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Research Article

Cultural conditionality of stability of same frame scenario binomial phrases in Russian and English

Inna M. Petrova
ORCID: 0000-0003-3060-1387

Moscow City University,
Moscow, Russian Federation
petrovaIM@mgpu.ru

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Abstract

The purpose of this study is to investigate how the variability of a binomial phrase structure correlates with the cultural specificity of the perception of the situation. It has been hypothesized that binomial phrases, such as patience and labour / labour and patience, can be viewed as a relator structure in which cognitive focusing is realized on the basis of such principles as the iconic order of words (positioning of the element of the structure) and distance of the structure elements from each other. The first component of the phrase bears the dominant concept specific to a particular culture. The low variability of the structure indicates that the cognitive focus in this phrase is stable, which means it has categorical values for this linguistic culture. A linguistic experiment based on the corpus-driven approach employing Google yielded the following results: in binomial phrases, comprising nouns of the same frame scenario, dominant and low-dominant concepts generally coincide in two languages, which may be due to the common information space of these abstract concepts; changes in cognitive focus specify cultural perception of these binomial pairs.

Keywords

A binomial phrase, frame scenario, cultural specificity, linguistic experiment, Google

Introduction

Cultural linguistic connections have long been in the focus of linguists' attention, since the ambiguity and variability of these connections is so great that it allows us to interpret language as an element, a part, a fact, a factor, a form, a source, a guardian, a monument, a translator, a condition for the existence of culture. One of the aspects of such connections deals with the relationship between syntax and culture, the study of which was pioneered by Frans Boas who considered that grammar dentifies and classifies various aspects of experience and studies their expression in language. Moreover, it performs another important function: it determines which aspects of a particular experience should be expressed (Jacobson, 1971).

The linguistic representation of reality and modelling of mental processes in the linguistic consciousness is the research field of modern cognitive linguistics, which investigates the process of conceptualization. In this regard, there is a broad study of concepts, which makes it possible to identify categorization specifics when representing real-life objects and processes in the speaker's mind (Baryshnikov, 2014; Boldyrev, 2018; Juilland and Roceric, 2019; Kemmerer, 2019).

The cognitive approach is also applied to the analysis of syntactic structures allowing for investigations into the nature of perception and cognition, and for studying the

relationship between cognitive processes and syntactic structures in the data of different languages. In this respect, researchers have attempted to determine the cognitive mechanisms underlying the production of sentences (Bloch et al., 2009; Boldyrev and Furs, 2004; Furs, 2013; Givon, 1985; Langacker, 1987, 1990, 1991). There are also studies of syntactic concepts (Kazarina, 2008) and syntactic communication (Davydova, 2006; Seagal, 2005). However, little research to date has examined how a phrase structure and its variability are related to the process of conceptualization in different cultures. This paper aims to address this question.

This study establishes how the diversity of the structure's form or its variability correlates with perception specifics in different cultural settings when the same situations are analyzed. A binomial phrase such as *patience and labour* and *labour and patience* acts as a language structure demonstrating the ability to vary. Such structures are considered to be relator structure, built on the basis of the relator (R) which is defined as a linguistic unit "having in its semantic-syntactic structure two syntagmatic slots, or relata (r), and establishing certain semantic-syntactic relations between them" (Langendonck, 2012, p. 410).

In other words, the relator structure is a complex linguistic sign comprising two predicative elements and implemented as a certain scheme, such as: r1–R–r2: *good* (r1) *and* (R) *evil* (r2). A detailed description of relator structures and their types is available in (Petrova, 2020).

Binomials such as e.g. *duty* and *responsibility* are treated as coordinative relator structures in which the relator (R), in the form of the conjunction and, coordinates positioning of the relata (r1, r2) expressed by concepts, which constitute the same frame scenario. Research on the variability of such phrases will make it possible to determine the preferable specificity in the word order of binomials. Word order transformation of a binomial phrase is presented in Table 1.

Table 1. **Cognitive structure of a binomial phrase**

Phrase structure variant	Relatum 1	Relator	Relatum 2
Phrase 1	Concept 1	and	Concept 2
Phrase 2	Concept 2		Concept 1

The subject of the study is the stability of the relator structure, which correlates with the specific word order typical for a language culture. The stability of the relator structure is investigated by considering the variability of the cognitive focus in such structures. The cognitive focus in this study is understood as fixing the speaker's attention on an aspect of reality that is relevant to him / her, which is reflected in the structural organization of the elements of the utterance: in the case of the relator structure, the regulation of attention focusing is implemented on the basis of such principles as the iconic order of words (positioning of the element of the structure) and distance of phrase elements from each other (Petrova, 2020). It is hypothesized that the low variability of the structure indicates that the cognitive focus in this phrase is stable, which means it has categorical values for the given linguistic culture.

Thus, the purpose of this paper is to investigate the stability of binomial pairs placed in one frame scenario in Russian and English and determine which relatum occupies a more stable position in the cognitive focus in two languages. The aforementioned goal was achieved via a number of stages: establishing how variable the binomial phrases are; verifying if there is any change of cognitive focus in two languages with the stable relator structures of the same frame scenario; identifying the connection between the cognitive focus of the phrase and the speakers' preferences for a certain linguistic culture.

Data and methods

Our study's design required following a sequence of research procedures: 1) compiling a list of nominal binomials of the same frame scenario; 2) conducting a linguistic experiment aimed at identifying variability of the binomial structure; 3) comparing binomial pairs of two languages on the scale from the least stable to the most variable.

The Russian Comparative Associative Dictionary (Cherkasova, 2008) was used to form an experimental sample, which reflects the associative-verbal model of the language consciousness of Russians. Concepts expressed by abstract nouns were selected, which showed a significant number of associations. Nine nouns were selected. These nouns were combined into binomial pairs according to the following frame scenarios:

"human labour activity" (patience and labour),

"issues of social relations" (duty and responsibility, rights and duties, accounting and control),

"feelings" (kindness and generosity, love and sex),

"entertainment" (travel and adventures).

The generation of binomial phrases was carried out considering the data of the "Frequency dictionary of the modern Russian language (based on the materials of the National Corpus of the Russian Language)" (Lyashevskaya and Sharov, 2009). This approach allowed us to form the following models of the relator structure of the binomial pair, which in this paper we call **Phrase 1** and **Phrase 2**.

The structure of Phrase 1: *relatum 1 and relatum 2*, where relatum 1, due to the primacy of positioning, fixes the cognitive focus and sets the range of consideration of the situation, and relatum 2 expands the description of this frame scenario, for example, *patience and work* and *patience and perseverance*. Relatum 1 *patience* indicates labour activity and can be included in the *"labour activity"* scenario, whereas relatum 2 *work* or *perseverance* demonstrates the specificity aspect of the frame scenario. **The transformation of this phrase looks like this Phrase 2:** *relatum 2 and relatum 1*, where the position of primacy and cognitive focus is occupied by the concept that performed the function of expansion in Phrase 1. Thus, the essence of the linguistic experiment is to change the positioning of the relata. Position 1 indicates the cognitive focus of the structure and the relatum occupying this position is dominant in the structure. We designate the prior positioning of the relatum in the structure as Phrase 1 and the modified positioning of the relatum in the structure as Phrase 2.

The experimental study of structure variability was carried out on the basis of search queries in Google, which proved to be a reliable source in cognitive and linguacultural corpus studies (Kilgariff 2001; Petrova, 2019b; Souleimanova and Demchenko, 2018). The search engine query was limited by filters ("exact order of elements" and "text in pdf format") to obtain the number of occurrences of competing structures in the form of a text. The obtained data were entered in Table 2 and subjected to mathematical analysis, establishing the difference in the variability of the phrase to identify which of the selected phrases showed stability in the cognitive space of the language data.

To demonstrate this, an example of a binomial included in the frame scenario "human well-being" is used. In Russian, the Phrase 1 *красота и здоровье* (*beauty and health)* has 36,000 occurrences, while Phrase 2 *здоровье и красота* (*health and beauty)* has 21,700 occurrences. These data suggest that, although the relatum *beauty* dominates in this binomial, the importance of the relatum *health* is also high. One can state that the cognitive variability in this case is high, since the percentage ratio of Phrase 1 *beauty and health* and Phrase 2 *health and beauty* is 60.3%. English language data: Phrase 1 *beauty and health* 960,000 and Phrase 2 *health and beauty* 222,000 – show that the relatum *health* dominates in

this pair. Phrase 2 is more stable in English, and the percentage ratio is lower compared to the indicators in Russian: 43.2%. This suggests that there is a change in cognitive focus in the two languages, namely: although relata are variable in Russian, the relatum *beauty* prevails, whereas in English the variability of the relatum is less and preference is given to the relatum *health*. Thus, the analysis of this relational structure allows us to identify features that implement components of the frame script in different languages.

Study and Results

Table 2 presents data on binomials reflecting different frame scenarios, in particular: *"human labour activity" (patience and labour), "issues of social relations" (duty and responsibility, rights and duties, accounting and control), "feelings" (kindness and generosity, love and sex), "entertainment" (travel and adventures)*, etc.

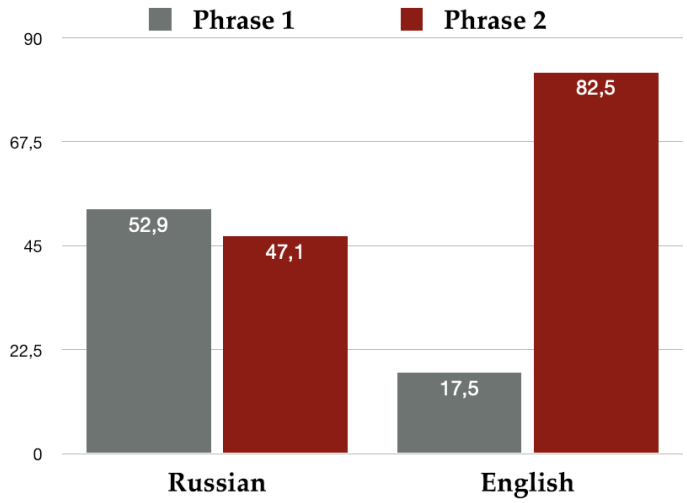
Table 2. **Number of Google occurrences and variability percentage of the relator structure**

Phrase 1	Number of Google occurrences	Phrase 2	Number of Google occurrences	Phrases 1 and 2 (%)	Variability difference of Phrases 1/2 in Russian and English
1	2	3	4	5	6
терпение и труд	15400	труд и терпение	10600	68,8%	11,7
patience and work	634000	work and patience	511000	80,5%	
долг и обязанность	10600	обязанность и долг	1600	15,1%	26
duty and responsibility	467000	responsibility and duty	192000	41,1%	
права и обязанности	1330000	обязанности и права	134000	10,1%	5,9
rights and responsibilities	18300000	responsibilities and rights	768000	4,2%	
учет и контроль	160000	контроль и учет	116000	72,5%	17,1
accounting and control	7690000	control and accounting	4260000	55,4%	
красота и здоровье	36000	здоровье и красота	21700	60,3%	17,1
health and beauty	2220000	beauty and health	960000	43,2%	
путешествия и приключения	3110	приключения и путешествия	1840	59,2%	54
travel and adventure	1620000	adventure and travel	83800	5,2%	
таланты и поклонники	11300	поклонники и таланты	1	8,8%	11,1
talents and fans	15100	fans and talents	3	19,9%	
доброта и щедрость	1790	щедрость и доброта	1010	56,4%	22,1
kindness and generosity	198000	generosity and kindness	67900	34,3%	

Phrase 1	Number of Google occurrences	Phrase 2	Number of Google occurrences	Phrases 1 and 2 (%)	Variability difference of Phrases 1/2 in Russian and English
1	2	3	4	5	6
любовь и секс	6670	секс и любовь	5000	75,0%	13,8
sex and love	516000	love and sex	458000	88,8%	

The data show the average variability percentage of relation structures calculated as the ratio of the number of Phrase 2 occurrences in relation to Phrase 1: Russian – 47.1%, English – 82.5%. Fig. 1 below shows the ratio of the transformed phrases in both languages.

Fig. 1. **Average percentage of occurrences of the r1-R-r2 structure in nominal binomials of one frame scenario (abstract concepts)**



Discussion

The results obtained show that binomials of the same scenario are much more stable in Russian than in English. The variability of the position of relata in English reflects the significant dynamics of cognitive focus. Moreover, there is a change in cognitive focus in several pairs: for example, *beauty and health* (Table 2), where English-language data showed priority positioning of *health*, and Russian-speaking data showed *beauty*. We can also observe the discrepancy of priority ideas illustrated by the structure *love and sex*. Although the variability of the binomial in both languages is quite high, we see that the positioning of the elements does not coincide: in the English phrase *sex* occupies the dominant position as compared to *love*.

Experimental data indicate that abstract concepts included in the relator structure are characterized by rigidity in Russian, whereas in English they are dynamic. Accordingly, the variability of the cognitive focus of such structures in English is higher. At the same time, in binomials associated with the frame scenarios *"human well-being"* and *"feelings"*, there is a change in cognitive focus.

Data on the number of occurrences of Phrase 1 and Phrase 2 allowed us to distribute the obtained material according to the degree of variation of the binomial and compare the structures by the percentage of variation. The results of this comparison are shown in Table 3.

In the course of the study, nine positions were identified, the highest of which are occupied by structures that demonstrate a high variability in cognitive focus; the lowest positions are occupied by the most stable structures. Russian and English demonstrate

the maximum variability in the phrase *love and sex*: Russian – 77%, English – 88.8%. This indicates a high variability of cognitive focus, and in this case, its change is observed. Thus, in the Russian-language material, the dominant structure is Phrase 1, whereas in the English-language material it is Phrase 2, which clearly indicates the priority of different concepts: in Russian it is the concept of *love*, in English it is the concept of *sex*.

Table 3. **Russian and English phrases by the percentage of variation**

Variability degree of cognitive focus (scale 1–6)	Phrase 1 and Phrase 2 (*Russian*)	Structure variability (%)	Phrase 1 and Phrase 2 (*English*)	Structure variability (%)	Variability difference of Russian/English phrases
1	2	3	4	5	*6*
1.	**любовь и секс/ секс и любовь**	75,00%	**sex and love/ love and sex**	88,80%	**13,8**
2.	**учет и контроль/ контроль и учет**	72,50%	**patience and work/ work and patience**	80,50%	**8**
3.	**терпение и труд/ труд и терпение**	68,80%	**accounting and control/ control and accounting**	55,40%	**13,4**
4.	**красота и здоровье/ здоровье и красота**	60,30%	**health and beauty/ beauty and health**	43,20%	**17,1**
5.	**путешествия и приключения/ приключения и путешествия**	59,20%	**duty and responsibility/ responsibility and duty**	41,10%	**18,1**
6.	**доброта и щедрость/ щедрость и доброта**	56,40%	**kindness and generosity/ generosity and kindness**	34,30%	**22,1**
7.	**долг и обязанность/ обязанность и долг**	15,10%	**talents and fans/ fans and talents**	19,90%	**4,8**
8.	**права и обязанности/ обязанности и права**	10,10%	**travel and adventure/ adventure and travel**	5,20%	**4,9**
9.	**таланты и поклонники/ поклонники и таланты**	8,80%	**rights and responsibilities/ responsibilities and rights**	4,20%	**4,6**

Positions 2 and 3, which reflect a high degree of variability of cognitive focus, are occupied by pairs correlated in two languages: *accounting and control* (Russian position 2, English position 3) and *patience and work* (Russian position 3, English position 2).

Position 4 reflects the change in cognitive focus in the binomial: in Russian, Phrase 1 *beauty and health* has more realizations, whereas in English, Phrase 2 *health and beauty* does. Position 6 shows the identity of the degree of variation of the phrase in both languages.

The minimal variability of the cognitive focus and stability of structure in Russian was demonstrated by the pair of *talents and fans* (8.8%, position 9), while in English this was *rights and responsibilities* (4.2%, position 9). The phrase *rights and obligations* occupied position 8 in Russian (10.1%), while in English it was *travel and adventure* (5.2%). Position 7 in Russian belongs to binomial *duty and responsibility* (15.1%), while in English it is *talents and fans* (19.9%). The result indicates that relatum 2 *responsibilities* has a stable position in both languages, while in Russian the most stable pairs are those that include this relatum.

A comparison of the three most stable structures within the experimental material allows us to conclude that the dominant concepts in both languages are as follows: in Russian *talents, rights, duty*, in English *rights, travel, talents*. The coincidence of two stable concepts indicates the proximity of conceptualization processes at this level.

Conclusion

The obtained results are in line with the study's hypothesis that the stability of the binomial phrase is connected with the speaker's preferences in conceptualization determined by the cultural perception of the situation. Structures with a high variability of cognitive focus show the low stability of the conceptual noun in the binomial, which marks the relatively low dominance of this concept in the linguoculture. The three most variable phrases in both languages show that the lowest dominant concepts in both languages are as follows: in Russian it is *love, accounting, patience*, in English it is *sex, patience, accounting*. In this case, a coincidence of two concepts (*accounting* and *patience*) is observed and a change in cognitive focus takes place. We also note the complete coincidence of the significant concept of *kindness* in both languages. Thus, a comparative analysis shows that dominant and low-dominant concepts generally coincide in two languages, which may be due to an almost unified information space in which these abstract concepts are implemented.

These findings are consistent with previous research (Petrova, 2019a; Petrova, 2020; Souleimanova and Demchenko, 2018; Suleimanova and Petrova, 2020), which states that there is a clear correlation between cultural conditionality and variability of the word order in a phrase. The emergence of advances in Big Data analysis allowed us to conduct cross-cultural studies which combine the linguistic and cognitive approaches to research in a cultural specificity.

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About the author

Inna M. Petrova – Doctor of Philology, Professor, Moscow City University, Moscow, Russian Federation, e-mail: PetrovaIM@mgpu.ru; ORCID: 0000-0003-3060-1387; Scopus Author ID: 57216509093; Researcher ID: X-7285-2018.

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