355	2.684	31.592	8.012

*Figure 2. Scree plot*





**Table 13. Pattern matrix of the 1st Promax component of the PL questionnaire**

<b>Item</b>	
I am very kind with people.	.676
I tend to forgive many things.	.649
I am benevolent.	.619
I am touched by sad stories and events.	.609
I am loyal to people I love.	.604
I can forgive others' mistakes.	.604
I like to have fun.	.603
I like to cooperate with others.	.580
I often stand for other people.	.575
I am an honest and decent person.	.574
I often react instinctively.	.534
I always try to behave politely and decently.	.533
I can solve all misunderstandings by talking to others.	.532
I am very cordial.	.523

The first Promax component covers indicators of pleasantness, benevolence, empathy and sociability. It relates to emotional warmth and the need to establish harmonious and friendly relationship with other people. Tentatively, it was named Sociability.

**Table 14. Pattern matrix of the 2<sup>nd</sup> Promax component of the PL questionnaire**

<b>Item</b>	
I often feel anxiety.	.645
I always get nervous.	.640
Sometimes I have that feeling that everything is numb around me.	.635
Sometimes I feel so tired and old.	.602
I easily loose hope.	.602
I am often bothered by sad thoughts.	.566
I often feel embittered.	.566
I am often sad.	.564
I am very fearful.	.555
They often take me for a ride.	.528
I often feel soft and sluggish.	.517
I am often bothered by guilt.	.516
My future looks rather dark.	.511
I feel like a loser.	.511

Content of the second Promax component describes tendency to frequently experience negative emotions like fear, sorrow, guilt and bitterness. It was named Anxiety.

*Table 15. Pattern matrix of the 3<sup>rd</sup> Promax component of the PL questionnaire*

Item	
I can be very cruel if something gets in my way.	.601
When I want something, I can be very adamant.	.573
I have a mild temper.	-.567
Woe to those who get in my way when I get mad.	.567
I can be very pushy if I want to achieve something.	.559
It always has to be my way.	.520
I loose temper easily.	.517
When I get mad, it takes me a long time to calm down.	.499
I like power.	.490
When somebody hurts me, I have to get my revenge.	.486
Others have to abide by my view.	.474
I am often picky about details.	.443
I can be very obnoxious, if needs be.	.427
I like telling others what to do.	.426

The third Promax component includes indicators of harsh temper, dominance and tendency for aggressive behavior. It was named Aggressiveness.

*Table 16. Pattern matrix of the 4<sup>th</sup> Promax component of the PL questionnaire*

Item	
I am full of energy.	.567
I easily get to the bottom of things.	.563
I am very industrious and hard working.	.550
I have an encouraging influence on other people.	.543
I have a strong will.	.525
I have a very strong personality.	.521
I always pay attention to details.	.516
I am very opinionated.	.448
I can be very patient.	.445
I am someone that you can rely on.	.430
Nothing can make me falter.	.419

I am trying to be very kind and tactful with people.	-.412
I set high standards for myself.	.410
I am rather tough and sturdy.	.405

The content of the fourth Promax component indicates assertiveness, activation and being energetic but also some conative features like industriousness and reliability. This component is named Activity.

**Table 17. Pattern matrix of the 5<sup>th</sup> Promax component of the PL questionnaire**

Item	
I can behave rather zany.	.574
I often drink.	.503
I often get stoned drinking.	.494
I often squander my money.	.491
I always find time for fun and play.	.457
I think that I am a little bit lazy.	.452
I enjoy exploits and adventures.	.448
I am rather remiss.	.435
I am often late.	.427
I tend to delay my responsibilities.	.418
I am rather thrifty.	-.416
The place where I live is rather untidy.	.405
I always loose or misplace things.	.390
It has happened that I steal things.	.389

The content of the fifth Promax component indicates at instances of weakness of control, lack of organization and negligence. It includes absence of purposeful planning and poor regulation of impulses. Also, it covers some indicators of sensation seeking. This component was named Impulsivity.

**Table 18. Intercorrelations of Promax components extracted from the PL questionnaire**

Component	Sociability	Anxiety	Aggressiveness	Activity	Impulsivity
Sociability	1.000	-.301	-.019	.063	-.231
Anxiety	-.301	1.000	.134	-.335	.189
Aggressiveness	-.019	.134	1.000	.099	.300
Activity	.063	-.335	.099	1.000	.012
Impulsivity	-.231	.189	.300	.012	1.000

Correlations among Promax components were generally rather low. Dimension Anxiety had highest negative correlation with Activity (-.335), and then with Sociability (-.301). Impulsivity had a positive correlation with Aggressiveness (.300), and negative with Sociability (-.231).

**Table 19. Means, standard deviations, representativeness and reliability coefficients for the scales of PL questionnaire (N = 800)**

Scale	Mean	SD	MSA	$\alpha$
Sociability	91.551	15.144	.949	.905
Anxiety	67.145	18.715	.943	.907
Aggressiveness	79.264	17.833	.915	.881
Activity	83.745	10.752	.892	.842
Impulsivity	60.562	13.220	.868	.825

In general, the five scales of the questionnaire PL - that were formed in accordance to the factor solution described above – had satisfactory psychometric properties. Reliability coefficient (Cronbach alpha) was highest for Anxiety and lowest for Impulsivity. Sociability had the best representativeness, as evidenced by normalized Keyser-Meyer-Olkin coefficient, while representativeness of the Impulsivity was the poorest.

## Discussion

Instead of the expected seven-factor solution corresponding to findings of Study 1, Study 2, based on items in the forms of statements, yielded a five-factor solution. Content of the five extracted factors was rather surprising. Content-wise some of the factors correspond with dimensions of the Big Five, but there were also some significant discrepancies from the factor content of the Big Five model. Consequently, dimensions extracted in Study 2 were named Sociability, Anxiety, Aggressiveness, Activity and Impulsivity. Similarity with dimensions of Zuckerman's Alternative Five-Factor Model (2002) is more than obvious. Sociability covers indicators expressing need for social contact together with indicators of empathy, loyalty and civility. This implies that Sociability includes not only social aspects of extraversion but also some aspects of compassion and morals. Dimension Activity mostly covers indicators of work activation, which may be similar to lexical dimension of Conscientiousness. However, it seems that the content of Activity is somewhat broader, since it also covers temperamental aspect of extraversion. This makes the dimension of Activity described here closer to Zuckerman's concept of Activity. It is quite curious that although Sociability and Activity are usually taken as two fundamental aspects of extraversion, this study found no correlation between them indi-

cating that contents of these two dimensions should be interpreted in a non-standard manner. This finding may await further explanation based on cultural specificities and differences between the samples.

There are different approaches in naming the dimension characterized by negative affectivity that is commonly extracted in all personality models. Some authors prefer to name it Neuroticism, other prefer to name it Negative Emotionality. Although signs of anxiety were not the only indicators of negative emotions covered by the third component, they by all means dominated its content. Therefore, the third dimension of the model was named Anxiety. In most studies on Serbian language, a component gathering indicators of domination and aggressiveness has been clearly separated from the general positive content of Agreeableness and was named Aggressiveness. The last dimension covers indicators of the lack of control and was named Impulsivity.

These findings inevitably raise the question about the indicators of Positive Valence and Negative Valence, the two dimensions that failed to appear in our five-factor solution. It may well be that our strategy of formulating our statements in such way to attenuate extremely evaluative statements, with the intention to facilitate responders' agreement/disagreement with certain statements, had a negative effect on extraction of these two important dimensions. Some items with negative connotation were covered by dimension Aggressiveness (*I can be very pushy if I want to achieve something, I can be very cruel if something gets in my way, I can be very obnoxious, if needs be*). Their content reveals rationalization for aggressive behavior. Response to the item *I am a cruel person* can be positive only among people with negative self-evaluation characterizing depressive spectrum of behaviors or among people with a grandiose perception of their own strength and power, characterizing antisocial personality disorders. When the same content is offered through a formulation *I can be very cruel if something gets in my way* it can be viewed as an almost justified reaction to frustration, as a part of a broader spectrum of aggressive reactions.

## GENERAL DISCUSSION

The findings presented above should be viewed through the prism of some basic methodological and conceptual issues that implicitly dominate research of individual differences.

The first issue relates to formulation of items that can be used as trait indicators. Our assumption that the same initial set of variables – in spite of difference in item formulation of the two questionnaires – will yield similar dimensions failed to be confirmed. The change in formulation of questionnaire items involving inclusion

of some relevant behavioral context had a thorough effect on the factor structure of the models obtained.

It is obvious, that changing items' formulation did not only affect their formal aspect but has also somewhat affected items' meanings. For instance, meaning of the item *I am a nervous person* is quite different from the meaning of the item *I always get nervous about something*. Placing of certain behavior in a specific context narrows the repertoire of meanings covered by the adjective *nervous*. To be upset or nervous, besides the feeling of emotional tension, may also signify low frustration tolerance or a tendency for confrontational behavior. In this paper, the item *I am a nervous person* is covered by the content of the factor Aggressiveness in Study 1 and the item *I always get nervous about something* is covered by the content of the factor Anxiety in Study 2. This further illustrates the thesis that an exclusive use of adjectives in lexical research entails risks associated with colloquial meanings of the words. Potential spectrum of connotative use of adjectives is often much broader than intended. The use of the same personality description through common activities and emotional states reduces risk that some idiosyncrasies or some colloquial connotations may significantly affect responses to items of the questionnaire.

The second issue deals with the relationship between lexical and psychobiological models of personality. Dimensions extracted in Study 1 are quite similar to lexical dimensions that are commonly reported in studies applying non-restrictive criteria for item selection (Almagor et al., 1995; Benet and Waller, 1995; Waller, 1999). In spite of certain discrepancies – such as the overlap of contents between Extraversion and Agreeableness and the tendency for emergence of an independent factor covering descriptors of aggressive behavior – the content of other personality dimensions generally coincides with contents of Big Seven dimensions: Negative Emotionality, Positive Valence, Negative Valence and Conscientiousness (Waller, 1999). There is also a discrepancy regarding dimension Openness, since in the reference model it leans towards Conventionality. This finding is not consistent since the previous lexical study on Serbian language (Smederevac, 2002) yielded a dimension that was content-wise closest to Conventionality.

However, dimensions that were extracted in Study 2 are more closely matched to dimensions described by the Alternative Five-Factor Model (Zuckerman, 2002) than to dimensions that are usually reported in lexical models. For instance, the status of indicators of sociable behavior in the Serbian culture has been in the focus of contemporary research because of the inability to replicate lexical studies that have separated dimensions of Extraversion and Agreeableness (Čolović et al., 2005; Smederevac, 2002). Here, the domain of sociable behavior was clearly identified as a separate dimension, as was the case in the alternative FFM. Another line of argument supporting the similarity between our model and the alternative FFM relates to the content of Aggressiveness which has so far been extracted as a separate dimension in previous studies on Serbian language (Smederevac, 2002). It seems that aggressiveness is much easier identified as an authentic personality trait than agreeableness, a finding that further supports Zuckerman's concept (2002). Additionally, our dimension Impulsivity is much closer to Zuckerman's concept of Impulsive sen-

sation seeking than to lexical concepts of Openness or Conscientiousness. Even more so, Activity reported here conceptually more closely matches its namesake from the alternative FFM than dimensions of Extraversion and Conscientiousness, although it entails some of their commonly reported indicators.

The obvious next step is to validate our questionnaires. This will probably provide additional explanation for some unexpected findings reported above. The very finding that personality dimensions extracted in a lexical study correspond to dimensions of psychobiological model such as the alternative FFM deserves further scrutiny. At this moment the similarity between the two models is convincing enough to pose a question about clear demarcation line separating lexical and psychobiological models of personality, a line that was postulated by many authors working in the provocative field of psychology of individual differences.

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## REZIME

### STRUKTURA LEKSIČKIH OPISA LIČNOSTI U SRPSKOM JEZIKU

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U radu su prikazani rezultati dve studije, sprovedene u okviru opsežnije psiholeksičke studije u srpskom jeziku. Inicijalni skup varijabli u psiholeksičkoj studiji činili su opisi ličnosti ekstrahovani iz Rečnika srpskog književnog jezika sa jezičkim savetnikom. Formiranje početnog skupa deskriptora ličnosti sprovedeno je prema nerestriktivnim kriterijumima Telegena i Volera, tako što je sa svake druge stranice rečnika preuzet prvi adekvatan termin koji se odnosi na ličnost. Na taj način, formirana je lista od ukupno 264 deskriptora – imenica, prideva i glagola. Na osnovu ovih opisa, konstruisane su dve forme instrumenta – upitnici Lexi i PL, koji se primarno razlikuju prema načinu formulacije stavki. Ajtemi upitnika Lexi formulisani su tako da sadrže doslovne opise ličnosti iz rečnika, ili verno reprodukuju njihova značenja, dok su stavke druge forme, upitnika PL, konstruisane u obliku rečeničkih iskaza. U prvoj studiji prikazanoj u radu ispitana je latentna struktura prostora merenja upitnika Lexi. Istraživanje je sprovedeno na uzorku od 600 ispitanika oba pola, starosti od 18 do 74 godine. Analizom glavnih komponenti, prema Scree kriterijumu, ekstrahovano je 7 glavnih komponenti, koje obuhvataju 33,67% varijabiliteta sistema varijabli; one su rotirane u Promax poziciju. Promax komponente nazvane su Negativna valenca, Negativna emocionalnost, Agresivnost, Savesnost, Pozitivna emocionalnost, Pozitivna valenca i Otvorenost ka iskustvu. Sadržaj dimenzija ekstrahovanih u prvoj studiji korespondira sa dimenzijama Telegenovog i Volerovog sedmofaktorskog modela ličnosti. Metrijske karakteristike supskala formiranih na osnovu matrice faktorskog sklopa su zadovoljavajuće. U drugoj studiji, sprovedenoj na uzorku od 800 ispitanika starosti 18 – 73 godine, ispitana je latentna struktura prostora merenja upitnika PL. Analizom glavnih komponenti, na osnovu Scree kriterijuma, ekstrahovano je 5 glavnih komponenti koje zajedno obuhvataju 31,59 % varijanse skupa varijabli. Nakon Promax rotacije, komponente su interpretirane kao Socijalnost, Anksioznost, Agresivnost, Aktivitet i Impulsivnost; ove dimenzije sadržajem nalikuju na dimenzije Zakermanovog Alternativnog petofaktorskog modela ličnosti. Podatak da dimenzije ličnosti ekstrahovane na osnovu metoda uobičajenog za leksička istraživanja korespondiraju sa dimenzijama jednog psihobiološkog modela, kao što je Alternativni FFM, svakako bi trebalo još proveravati.

***Ključne reči:*** leksička hipoteza, sedmofaktorski model ličnosti, alternativni petofaktorski model ličnosti

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