

Application of Corpus Technologies in Conceptual Studies (based on the Concept Ukraine Actualization in English and Ukrainian Political Media Discourse)

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Abstract. The article is dedicated to the study of concept Ukraine actualization in modern Ukrainian and English political media discourse. It is aimed at the revealing semantic-cognitive peculiarities of language means that verbalize concept's notional, evaluative and imagery-associative content. The purpose of the article is to expose heuristic potential and practical efficiency of corpus and concordance technologies application in conceptual studies. The analysis of the discussed concept was performed on the basis of created textual corpus that includes 412 texts. In the research we apply concordance technology for the creation of concept's nominative field by analyzing the lexical means of direct and indirect concept nominations, their coreferents and associates frequency and distribution. To create the evaluative level of the concept the attention was paid to the frequency and distribution of lexemes with evaluative and emotional meaning. To analyze the conceptual metaphor as a basis of concept's image content modeling the corpus was metaphorically annotated. The corpus based analysis of the frequency and distribution of the concept verbalizers, the analysis of lexical semantics and pragmatics, the consideration of contextual content of concept actualization allowed to develop the frame model of the concept in both discourses and define common cognitive features of the concept Ukraine in the discussed linguistic cultures.

Keywords: corpus linguistics, concept, cognitive modeling.

1 Introduction

The conceptual analysis as a main method of concept study both within the linguo-cognitive and linguo-cultural science allows analyzing a concept as a complex notion, an entity of the general conceptual model of the world. There are several approaches and methodologies of conceptual analysis that include methods of:

- semantic analysis: that consists in interpretation of the most frequent lexical means of concept verbalization and their combination; the cognitive features that form concept's content correspond to the semes of concept's nominative field constituents and are revealed in the result of semantic analysis and on the basis of cognitive interpretations of their lingual associates reflecting all stereotyped knowledge,

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believes, assumptions, values profiling the corresponding phenomenon in the described language culture; the analysis of the dictionary definitions is also an inseparable instrument of concept studies since the lexical system represented in the lexicographic sources reflects the lingual-conceptual system of the world;

- cognitively oriented methods of concept modeling and reconstruction of conceptual correlations carried out by defining the complete conceptual field and logical-semantic relations between its components usually in the form of frames as a formalized description of human verbal activity (texts) in the context of situations;
- experimental methods – with psycholinguistics experiment as the most predicative;
- statistical methods for analyzing concepts verbalizers distribution in their textual realization [11; 13, p.68; 14; 17; 18, p. 58-71].

However in modern conceptual studies there observed the tendency towards integrated comprehensive methodology based on both the application of qualitative and quantitative tools enabling the processing of large textual material with aim of obtaining most objective results [16; 10; 15, p.43-54; 20] by covering the largest possible number of concept expression contexts either in the whole corpus of national language or in intentionally created ones with the purpose of profiling the concept from specific thematic or discursive perspectives. Thus, the corpus technologies in conceptual studies have become the most productive way of conceptual information obtaining and interpreting.

In this paper we aim to reveal the efficiency of corpus based technology in conceptual study and the application of corpus methods for the defining concept UKRAINE nominative field structure and frame modeling of concept's content fields (notional, evaluative and imagery) in modern English and Ukrainian political discourse.

2 The Notion of Text Corpora

Corpus linguistics is a relatively recent method in linguistics. Scholars argue on the definition and typology of corpora. As a rule a corpus is a large computerized collection of texts ranging from, say, 100,000 words to trillions of words containing naturally occurring language and should be representative of a language or language variety. It is most often annotated in some form, for example part-of-speech tagging or some other type of markup. The typology of corpora include the following: general corpora, aiming to reflect a language in its entirety, specialized corpora tailored to a specific variety of the language, dynamic corpora, which are updated regularly, learner corpora, comparable corpora, multimodal corpora, containing not only transcriptions of speech but also records of nonverbal behavior [1; 2; 8; 9]. Computer technology has since facilitated the creation of diverse linguistic corpora. Corpora, thus, allow addressing the variety of research questions and have been applied in a wide range of linguistic disciplines, including lexicography, grammar, discourse analysis, sociolinguistics, language teaching, literary studies, translation studies, forensics, pragmatics, cognitive linguistics, conceptual studies, etc.

3 Creation of the Research Corpus

For the purpose of the research two text corpora were created – English and Ukrainian – that included 400 open access sources texts excerpted from 2014-2017 English and Ukrainian political media discourse. The process encompassed the following stages: data input, conversion and grapheme analysis, annotation, transfer of the annotated text to the corpora and providing access to them. The basic principle of corpora compilation for the analysis of concept Ukraine actualization in modern English and Ukrainian political media discourse was the theory of media information distribution. The selected texts were also chronologically marked.

Further work was performed by application of corpus managers, in our case Ant.Conc 3.2.4w as a search system of statistical information retrieval. The heuristic function of concordance enables the insight into the semantics and pragmatics of the text due to the possibility of words connotations analysis in the large number of contexts, it allows to trace syntagmatic and paradigmatic relations of textual elements and assess them from quantitative and qualitative perspective.

4 Results of Corpus Technologies Application for the Analysis of Concept Ukraine Cognitive Content

In “textual space” concepts enter into semantic relations that create conceptual or associative verbal network of the text. The knots of this network are the dominating concepts-constituents which correlations create and influence the semantic development of the text.

4.1 Cognitive-semantic Parameters of the Concept

The study of cognitive-semantic aspects of the concept textual realization is preceded by the definition of its nominative field. Explicit lexical verbalizers of the concept Ukraine are lexemes Ukraine and its coreferents that represent the concept in their unity or on the basis of metonymic transference: *The EU should not fall into the trap of offering more financial concessions to Kiev, this will only delay the necessary hard choices that need to be made by Ukraine* (see Fig. 1,2); implicit ones are the expressions that describe a corresponding situation of reality by qualitative characteristics defined by interpretations and inferences: *It would see Europe embrace the former Soviet Republic and move the country out from the overbearing shadow of neighboring Russia, currently its largest trading partner.*

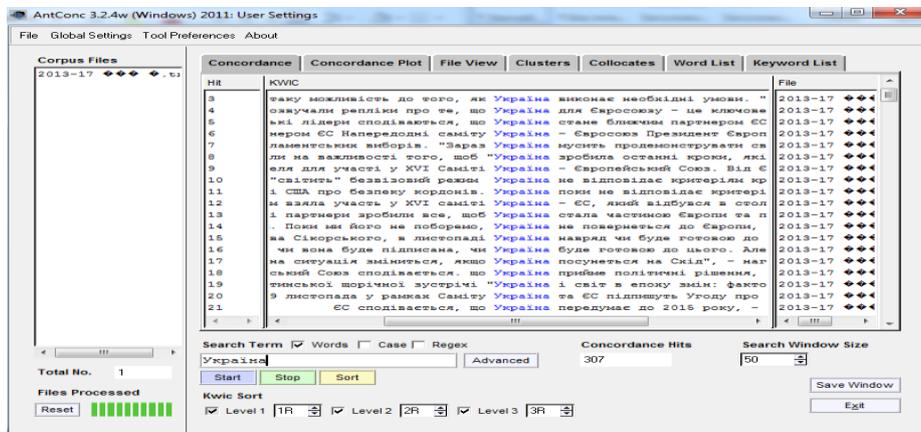


Fig. 1. The context of explicit concept Ukraine lexical verbalizers in Ukrainian political media discourse

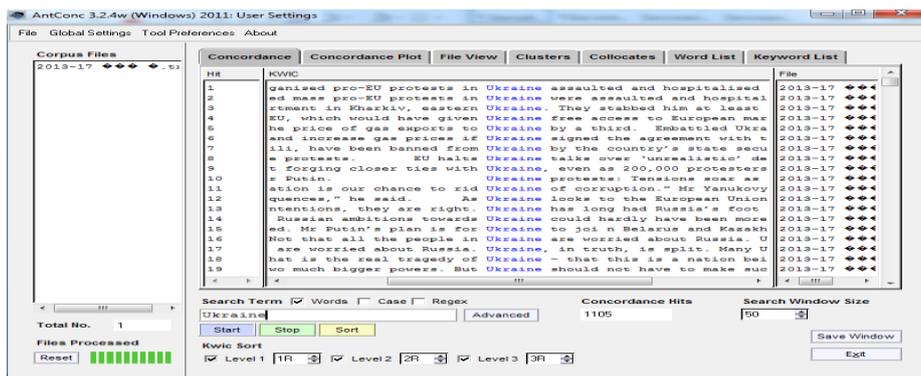


Fig. 2. The context of explicit concept Ukraine lexical verbalizers in English political media discourse

The application of concordance programs makes it possible to define on the basis of lexical frequency the main lexico-semantic fields and their correlation within the corresponding texts. The data obtained in the result of lexemes frequency analysis and lexico-semantic fields definition enabled us to determine the character of contextual environment of concept Ukraine verbalizers-referents both in English and Ukrainian political media discourse, since the concept can be explicable in correlations of its lexical representations and within the context of background knowledge. In modern conceptology the analysis of lexical elements compatibility is one of the most productive ways of conceptual analysis. The analysis of lexical frequency combined with lexico-semantic analysis and contextual analysis enables the identification of explicit and implicit notional-evaluative senses embodied in different language forms of discourse. It also allows for elucidating the dynamics of concept chronological changes.

The formation of conceptual features manifests itself in the “behaviour” of the lexeme, in particular in its combination and distribution. The more frequently the words and expressions that actualize a definite conceptual feature occur together the more proximate are these features to the nucleus of the concept structure. Moreover the analysis of lexical elements combinability frequency contributes to the determination of the conceptual structure and finding out new features of conceptualization.

Thus, the analysis of the concept Ukraine discourse verbalization specificity both in Ukrainian and English political media discourse conducted by application of Ant.Conc 3.2.4w and the above described procedures led to the conclusions about direct and indirect verbalizers, their lexical, semantic, grammatical parameters and lexico-stylistic characteristics.



Fig. 3. The frequency of concept direct nominations in Ukrainian discourse

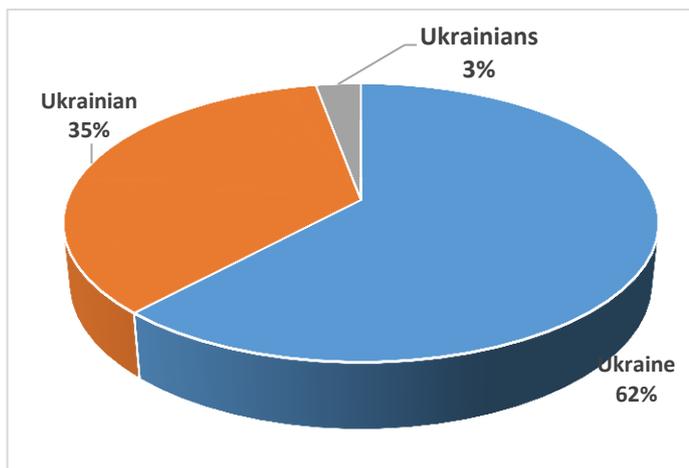


Fig. 4. The frequency of concept direct nominations in English discourse

The most frequent ways of concept nomination are nouns and adjectives Ukraine, Ukrainian the following diagrams (see Fig. 3, 4, 5, 6, 7, 8) reflect the frequency of metonymic concept coreferents and coreferents-associates in the processed texts.



Fig. 5. Concept metonymic coreferents frequency in Ukrainian discourse

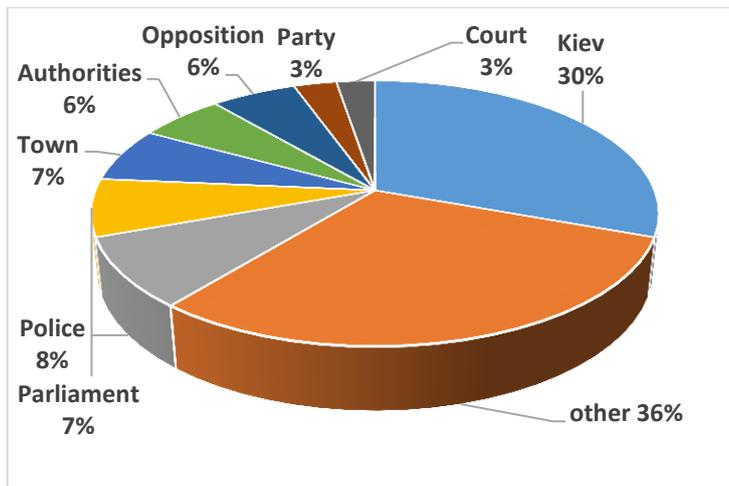


Fig. 6. Concept metonymic coreferents frequency in English discourse

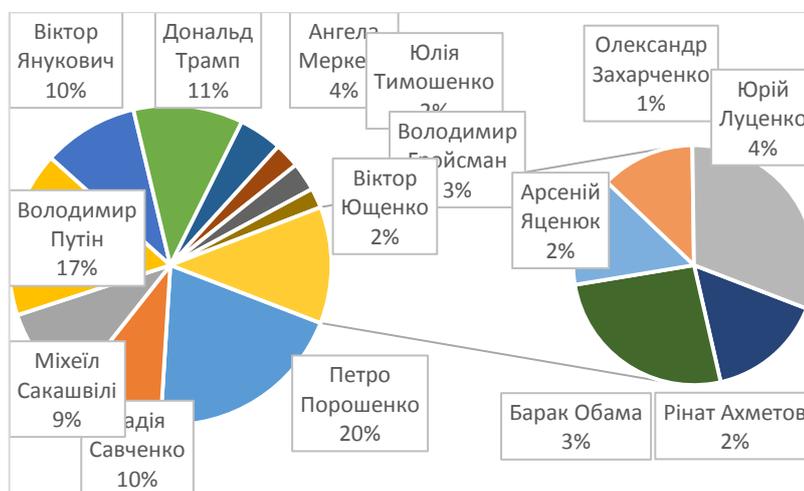


Fig. 7. Frequency of concept coreferent-associates in Ukrainian political media discourse

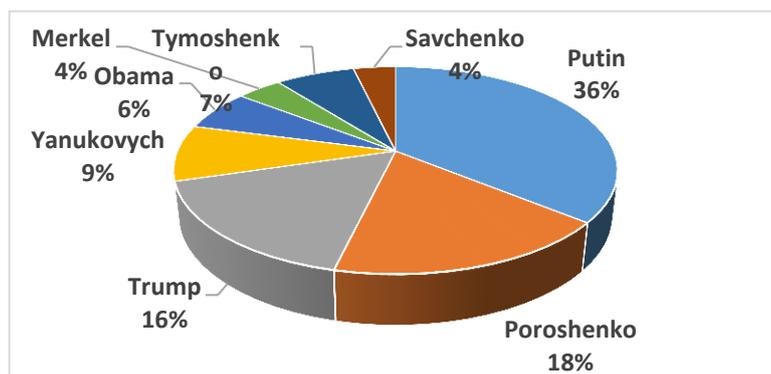


Fig. 8. Frequency of concept coreferent-associates in English political media discourse

The analysis of frequency data and distribution of lexical units enables to determine the dominant lexico-semantic groups that constitute the contextual background of the realization of direct and indirect metonymic coreferents of the concept verbalization. The determined groups we treat as corresponding domains of the concept actualization: in Ukrainian discourse – economy, Ukraine-EU, diplomacy, sanctions against Russia, annexation of Crimea, Revolution of Honour, War on Donbass, terrorism (in dissenting order); in English discourse – Maidan Revolution, diplomacy, terrorism, war in Donbass, economy, annexation of Crimea, Ukraine-EU (in dissenting order) (see Fig. 9, 10).

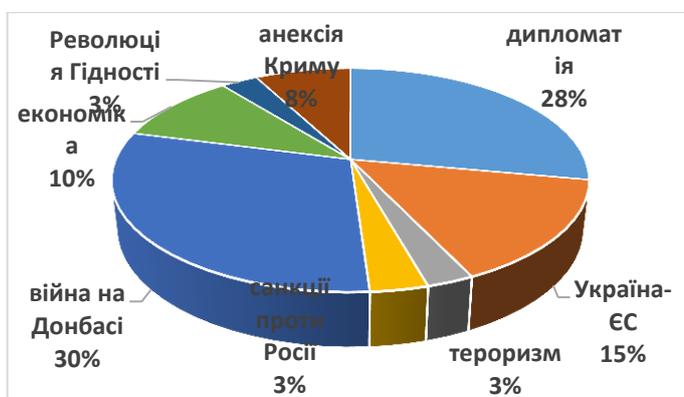


Fig. 9. General distribution of lexical elements belonging to semantic domains in Ukrainian political media discourse

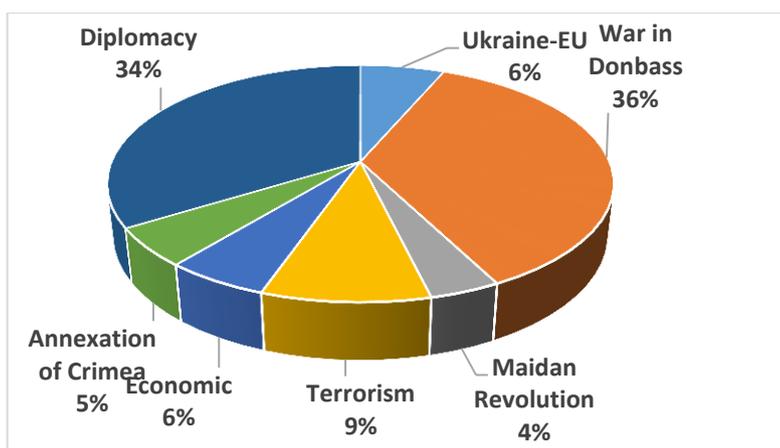


Fig. 10. General distribution of lexical elements belonging to semantic domains in English political media discourse

A special attention has been paid to the frequency and distribution of lexemes with evaluative and emotional meanings defined on the basis of seme-componential analysis: adjectives – *окупований, складний, поранений, проблемний, критичний, ворожий*/ *weak, fragmented, peaceful, heavy, wounded, injured, worst, concerned, dangerous, broken*; nouns – *допомога, окупація, протест, вторгнення, сепаратисти, заручники, ворог, анексія, агресія, атака, насильство, миротворці*/ *riot, protests, peace, rebels, crisis, conflict, aggression, pressure, dead, disaster, victims*; verbs – *боротися, допомагати, захищати, підтримувати, стріляти, воювати*/ *threaten, oppress, kill, fire, blame, combat, mortar, protest, defend, protect, help*.

1. *Baroness Ashton, the EU's foreign policy chief, had travelled to Kiev to try to forge a diplomatic solution to the three-week long crisis, which erupted when Mr Yanukovich abruptly pulled out of a deal promising closer trade and political ties with the EU. Instead, he said he would pursue links with Moscow, angering many Ukrainians who envisage a more prosperous future with the EU.*
2. *Українці вже стали заручниками популістів, які за 25 років створили таку структуру українського суспільства, яка унеможлиблює стійке і динамічне економічне зростання і генерує попит на популізм.*
3. *Нині ми маємо трохи інші умови, ніж у 2013 році. А це багато хто розчарований «результатами» революції. У деякого є банальний страх, що буде тільки гірше. Усі ці речі поки блокують можливість соціального вибуху. Стримує також війна на сході країни. Однак негатив накопичуватиметься. Не треба забувати про прийняті парламентом зміни, які називають реформами... Саме це й може спричинити масштабні протести», - пояснює експерт.*

The frequency of lexeme with axiological semantics demonstrates the considerable prevalence of negative verbalizers. The defined lexical units display the axiological parameters of the defined conceptual domains (such as political/economic stability/instability; maturity/immaturity; intrusion of power in to the processes of democracy; welfare, corruption, etc.) that specify and complicate the structure of corresponding domains, ascribing them additional characteristics and features.

4.2 Imagery and Axiological Parameters of the Concept

In the scope of cognitive linguistics cognitive metaphor is considered one of the aspects of conceptualization which is defined not only as a language phenomenon but as instrument of cognition, information processing and reflection of reality and knowledge structuring [19]. The theory of conceptual metaphor operates with the notions of “conceptual referent” (target mental sphere, denotative zone, target domain, the direction of metaphoric expansion) construed as a denotative substance identified by metaphor; and conceptual correlate (source mental sphere, donor sphere, source domain, source of metaphoric expansion) understood as a concept engaged in the comparison. The ground of metaphor is the correlation between the referent and correlate that contain a certain aspect, features as a basis for comparison, general characteristic. In this respect the context plays a decisive role in identification of the aspect of metaphorization [7].

The metaphoric model is determined on the basis of semantic analysis of the set of language means that, represent a certain conceptual sphere and create typical traditional taxonomic clusters united by one notion, for example the model of war, mechanism, body, theatre, medicine, etc. [12,p.79]. the metaphoric model is open, capable of developing and engaging different new components that enrich and complicate the metaphoric image.

The concept Ukraine is a dynamic mental entity constructed in the process of interrelation of subjects of modern Ukrainian and English political media discourse in the result of embodiment of notional-evaluative content in the names of referents that represent Ukraine metaphorically. To analyze metaphoric actualization of the concept in the discourse the corpus technologies have also been applied.

For this purpose the corpus annotation was performed with the aim of metaphors search facilitation. The process of corpus annotation was the following:

manual search of metaphors and ascribing a corresponding category;
usage of tags <met>...</met> the define and frame the metaphor;
usage of tags <person>V</person> , <ontology>V</ontology>, <body>V</body>, <structure>V</structure>, <space>V</space> , <person>V</person>, <colour>V</colour> for framing the type of the metaphor.

For example:

```
<met>As Ukraine looks to the European Union for guidance</met>
  <person>V</person>
<met>Council of Europe head </met>
  <body>V</body>
<met>шукати дипломатичні шляхи </met>
  <space>V</space>
<met>Зроблено перший крок на шляху очищення влади</met>
  <ontology>V</ontology>
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The analyzed verbal material and empirical data processing on the basis of corpus technologies enabled to define the following ways of the concept Ukraine metaphORIZATION in the Ukrainian language:

- spatial metaphor – space and location;
- ontological metaphor – the process of metaphORIZATION highlights the emotional expression, impression/ the level of concept value/ size/dimension (*мають європейські ідеї глибше, перемир'я стає все більш крихким, ця правда гірка, велика інформаційна хвиля; Євромайдан є паростком нової сили*);
- structural metaphor – the process of metaphORIZATION highlights function and form (*проведення "круглого столу", заморозити банківські рахунки*);
- metaphor personification (*Брюссель ніколи не говорив з Україною, Україна зробила останні кроки, Україна прийме політичні рішення, Німеччина обіцяє їй надалі активно підтримувати Україну, Україна, власне, захищає собою Європу*);
- metaphORIZATION of colour (*озброєні зелені чоловічки, чорна бухгалтерія партії регіонів, зелене світло іноземним інвесторам*);
- metaphor-metaphonymy – part-whole relations (*на чолі української делегації, Європа збереже обличчя, лишити на шії України, рука Вашингтона*)

And practically identical ones in the English language:

- spatial metaphor - space/place (*move out of the orbit of Russia, single political space, pave the way for deals*);
- ontological metaphor – emotional impression/ degree of value/amount (*sharply divided, “chain” the Russian bear, deep concern, wave of sanctions, stream of information*);
- Structural metaphor – function/form (*fork in the road, Leaders hammer out new truce, beacon of progress*);
- metaphor-personification (*Ukraine signed the agreement, Ukraine is expected to take a momentous step, blaming Ukraine for the crash, wounded Ukraine*);
- metaphorization of colour (*Orange Revolution, green men, white flags, red line*);
- metaphor-metonymy – part of the body (*foreign hand, head of the referendum, Russia’s hand is deeply engaged in this, nose of the aircraft*);
- idiomatic expressions (*leave the ball firmly in the court of, knee-jerk reaction, fall on deaf ears, have the ears of*).

The following diagrams represent the results of metaphors types frequency analysis in the discussed languages (see Fig.11, 12) .

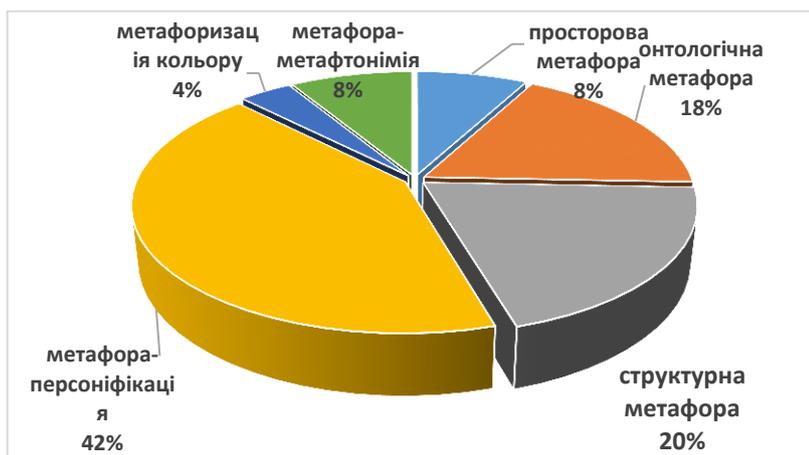


Fig. 11. The main metaphoric models of concept Ukraine actualization in Ukrainian political media discourse

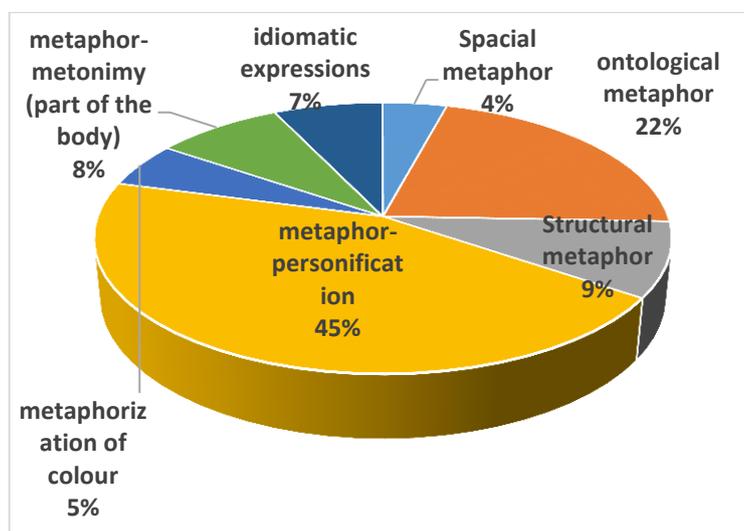


Fig. 12. The main metaphoric models of concept Ukraine actualization in English political media discourse

As it is demonstrated by the statistic data personification is the most frequent type of metaphorization: in Ukrainian 42% and in English 45% correspondingly. The least frequent type of metaphor is colour and spatial metaphor: in Ukrainian 4% and in English 8% correspondingly.

Both linguistic cultures personify Ukraine as a human being in the metaphoric model UKRAINE – HUMAN BEING:

- subject of activity (act, obtain, give, loose, catch wait): *As Ukraine looks to the European Union for guidance; Ukraine is expected to take a historic step towards the; the entire Ukraine strives for peace; that Ukraine was prepared to accept;*
- subject of communicative interaction (speak, inform, discuss, negotiate, reject, ask): *Ukraine said its anti-terror operation would continue; Україна мусить продемонструвати свою чітку політичну волю та зробити рішучі кроки; Ми ведемо діалог з Україною;*
- subject of performing definite cognitive acts (control, decide): *Ukraine risks a return to the pattern of; країна зацікавлена в тому; Україна добре знає;*
- subject of psychological/physical state (doubt, hesitate, worry, suffer): *Ukraine is suffering a "civil war; воля України направлена на...*

The second in frequency is ontological metaphor which reflects the ideas of British and Ukrainian politicians about Ukraine in the whole and its state, situation, events as objects of values and emotional interpretation. The state of Ukraine/ notions and associations – are bitter substance, torn material, valuable /invaluable, fragility, turbulence, etc. Definite aspects of cognitive representation of Ukraine are embodied in

terms of low or high temperatures – fire, cold, ice: *populist fire; Ukraine has experienced damaging turbulence; war-torn east; torn Ukraine.*

Consequently the core of the imagery level of the concept consists of metaphoric transference Ukraine – Human being and Ukraine – substance, material with definite physical characteristics. Structural and spatial metaphors constitute near nucleus zone of the concept structure. Among the productive mechanisms of metaphorization there are notions of motion in general, motion in the space which dynamics and character have corresponding associations. For example, up and ahead – positive; back and down – negative. Both English and Ukrainian discourses employ the metaphor of motion, orbit and way – *шукати дипломатичні шляхи, дорога до Європи відкрита, move out of the orbit of Russia, east of Ukraine remains within its orbit.* In the structural metaphors the axiological component is expressed as an associative aureole of a certain stereotypical action or situation in the function of the source of metaphoric transference – *injection of fresh forces, knee-jerk reaction.* On the periphery of the concept structure there are metaphor-metaphonymy, metaphor of colour and, in the English political discourse, there are metaphoric idiomatic expressions traditionally connected to the conceptual spheres of sport, cuisine and health.

Thus the imagery and axiological levels of concept structure reflect the cognitive features of the concept that simultaneously represent a corresponding fragment of the reality, state and processes of social-political character and their either positive or negative evaluation.

4.3 Frame Representation of Concept Cognitive Model

Irrespective of the expansion of conceptual studies in the modern linguistics there is no unanimously accepted algorithm of concept modeling technics. The process of concept cognitive-semantic modeling unites new and traditional approaches – cognitive and semantic. Moreover in concepts modeling a specific attention is paid to their characteristics determined by pragmatic parameters of discourse, worldview and ideological intentions. Semantic analysis that is directed towards the word meaning in its correlation with other lexical units is combined with conceptual analysis of the sense which constitutes the ground for grouping the words into definite categories [3; 4; 20]. Cognitive-semantic, stylistic, lexico-grammatical analysis allows to define micro concepts-components and related concepts, to identify their usual and occasional characteristics.

Informative richness of the concepts actualized in the political discourse determines the complexity of their structure that encompasses notional, image-associative and evaluative layers. Since each level has its own peculiarities of lingual objectivation and is characterized by a certain unity of lingual mental markers, by the scope of accumulated information scholars suggest different ways of concept layers arrangement modeling.

Concept structural organization can be represented in the form of frames. The linguistic consideration of frame is closely connected with the content aspect of a lingual sign that embodies logically arranged information about a certain fragment of reality, however the creation of the concept frame is rather disputable and depends both on

the type of the concept and discourse. Cognitive semantic approach to the creation of conceptual frames presupposes the generalization concerning mental structures underlying the different types of language signs [5; 6].

The productive understanding of frame in linguistics derives from its philosophical treatment as information data shaped in a certain way in order to represent a definite stereotyped situation. Graphically frame can be represented in the form multilayer network with knots defining specific types of correlations. The upper terminal knots of the network are created by notions that represent the situation in its most general aspects. Subterminal knots as frame obligatory components modify and extend the general situation. Generalizing all existing varieties of frame definition and its relation to the notion of concept we substantiate the following: frame is a set of standardized actual and potential knowledge about the phenomenon in question that has a complex multicomponential structure and forms a holistic understanding of a certain concept.

The application of the methods of descriptive, interpretative, semantic and componential analysis of discourse verbal material, the procedures and principles of contextual analysis and quantitative analysis of the results obtained by application of corpus technologies enabled to reveal the influence of broad social and cultural context in which the concept is realized and where the character of language and conceptual picture of the world is reflected.

The analysis of concept Ukraine verbalizers in the political discourses of both languages, the analysis of the lexical representation of the defined domains supplemented by the analysis of contextual semantics of direct and indirect (explicit and implicit) verbalizers of the concept, metonymic referents and associative coreferents and their pragmatic meanings within the selected discursive fragments testify the high semantic similarity of logical-informative and evaluative character of the concept Ukraine actualization in both discussed linguistic cultures at a current stage (see Fig.13). In the process of the research there has been analyzed the correlation of the logical-informative aspects of the discourse displayed in the filling of the conceptual domains and its pragmatic-axiological aspect expressed in the system of evaluative senses verbalized on the different structural levels of the discourse – from a word to an expression.

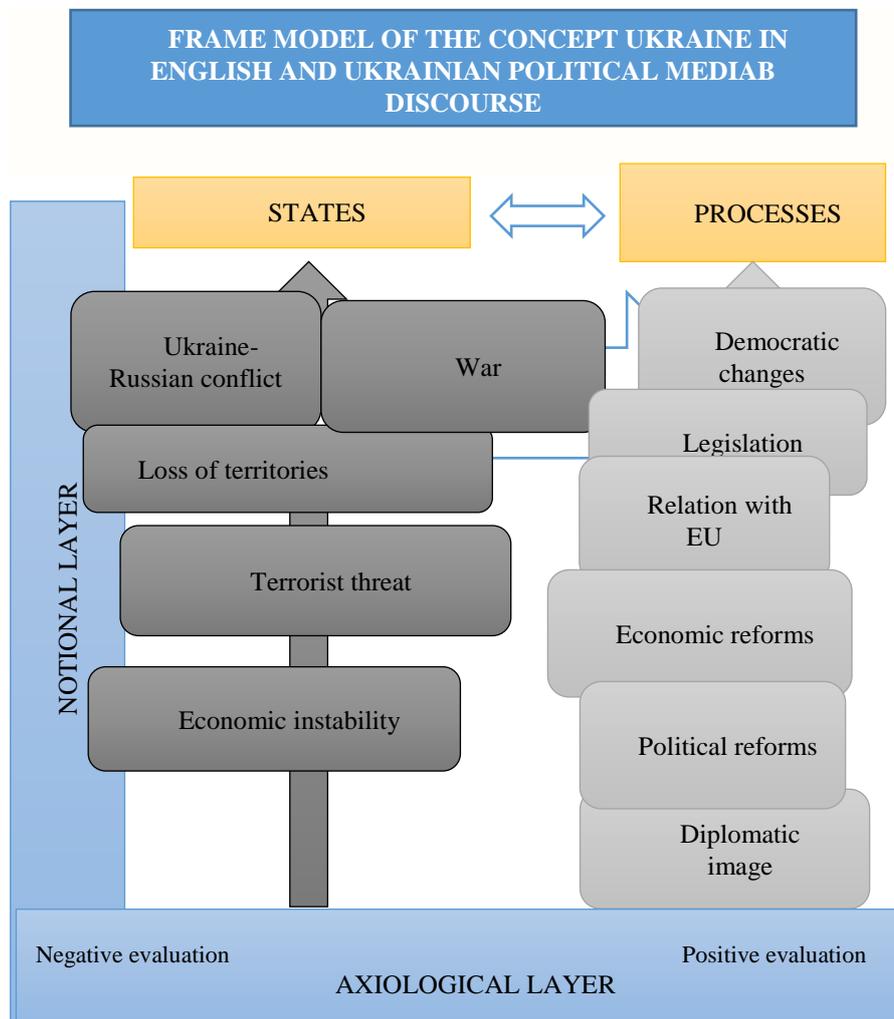


Fig. 13. The structure of correlation of notional and axiological layers on the concept Ukraine

Thus, the concept Ukraine contains two terminals “States” and “Processes” consisting of the slots that correlate with corresponding conceptual domains:

- slots war in Donbass, attack, violence, terrorism, Annexation of Crimea);
- slots “economic instability” (“economy”, currency, crisis, market) are negatively marked;
- slots “democratic changes”, “diplomatic image”, “legislation”, “Ukraine-EU” (“diplomacy”, “Maidan Revolution”, “economy”, “Ukraine-EU”, European Union, association, agreement) are positively marked.

Consequently, the notional and axiological levels of the concept have been represented in the form of a frame which slots display the defined cognitive features of the concept that recreate a corresponding aspect of the reality, state and processes of sociologically-political character, their positive or negative evaluation.

5 Conclusions

Concept is a complex structured unity which is characterized by a specific interrelation of several layers. The notional layer is factual information – a propositional knowledge: empirical, encyclopedic, prototypical, stereotypical formed as a set of definitional features that are fixed by language forms. The imagery layer of the concept is knowledge, images and associations arising in the consciousness in connection with a certain denotation. It is created on the basis of generalized image in which the individual and collective knowledge manifest itself, it is based on the category of imagery as an ability of language units to create perceptible notions and ideas concerning certain phenomena or things in the reality. Axiological layer of the concept is determined by the place which a name of the concept occupies in the system of national linguistic consciousness and in national picture of the world and is realized in the unity of ethno-psychological, social discursive and linguo-cultural aspects, it reflects the evaluation of a certain phenomenon, the human individual and social attitude towards the described object of reality.

The sign of national language in their discursive actualization are the main objective empirical data for the revealing of conceptual information and comprehensive conceptual analysis performance. Any existing programming tools that facilitate the processing of extensive mass of language material are a productive way to carry out conceptual analysis in itself or serve as a supplementary instrument of investigations. Corpus and concordance technologies applied to the study of discursive actualization of the concept Ukraine in Ukrainian and English political media discourse maintained by a unity of linguistic semantic and cognitive interpretation procedures prove their heuristic and scientific potential.

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