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**DATA-VISUALIZING LANGUAGE UML AND METALANGUAGE
USC FOR HISTORICAL MEMES STUDIES**

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Abstract

The article presents the use of the graphical data representation language UML and the metalanguage of semantic descriptions of the USC for the study of a meme as a means of broadcasting historical memory (using the example of a meme about cat-chroniclers). The authors propose a variant of formal languages and models for working not only with linguistic, but also with extralinguistic information. This can be the initial stage in the creation of the graphic corpus of this meme, its variants and transformations. In this case, the created formal descriptions can be used as an integral part of the markup of the formed image corpus. It was found that the set of basic tigens present in each version of the meme is generally the same, although the semantic content of the corresponding tigens may vary. Over time, the analyzed meme changes more and more, transforming into a memplex, and departing further from the basic version. Often, from the basic variant in such transformations, only the initial structural "frame" is left, filled with a completely different semantic content.

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1. Introduction

The digital content produced by social media users is characterized by its diversity and multitude of forms. In terms of the logic of genre hybridization, it can be easily adapted to a wide variety of tasks. It sheds light on this process in the age of pandemic restriction and isolation that may be considered as a unique situation of uncertainty. There we observed an overall increase in Internet traffic that is comparable to seasonal growth during periods of vacations in the time of rigid quarantine constraints. According to the report of Global Web Index in April 2020, 45% of users began to spend more time on social media (GWI. Coronavirus Research, 2020). The unprecedented widespread use of social media during this period to maintain contact, as well as an increase in the consumption of media content up to 60%, was also shown in the exploration of Nielsen.com (Staying put:..., 2021). The growth was accompanied by an increase in the media literacy of the population, so there are no grounds for predicting its further decline at the time.

Content consumption implies its production. The so-called “non-selling” entertaining content on social media is created mainly by users. The task of such content is to maintain and to facilitate contact and informal communication. The growth of interest in this type of content, the emergence of its new types and their functions are not typical of such content and can be considered as a logical step. Internet memes are no exception. They are traditionally considered as operational methods of responding to the urgent problems of the day. The number of serial ongoing memes has increased in circumstances of forced self-isolation along with the intensification of media agenda. It is not so typical of this genre by itself.

One of such memes, known as “Natasha, wake up! We have thrown down everything there!”, caused a big wave of modifications referred to the socio-political changes in the country. Moreover, the series of memes “devoted to Natasha” have been repeatedly described by Internet users as “chronicler cats” memes, since they have been representing (and continue to represent) the most significant events in the life of Russia since March 2020. We assume that the “chronicler cats” case got their nature as a result of an inverse functional transformation of a meme. The sense of this transformation is that a meme from a viral cliché assessment tool turns into an instrument of historical memory maintenance. Later, it functions as a living interactive chronicle in a destabilizing situation the super-fast unexpected events happen in.

2. Problem Statement

The appearance of the term “meme” is commonly associated with the book “The Selfish Gene” written by Dawkins (1976). However, this connection is obviously “tradition-based” due to the fact that the concept of meme in the R. Dawkins’ theory seems to be a cultural universal phenomenon. Contrary, the meme as a type of digital content is an empirical phenomenon. Internet meme got its right to be an object of scholar analysis from the middle of the first decade of the 21st century. The reasons of it are that the pictures with various inscriptions started to gain popularity among users. Accordingly, these pictures began to displace the “classic” text forms of web folklore (jokes, stories, humorous tales). Early studies are focused on incorporating its object into the categorical series of socio-cultural research. Their key idea was that meme was a new form of culture. Thus, Situngkir (2004) describes memes as an element of cultural evolutionary processes and assumes that an interdisciplinary links between memetics (in R. Dawkins’ consideration) and the theory of cultural evolution are in equivalence.

On this basis, three areas of meme studies were divided (mostly arbitrary). They are the analysis of the meme diffusion in social media, the study (mainly in terms of linguistics and semiotics) of the ways of conjugation of meme elements as a form of media text, and the survey of the interaction of memes and the political agenda. This includes studies of that type have been carried out on the bases of political processes in most detail, first, on the bases of election campaigns. We mentioned Spitzberg's (2014) article that synthesizes the findings of theory of evolution, information theory, the theory of memes, frame analysis, general systems theory, social identity theory, communicative competence theory. There is the theory of narrative rationality, social media monitoring and theory of wide spreading innovations to model the diffusion process of memes (Spitzberg, 2014) as an example of the network approach applying to analysis of memes. Later, the study of Johann and Bülov (2019) combined the linguistic approach to describing the memes, the meme diffusion model and the concept of diffusion of innovations.

The second trend is represented by the works of Shifman (2013). The scholar proposes own definition of meme using communication-oriented graphs, and comprises typology of 3-dimensional memetic space that include content, shape and position. The increasing complexity of research tasks can be seen in the research program of the Nissenbaum's and Shifman's (2017) article. Their project of exploration focuses on the study of linguistic globalization trends on the bases of meme templates taken from the website of online meme constructor. The third direction can be formed by the studies of Seiffert-Brockmann and co-authors. They make an attempt to reveal the circumstances and terms of the dominance of specific types of memes in the political Internet discourse (Seiffert-Brockmann et al., 2018). The researchers associate the popularity of specific kinds of memes with the coincidences of three types of communicative logic: wasteful play online, social media political expression, and cultural evolution.

Exploration of memes includes in the field of meme studies currently. The latter represents a new direction in digital humanities that integrates the methods of digital ethnography and autoethnography, sociometry of social networks, and various types of historical research on the Internet. The main digital platform is «Meme Studies Research Network» (<https://memestudiesrn.wordpress.com/>) that integrates many resources. The regular discussions and meetings in the problem field of memes are carried out on the platform Discord, research text are available on Google Docs, a marketing platform MailChimp is used for mailing lists, the web site itself is maintained by WordPress, and Twitter is functioned as the social media. The founder of the project is Idil Galip, a PhD candidate in sociology at the University of Edinburgh. Research literature on memes presented on the resource is classified under the following thematic fields: "Art, Aesthetics" (23 titles), "Feminism, Gender" (19 titles), "Identity" (37 titles), "Linguistics, Semiotics" (23 titles), " Memes as capital" (23 titles), "Politics, Citizenship" (37 titles), "Sociology of humour" (14 titles), "Trolling, antagonism" (11 titles), "To be filed" (63 titles). As of June 2021, it includes 250 sources.

Of course, the contemporary meme studies take into account the variability of its subject. The postulate of Chen and Ong (2012) has a methodological importance for our work: it is stated that some co-adapted meme complexes (so-called memeplexes) exist. They are a jointly adapted stable set of mutually supportive memes that function together to achieve more effects than each meme could achieve alone.

However, large series of memes are rather quite exceptional. Meme that is under our examination has been grown on the basis of photos. They depict two cats waking a woman, covered with a blanket

(https://vk.com/wall-33621085_224129, “Котизм” (“Kotism”¹) community, date of publication 16 December 2019). The picture transformed into a canonical template quite quickly. The heads of four cats can be seen on such templates: three ones are looking into the camera of a lying smartphone, one is looking up, each cat says his own words: -“Natasha, are you sleeping?”; -“It's already 6 a.m., Natasha”; -“Wake up, we have thrown down everything there”; -“Honestly, we have thrown down everything, Natasha”. Natasha is a collective female image appears often on memes in “Kotism” community. That image represents a typical female owner of these animals (a grotesque stereotype image of Natasha is so: she is 40 years old, she is single, but she got 40 cats). In the wide space of social networks, the diminutive form of the name “Natasha” (from Russian proper name “Natalia/Natalia”) is used as generalize signification the collective Russian female image in countries of Middle East. The image and the corresponding nominative unit also has long fictional and ethnographic history. So, a similar phenomenon of the usage of a proper name in a diminutive form is represented in some writings by N.S. Leskov:

““And why, may we ask, do you call them all Kolyas and Natashas?”

“That's Tatar lingo. They call all grown-up Russians Ivan, women are Natasha and boys are Kolya. Although my wives were the Tatars, they called them Natasha on account of me and the boys they called Kolya. It goes without saying that that's all superficial, because they never received the church sacraments and I did not consider them my children” (Leskov. *Enchanted wanderer*)².

This fragment represents the process of transformation of the proper nominative unit into appellative (common noun). Thus, the fragment of the “*Enchanted wanderer*” figures out how Russian proper names are perceived by people of other linguistic culture (in this case, Tatar, i.e. Turkic linguistic culture). In other linguistic cultures, the proper name “Natasha” was the object of desemantization and got its usage as a common nominative unit for Russian and Russian-speaking women.

Although the name “Natalia”/“Nataliya” does not include in the list of the frequent female names in the pre-revolutionary age, its choice to actualize that meme can be explained by the frequency of its distribution in subsequent historical periods. So, Vrublevskaia (2015), based on the statistical processing of a large array of data on the male and female names in the period from 1890 to 2014, states in her article that the name “Natalia” has been in the list of the ten most frequent female names for almost 50 years (1940 – 1990-s) (pp. 45-46).

Such processes are not something specific phenomena of Russian linguistic culture. Typological parallels to the mentioned observations can be found in Tok-Pisin language (English-based creole language of New Guinea). The Tok-Pisin word *meri* is used as a common women signification (Dyachkov et al., 1981, p. 66). In particular, *meri wantok* has meaning ‘woman who knows Tok-Pisin, who speaks in it’. This word has its stem in English proper name *Mary* as the most part of Tok-Pisin vocabulary borrowed from English. The frequency of this name in English system of female proper names has led to the fact that it has lost its specificity as proper name in Tok-Pisin. This word has begun to function as an element of Tok-Pisin appellative vocabulary.

1 It stems from the Russian word *кот* for cat and suffix *-изм* that is frequent in international words have meaning ‘ideology, politic theory, metaphysical system’ (for example, *коммунизм* ‘communism’, *пантеизм* ‘pantheism’).

2 Translation from Russian by G.H. Hanna. Citation from N.S. Leskov. *The Enchanted Wanderer and other stories*. Moscow: Foreign language publishing house, 1958.

The historical context in the analyzed meme was included through the political agenda. It is associated with the some restrictions related to the COVID-19 pandemic and the changes of the Constitution of the Russian Federation. The meme begins to function not only as a way of reaction on the current social and political events but also as a way of their fixing very quickly. So, the methodological approaches to studying the historical memes do not differ fundamentally from the methods and principles of political meme exploration. However, it needs to take into account some criteria of demarcation (that have been proposed in the field of memory studies) of historical knowledge and the mass representations of historical events (images of the Past). The fundamental methodological challenge of our research is as follows: the exploration in “chronicler cats” meme is associated with some descriptive difficulties. It is difficult to find research methods suitable for fixing the dynamics of both the visual component and the verbal content. The stable patterns of the meme structure seem to be the following ones: the presence of several cats depicted (both in the top part and in the bottom part of an image) and the text “Natasha, wake up, we ... all there, everything, Natasha!” However, there are memes in the series in which cats are replaced by other creatures, the visual composition has been changed completely, and there are no “traditional” phrases. Nevertheless, such memes retain the properties that refer recipients to images of Natasha and her cats.

3. Research Questions

Thus, the object of the research is the meme, dedicated to the chronicler cats, the varieties of this meme and its transformations (our general array of the analyzed meme and its varieties contains more than 150 units). Since a meme is a polycode text (it means that it consists of not only the verbal-semiotic but also of graphic components), this determines the specifics of their research. In particular, it allows using of formal models and formal modeling languages. It is necessary not to underestimate the high variability both verbal-semiotic and non-verbal content elements.

Accordingly, it needs to adapt formal languages and models to work not only with linguistic, but also with extralinguistic information (a description of such two formal languages are the main tools of our study is presented below). At the same time, one should also take into account the fact that variants and transformations of a meme may include references to other memes and phenomena of mass culture in themselves, as well as corresponding verbal and graphic structural parts, thus forming complex multi-part memes (they are signified as memeplexes).

Based on these considerations, it can be postulated that the creation of formal models of the semantic content of the meme about the chronicler cats and the creation of formal representations of their semantics can be considered as the initial stage in the development of the graphic corpus of this meme, its versions and transformations. In that case, this tokenization based on the formal models and representation of meme semantics can be used as an integral part of that corpus of meme images (serving as tool of annotation).

4. Purpose of the Study

Consequently, the main goal of our study is to develop research toolkit based on the data-visualizing language UML and the metalanguage of semantic descriptions USC for analysing a meme as a means of

historical memory translation. We have chosen the meme “chronicler cats” as an empiric evidence of the study.

To achieve the goal, the following tasks were set:

1. To determine the main types of entities and interactions between them, presented in various variants and transformations of the analyzed meme, using the metalanguage of semantic descriptions USC.
2. To create formal representations of the semantics of the analyzed meme, its variants and transformations using the metalanguage USC.
3. To represent the graphical schemes of development and transformation of the analyzed meme by the UML diagrams.
4. To classify different variants of meme using the UML tools of data visualization.

5. Research Methods

Some metalanguage for formalizing the semantics and representing the knowledge is well-known. The main groups of such metalanguages are discussed in the book of Martynov (2001). We assume that some of these metalanguages can be applied both for description and for analysis of meme semantics.

We postulate that such metalanguages can be suitable not only for formalized description of linguistic phenomena, but also for the semantic analysis of non-verbal complex objects, such as Internet memes (that could be considered as creolized polycode texts).

We use the “Universal Semantic Code” (USC) as a means of metadescription of semantics within the framework of the present study. This metalanguage has been created by Belorussian linguist Martynov (2001). The choice of this metalanguage is due to the fact that it provides the most complete explication of meaning. It can be possible to form new concepts with the help of USC, as well as it allows to formalize causes and effects. USC is a deductive system, it has its own means and ways of representing and transforming the semantics, this metalanguage is generated strongly axiomatically. That is, it is calculated and not presented empirically, unlike other semantic metalanguages (Martynov, 2001, p. 44-46).

One of the main advantages of USC is that “the restrictions imposed on USC do not really depend which part of the world it describes on” (Martynov, 2001, p. 44). This property of USC determines its choice as a metalanguage of description. Such is the sense of term “universal” in the name USC.

Based on Martynov’s (2001) observations, we can conclude that this metalanguage is suitable to the formal semantic description of any subject area (particularly, to the description of its verbal component). In general, the set of tasks which solving the USC can be applied for is diverse. We mentioned computational, logical, and semantic tasks, their main features and examples of them are presented in the book (pp. 98-100).

If we turn to the tasks of this study, then they can be characterized as semantic tasks solved with the help of the USC. These tasks got its solving in development of a system of formal symbolic operation with certain procedurally presented units of information (that is, the memes were object of analysis and their variants).

In comparison with other semantic metalanguages, the sphere of using the USC are not limited only the sphere of natural human language (in contrast, for example, from the A. Wierzbicka’s metalanguage of semantic primitives which “feature is an absolute anthropocentrism” (as cited in Martynov, 2001, pp. 5-6).

USC is able to define formal semantic primitives, to determine language elements and metalanguage elements and to construct the classifier of semantic primitives, unlike A. Wierzbicka's metalanguage of semantic primitives and A. Tarsky's metalanguage (as cited in Martynov, 2001, p. 6).

Let us discuss how this metalanguage is organized. The system and structure of this metalanguage are based on the sub division of all linguistic phenomena into so-called yogens and taigens. These term were invented by Martynov (1982): the term "taigen" is used for naming objects and entities, and the term "yogen"- for naming their characters (pp. 17-18). Martynov (1982) assumes that the differences between yogens and taigens are universal and constitute one of the basic oppositions in natural language (p. 17).

Taigens and yogens can be distinguished in creolized texts, based on the fact that such texts, as well as "traditional" verbal text, contain nominations of various objects and relations between them. However, they are expressed not only by verbal means.

The distribution of yogens and taigens depends on where they tend to place in the minimal nuclear syntactic chain. Such a syntactic chain is defined by the author as S – P – O (Martynov, 1982, p. 15). Yogens always got a central position in the chain, expressing the relationship, the interaction or connection of corresponding taigens. They symbolically denoted as S and O in the chain. Thus, the yogens always got the central position and the taigens got its extreme-left and extreme-right place in the elementary syntactic chain (Martynov, 1983, pp. 128-129).

Among the taigens, the following types of entities can be distinguished (Martynov, 2001, pp. 45-46): these are subjects (actors; those who perform some actions), objects (those who/which are under action), tools (instruments of action) and the result of the action. In the cited monography of V.V. Martynov, the following symbols are used to denote these entities: X - subjects, Y - tools, Z - objects, W - result of influence or result of action. In addition to the symbols X, Y, Z, W, the following symbols (these are used in symbolic logic) are used in the formal notation of the USC: \rightarrow - for implication and \sim - for negation. Using this symbolic system, it is possible to formalize the relations and interactions between various entities of any subject area.

The USC metalanguage consists of sets of taigens and yogens and symbols used to represent actions and relationships between them (Martynov, 2001, p. 65). The specific content of taigens, yogens and the relationship between them are determined depending on the subject area, in our case these are various parameters and transformations of the meme being the subject of our research.

Despite their abstractness the USC character strings are also suitable for the formalization of polycode texts containing both verbal and non-verbal information components. It should be noted that the abstractness of the used semantic metalanguage could not be considered as disadvantage in this case. It is convenient enough for a formalized presentation of the subject area.

It should be also noted that USC character chains can be compressed according to certain rules. That means we could get an abbreviated formal notation as its result. This is suitable for using such symbolization as a structural tagging part of the developed corpus of meme images, particularly, as an element of semantic annotation.

We use the data-visualizing language UML ("Unified Modeling Language") to construct diagrams showing the transformation processes of the verbal and visual codes of the analyzed meme and their varieties.

This language is suitable for visual representation of the analyzed subject area in the form of graphs. It can be translated easily into the “more linguistic” language of dependency trees or immediate constituency grammars.

The method of constructing the UML diagrams could be used in this study in two ways. On the one hand, these diagrams can be used to describe some structural and semantic parameters of the analyzed meme and their typology. It can be formally represented in the form of corresponding classes and objects included in them. On the other hand, the diagrams can be served as a graphic representation of transformation and development features of the meme.

There are several types of UML diagrams. The first type of diagram is structure diagram. This type distinguishes the following subtypes of diagrams: class diagrams, component diagrams, composite and composite structure diagrams, object diagrams, and so on.

The second type of diagram is behaviour diagrams. It got the following subdivisions: activity diagrams, state diagrams, and use case diagrams. A special type of diagram is interaction diagrams. Here the following can be found: communication diagrams, interaction overview diagrams, sequence diagrams and synchronization diagrams.

Thus, if we consider a diagrammatic representation of the semantic and structural content of a meme, we can distinguish corresponding class and object diagrams. They represent the formal and conceptual semantic content of an analyzed meme. The strategies of meme transformation can be described using the interaction and state diagrams.

If we “translate” the UML diagrams into the USC metalanguage of semantic representations, then the corresponding classes and objects of the UML can be represented as the USC taigens, and the interactions between them, their actions, their parameters, features and states - as the USC yogens, respectively.

If we discuss the use of the diagrammatic approach to analyze the development and transformation strategies of the analyzed meme, then both class and object diagrams (which represent the corresponding memes, in general) as well as diagrams of components, structures, use cases and sequences can be used within the framework of study.

6. Findings

The description of the basic version of the analyzed meme (which is used as the start point for producing new variants of the meme) is given below. It is an example of the USC application for the formal description of the semantics of the meme.

Let us distinguish the taigens and yogens present in the basic version of the meme.

The following taigens are represented in the basic meme (they are listed below).

Here are the following subjects:

X1, X2, X3, X4 - cats

Here is the following object: Z1 - Natasha (cats say to her, cats give her information about their actions and encourage her to action of awakening).

The following results can be found here: W1, W2, W3:

W1 - Natasha's state (“are you sleeping?”);

W2 - change in Natasha's state ("wake up!");

W3 - the result of the cats' actions ("we have thrown down everything there"/"Honestly, we have thrown down everything");

W4 - facts about the environment ("it's already 6 a.m., Natasha").

The formal notation for yogens is the following one:

X1(X1X1)

X2(X2X2)

X3(X3X3)

X4(X4X4)

Z1(Z1Z1) - encoding the existence of all the characters in the meme.

$((X1X1)Wn')Z1(Z1(Z1Wn))$

$((X2X2)Wn')Z1(Z1(Z1Wn))$

$((X3X3)Wn')Z1(Z1(Z1Wn))$

$((X4X4)Wn')Z1(Z1(Z1Wn))$ - description of the communication of cats with Natasha.

To simplify writing, all the results of actions are abbreviated as Wn , where $n=1 \dots 4$.

$((X1W4)Y1)Z1(Z1(W4Z1))$

$((X2W4)Y1)Z1(Z1(W4Z1))$

$((X3W4)Y1)Z1(Z1(W4Z1))$

$((X4W4)Y1)Z1(Z1(W4Z1))$ - the cats speak to Natasha with demanding to wake up. Here $Y1$ is a formal instrument variable used in writing imperative utterances.

$((X1W5)W5W5')Z1(Z1(Y2Y2'))$

$((X2W5)W5W5')Z1(Z1(Y2Y2'))$

$((X3W5)W5W5')Z1(Z1(Y2Y2'))$

$((X4W5)W5W5')Z1(Z1(Y2Y2'))$ - the question of the cats to Natasha: "Natasha, are you sleeping?"

Here $Y2$ is a formal variable too used to encode the state Natasha is in.

$((X1X1)W3)Z1(Z1(Z1W'3))$

$((X2X2)W3)Z1(Z1(Z1W'3))$

$((X3X3)W3)Z1(Z1(Z1W'3))$

$((X4X4)W3)Z1(Z1(Z1W'3))$ - the message of the cats to Natasha that they have thrown down everything.

$((X1X1)W4)Z1(Z1(Z1W'4))$

$((X2X2)W4)Z1(Z1(Z1W'4))$

$((X3X3)W4)Z1(Z1(Z1W'4))$

$((X4X4)W4)Z1(Z1(Z1W'4))$ - the message of the cats to Natasha about the time (6 a.m.).

((X_nW₃(Z₂(Y₄Z₂'))Y₃) - the action of cats, expressed by a number of variations of the phrase “we have thrown down everything”. For convenience of writing, the indices of the actors are designated here by n=1...4. Z₂ - the formal object of action (‘to throw down’) represents by the pronoun all in the verbal components of the analyzed meme. Y₃ and Y₄ are formal designations of action instruments. The action of cats that express verbally by the verb “to throw down” is interpreted here as a semantic causative (‘to throw down’=‘to make it fall’). For this reason, two primitives are used in the formal USC notation of this action.

~X_n(X_n((X₁X₁)(X_nW₃(Z₂(Y₄Z₂'))Y₃))Z₁)(Z₁(Z₁((X_nW₃(Z₂(Y₄Z₂'))Y₃))))' - the representation of the modal construction uttered by cats It conveys the action they have performed, namely, “honestly, we have thrown down everything, Natasha”. This notation is defined through the negation of the corresponding initial primitive. The semantics of that primitive is equivalent to the semantics of expressions “to be wrong”, “to make an error”.

Using the method of construction of UML diagrams, the abstract classes of the varieties and transformations of the subject meme can be distinguished both in the formal structure and in the thematic structure.

The abstract classification based on criteria of formal structure is presented here:

1. “Traditional type”. It includes those versions and transformations of the meme that retain the structure of the basic variant generally. At the same time, the semantic content of the images of characters (taigens), their interactions and states (yogens) allow one to be certainly variable (in some limits).

2. “Hybrid type”. It includes those versions and transformations of the meme its basic version is intertwined with one or several other memes in, resulting in a complex memeplectic structure.

3. “Allusive type”. Certain elements of the basic meme version for example, the name “Natasha” used as a precedent name, or images of cats) are embedded in another image, which can also be a meme. However, this term is not obligatory. This can also include works of visual art created “based on” the initial version of the meme, but not being meme (for example, K. Obuhanych’s drawing “We have thrown down everything”, the name of which and the images of cats presented in it refer to the basic meme obviously). The difference between the allusive type and the hybrid one is that the hybrid type of memes integrates the structure and semantics of the original meme into another one or into others by the full way. The allusive type, on the other hand, allows the inclusion of only separate elements of the basic meme in the structure of another meme or some image that is not a meme.

4. “Textualized type”. It refers to those memes whose visual component is related to the basic version of the meme indirectly. The semantics of the meme in general and its text component, in particular, are shaped in the form of a text that represents certain speech genre. In our array of empirical evidences, examples of memes of this type are reconsiderations of the basic meme version in nature, stylized as the genre of poetry known as “piroshki” (which themselves undergo further transformations, for example, the inclusion of additional characters in the poetic meme interpretation). The interesting example of poetic stylization is the interpretation of history of interaction between Natasha and her cats like famous poem written by A.A. Blok “A night, a street...”. The textualized type is quite different from other classes of

analyzed meme. It can be explained due to the peculiarities of poetic speech in itself, as well as the restrictions imposed by some speech genres on the structure of the meme along with the other reasons;

5. “Deconstructed type”. First, parodies and game interpretations of the analyzed meme can be attributed to this type. In this regard, an example of meme is remarkable presents sculptural images of a lying person and a cat sitting next to him, made in the Ancient Egyptian-like style. The subtitle is given to the image: “The sculpture “Natasha, we have thrown down everything” has been found in the British Museum”. Second, the exploitation of recognizable meme and its characters in advertising can be attributed to this type as well (there are examples of such advertising of the banks “Alfa-Bank”, “Tinkoff” in our array of evidences). The above-mentioned type can include those memes which only the original formal structure of the yogens is retained in (or it allows semantic reinterpretation), but the semantics of the yogens and the taigens are under the full reconsideration. Our empirical evidences present the example of such type, which birds (ostriches) are depicted instead of cats, and the proper name Anya is uttered instead of Natasha in (the choice of this name is due to the personal name of the woman (Anna) who created that version of meme).

The classification of the varieties of the analyzed meme by thematic criteria is discussed in detail below, in the “Conclusion” paragraph.

7. Conclusion

Thus, a formal representation of the analyzed subject area was obtained. That is, varieties and transformations of memes of chronicler cats has been described using the metalanguage of semantic representations USC and the language of data-visualization UML. This formalization may be considered as the first step in creating a visual corpus representing this meme and the entire set of its varieties. Also, it can be possible because the USC allows the presentation of the meme semantics in a more compact form due to the compressing of semantic chains, which can be used as one of the means of tagging the images. We can assume that the UML is suitable for modelling the relations and interactions between the characters of the subject meme. That modelling could be a challenge of the next stages of our research.

It was found that the set of basic taigens present in each variant of the meme is generally the same, although the semantic content of the corresponding taigens may change. Commonly, it includes both the image of the main meme character (Natasha) and the beings interact with her (in most cases, these are cats). However, there are also transformations of the semantic content of the corresponding taigens: the presence of humans, squirrels, horses, and birds instead of cats is noted. In some cases, the semantics of the taigen corresponding to image of Natasha is replaced by the semantics of another character, for example, a famous historical or political figure. So, a series of memes is widespread, in which Vladimir Lenin as the main character is represented instead of Natasha.

If we talk about yogens (that is, about the representation of interactions between taigens and their states), then the corresponding fragment of the formalization is characterized by great variability and diversity. It may include references to current socio-political events, as well as to various historical events. Often, this fragment includes references to other meme or culturally valued texts and (or) other pieces of art. Due to this a memeplex is formed that combines the features of several genres and styles (in this respect, the poetic representation of the basic version of the meme stylized as A.A. Blok’s poem “A night, a street...” is remarkable as well as a small series of memes, where the text component is stylized as the so-called

“piroshki” genre of poetry). Thus, the definition of base classes set of the analyzed meme is a rather non-trivial task. Nevertheless, the following basic abstract classes can be specified using the UML: memes of a historical nature (they often represent some famous historical character instead of Natasha); memes focused on contemporary social and political situation. It can be separated into two large subclasses among them: memes related to the pandemic of COVID-19, and memes referred to the current political events in the Russian Federation. There are memes related to common life; mixed and “hybrid” variations (in particular, memplexes, memes poetic stylizations, interpretations and reinterpretations of the text component of the basic variation are represented in, parodies, etc.). Using diagram methods, it is quite easy to explore the following pattern of development: the analyzed meme changes more and more over time, transforming into a memplex. It goes more and more further from the basic version. Often, only the initial structural “frame” filled with completely different semantics remains of the basic version in such transformations.

The COVID-19 pandemic continues to influence the most aspects of daily life. Finding ways to cope and adapt in this changing state is the most significant social priority. The uncertainty of this situation gave rise to the attempt of response, including a cultural one, to the present-day events. One of them is the construction of memes. As Shifman (2014) states, Internet memes are not necessarily limited to jokes, but they can be “deadly serious”. He argues that memes are “multicomponent creative expressions which cultural and political identities are conveyed through” (p. 12). Thus, memes are involved in the formation of identity in the digital and analogue environment. However, they contribute to its implementation in different ways. On the one hand, their task is to entertain users and provide them with the opportunity to comment on present-life events. On the other hand, memes are used as part of the commemoration policy, and also act as a response to the challenges of uncertainty. Memes also provide speed of interaction, accessibility, and anonymity, which are some important aspects of memory usage in our digital world (Makhortykh, 2015). Internet memes function as a way to find landmarks in a lightning-fast changing world. It allows a common user, who has access to the means of information transfer, to fix, to form his own reaction and to assess what is going on.

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