

## **ON THE DEFINITION OF CHARACTER OF NATION ON THE BASIS PROVERBS AND SAYINGS WITH MATHEMATICAL MODEL**

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In this paper, the author attempts to develop mathematical model for definition of mentality of a given nation on the basis of its proverbs and sayings. With this purpose all corps of proverbs and sayings of a given nation is shared to the clusters and is allocated the most representative qualities of each clusters. Here is used the Method of the analysis of hierarchies developed by the American mathematician T.Saaty and his employees [1,2], which intends the representation of a studied problem in the hierarchical form. This method consists of the decomposition of a problem to more simple content parts and the further processing judgments by the person making decision, on the basis of pair comparisons.

Premias (proverbs and saying) owing to the composite structure and stylistic registration are symbolical unities of the language form and the morally-utilitarian maintenance expressed in it. The moral and utilitarian norms expressed in paremiae units, in the same culture, as well as in different cultures, can coincide and diametrically differ by the estimations of this or that behaviour. Cultural dominants of language have relative character and are established at comparison of cultures on the basis of quantity of the valuable-marked judgments. Absence or insignificant number of a certain theme testifies about irrelevancy this theme for a valuable picture of the world of the given people. As a result of semantic transformations of the concrete norms of behaviour containing in universal statements, is possible allocation standard complexes or the axioms of behaviour [3]. These axioms can be classified as follows:

1. Interaction axioms:
  - It is impossible to cause harms, it is necessary to create good: **They that sow the wind shall reap the whirlwind.**
  - It is impossible to be ungrateful: **When you drink from the steam, remember the spring.**
  - It is necessary to help each other: **Two heads are better than one.**
  - It is necessary to be courageous, to go on certain risk: **A bold heart is half the battle.**
2. Life-support axioms:
  - It is necessary to work: **No song, no supper.**
  - It is necessary to be patient: **Patient men win the day.**
  - It is impossible to waste time: **A stitch in time saves nine.**
  - It is necessary to hope for the best, to be the optimist: **Cloudy mornings turn to clear afternoons.**
  - It is necessary to hope for the best, to be the optimist: **Greedy eaters dig their graves with their teeth.**
3. Intercourse axioms:
  - It is not necessary to speak much: **Words have wings and cannot be recalled.**
  - It is necessary to be able to forgive to people of an error: **Those who live in glass houses should not throw stones.**
  - It is necessary to be fair: **He that will cheat at play, will cheat you anyway.**
  - It is not necessary to be excessively curious: **He who peeps through a hole, may see what will vex him.**
4. Responsibility axioms:
  - It is necessary to be responsible for the one's acts: **If you leap into the well, the providence is not bound to fetch you out.**

- It is not necessary to correct a bad act with other bad act: **He that falls into the dirt, the longer he stays there the fouler he is.**
  - It is necessary to observe laws: **We live by laws, not by examples.**
5. Management axioms:
- It is not necessary to break another's will: **If the lad go to the well against his will, either the can will break or the water will spill.**
  - It is not necessary to charge one business to the big number of people: **Too many cooks spoiled the broth.**
  - It is not necessary to set a bad example to subordinates: **An army of stags led by a lion would be more formidable than one of lions led by a stag.**
6. Realism axioms:
- It is necessary to start with the possibilities and to hope for own forces: **You cannot have your cake and eat it.**
  - It is impossible to rely on the first impression, it is necessary to aspire to open an essence of things or people: **Still waters have deep bottoms.**
  - It is necessary to know about impossibility of correction of the taken roots lacks and defects: **The fox may grow gray, but never good; The wolf may lose his teeth, but never nature.**
  - It is not necessary to neglect the imperceptible phenomena as they can be of great importance: **The best things come in small packages.**
7. Safety axioms:
- It is not necessary to hasten, making of the serious decision: **Don't count your chickens before they are hatched; Don't sell the skin till you have caught the bear.**
  - It is necessary to be provident: **Don't put all eggs in one basket.**
  - It is necessary to adapt to environment: **Who keeps company with a wolf, should learn to howl.**
8. Prudence axioms:
- It is not necessary to indulge in cares and alarms excessively: **You cannot prevent the birds of sadness from flying over your head, but you can prevent them from nesting in your hair.**
  - It is necessary to be content with that you have: **A bird in the hand is worth two in the bush.**

Method of the analysis of hierarchies demands representation of a surveyed problem in the form consisting of various levels. As the first level hierarchy we will choose the following clusters on which will classify all corps paremias of given nation: Moral qualities, Human existence, Social sphere, Appearance, Emotionally-mental conditions, Labour activity, Behaviour, Physical characteristics, Mental faculties, Morally-ethical representations, Speech, Individuality. The second level of hierarchy we will consider the most representative qualities in framework of everyone cluster. Thus the second level of hierarchy on each level consists from:

**Moral qualities:** care; boldness, resoluteness; greed; arrogance, pride; impudence; levity, carelessness; cowardice; obstinacy; insidiousness, hypocrisy; animosities; curiosity; cunning, flattery; mildness; annoyance.

**Human existence:** life experience; character of a life; everyday difficulties; bad luck, good luck.

**Social sphere:** sociality; subjective estimation; position in a society; children; marriage, family. **Appearance:** appearance – essence; view; growing; gait.

**Emotionally-mental conditions:** Desire, wish; Pleasure, fun; Independence, freedom; Love; Anxiety, fussiness; Fright; Grief; Unwillingness; Awkwardness.

**Labour activity:** Work; Skills; Idleness.

**Behaviour:** acts; punishment, censure; risk.

**Physical characteristics:** age; physical defects; force – weakness; movement; health; satiety; dream; laughter.

**Mental faculties:** wisdom and nonsense.

**Morally-ethical representations:** boasting; ingratitude; praise; hospitality.

**Speech:** garrulity, idle talk; reticence, reserve.

**Individuality:** Individuality.

Let us notice that the same proverb under the maintenance can be included to several various clusters. This fact are confirmed with following examples:

- **He that would have eggs must endure the cackling of hens.** This proverb can be included to the following clusters: "**Emotionally-mental conditions**" (desire, wish) and "**Human existence**" (life experience).
- **The rotten apple injures its neighbours.** This proverb can be included to the following clusters: "**Physical characteristics**" (physical defects) and "**Social sphere**" (position in a society).
- **Can the leopard change his spots?** This proverb can be included to the following clusters: "**Appearance**" (appearance – essence) and category “life experience” of cluster "**Human existence**".
- **You cannot teach old dogs new tricks.** This proverb can be included simultaneously to the three clusters: "**Physical characteristics**" (age), "**Labour activity**" (skills), and "**Human existence**" (life experience).

Let us assume, that all corps of paremias of the certain nation is classified on above-named clusters. There it is necessary to consider that fact, that some paremiae can get to the different categories already defined clusters. Thus, we can define quantity of elements of each cluster separately. Let these numbers will be:  $\varpi_1, \varpi_2, \varpi_3, \dots, \varpi_{12}$ . We form these numbers the following matrix:

$$A = \begin{bmatrix} \varpi_1/\varpi_1 & \varpi_1/\varpi_2 & \varpi_1/\varpi_3 & \dots & \varpi_1/\varpi_{12} \\ \varpi_2/\varpi_1 & \varpi_2/\varpi_2 & \varpi_2/\varpi_3 & \dots & \varpi_2/\varpi_{12} \\ \varpi_3/\varpi_1 & \varpi_3/\varpi_2 & \varpi_3/\varpi_3 & \dots & \varpi_3/\varpi_{12} \\ \dots & \dots & \dots & \dots & \dots \\ \varpi_{12}/\varpi_1 & \varpi_{12}/\varpi_2 & \varpi_{12}/\varpi_3 & \dots & \varpi_{12}/\varpi_{12} \end{bmatrix}$$

If to designate elements of this matrix by  $a_{ij}$ ,  $i, j = 1, 2, \dots, 12$ ; then we will obtain:

$$A = \begin{bmatrix} 1 & a_{12} & a_{13} & \dots & a_{1,12} \\ 1/a_{12} & 1 & a_{23} & \dots & a_{2,12} \\ 1/a_{13} & 1/a_{23} & 1 & \dots & a_{3,12} \\ \dots & \dots & \dots & \dots & \dots \\ 1/a_{1,12} & 1/a_{2,12} & 1/a_{3,12} & \dots & 1 \end{bmatrix}$$

Clearly, that the matrix  $A$  satisfies a reciprocal property:

$$a_{ij} = \frac{1}{a_{ji}} \quad i, j = 1, 2, \dots, 12; \tag{1}$$

Let us consider an eigenvalue problem for the matrix  $A$  :

$$A x = \lambda x, \quad (2)$$

where,  $\lambda$  is a eigenvalue, and  $x = (x_1, x_2, x_3, \dots, x_n)$  is a eigenvector.

It is known, that for a reciprocal matrix takes place

$$\lambda_{\max} \geq n, \quad (3)$$

where,  $\lambda_{\max}$  is greatest eigenvalue,  $n$  is order of the matrix  $A$ . The equality sign takes place only for coherence matrixes [1]. Let us state, that in this paper the matrix elements estimation show percentage of corresponding components to their general number. Therefore all matrixes considered in this works are coherence. That is why we have:

$$Ax = nx \quad (4)$$

which in our case is equivalent to the following equation:

$$Ax = 12x \quad (5)$$

Having solved this equation and normalizing components of eigenvector  $x$  we will obtain:

$$x^I = (x_1^I, x_2^I, x_3^I, \dots, x_{12}^I), \quad (6)$$

where,  $x^I$  is normalized eigenvector for first level of hierarchy.

Now we define percentage of categories of each cluster for the second level of hierarchies. Having chosen a category with the greatest percentage number we form new matrix estimation. Having solved equation (5) for the last matrix and normalizing components of eigenvector  $x$  we will obtain:

$$x^{II} = (x_1^{II}, x_2^{II}, x_3^{II}, \dots, x_{12}^{II}), \quad (7)$$

where,  $x^{II}$  is normalized eigenvector for second level of hierarchy.

Now having multiply components of a vector (6) to the corresponding components of a vector (7) and normalizing components of this vector we will obtain:

$$x^O = (x_1^O, x_2^O, x_3^O, \dots, x_{12}^O) \quad (8)$$

The obtained vector  $x^O$  is the required eigenvector components of which show relative importance of the most important categories of clusters.

Thus, by means of these obtained numbers we can define dominants of national character of given nation.

### Literature

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