## НОМИНАЦИИ ХАРАКТЕРОВ В ОНТОЛОГИЧЕСКОЙ ПЕРСПЕКТИВЕ

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Данная работа посвящена проблеме описания слов, называющих либо человека по свойствам его характера, либо сами характерологические свойства, — номинаций характера, отражающих наивную психологию носителей языка. В работе рассматривается, как знания в этой области можно представить в онтологии.

**Ключевые слова:** свойства характера, номинации характера, наивная психология, онтология.

## CHARACTER NOMINATIONS IN ONTOLOGICAL PERSPECTIVE

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The focus of this research is on ways to represent the meaning of character nominations – words naming either a person according to the person's traits of character, or the characteristic itself, and providing an insight into naive psychology. An important feature of this lexical semantic group is that we attribute characteristics denoted by them to a person by generalizing from specific cases of the person's behaviour. Therefore the meaning of such words can be understood correctly only when both linguistic and extralinguistic information is taken into account. The paper analyses how knowledge in this sphere can be represented in an ontology.

**Key words:** character nominations, character traits, naïve psychology, ontology.

The focus of this research is on ways to represent the meaning of character nominations —words naming either a person according to the person's character traits, or the characteristic itself, and providing an insight into naïve psychology. An important feature of this lexical semantic group is that we attribute characteristics denoted by them to a person by generalizing from specific cases of the person's behaviour.

The fact that adequate representation of character nominations' meanings is problematic can be explained by several features of their semantics. Firstly, all character nominations have a significant subjective part shaped by personal experience in their meaning besides an invariant part (Cherneyko 1997).

Secondly, very often the meaning of character nominations includes an evaluative component, which is of greater weight in more peripheral nominations than in the central representatives of the field.

Yet another feature of this group of words is that such lexis is often culture-specific. The case is that, even for lexemes referring to the same characteristic of a person in different languages and believed to be quasi-equivalent, volumes of their meanings may differ substantially. This can be proved, for example, by the results of an experiment carried out by a Portuguese linguist J. Pinto de Lima (Pinto de Lima 1994). This experiment aiming to find semantic prototypes of Portuguese and German words denoting 'honest' and 'liar' showed that the relevant rules behind the actions of a person with such character traits were different in Portuguese and German. While for the Portuguese *honesto* the following relevant rule applied: "Do not keep for yourself, or do not get hold of, that which does not belong to you"(p.13), for the German ehrlich the rule could be formulated as: "Always tell the truth about your own behaviour, even if this may bring you some disadvantage" (p.14). The Russian chestny proved to be closer to the Portuguese honesto rather than the German ehrlich and fell somewhere in between the Portuguese honesto and sincero ('sincere') despite the fact certain features were the same for all the three characteristics (chestny, ehrlich and honesto) (Lukashevich N. Yu. 2004). What is important is that in none of the pairs were the word meanings exactly equivalent to each other.

The above said explains why the meaning of such words can be understood correctly only when both linguistic and extralinguistic information is taken into account. From this point of view ontologies, which have been gaining popularity in natural language processing recently, can provide previously unavailable resources for dealing with this issue.

It should be noted, however, that character nominations present certain difficulties for any attempt to represent their meanings formally. Of the possible reasons for such difficulties as discussed in (Loukaschevitch N. V. 2010), two are relevant for character nominations: fuzziness of elements constituting their meaning and the fact that this lexical group consists mostly of rows of near-synonyms. Such near-synonyms are particularly difficult for defining taxonomic relations because they usually demonstrate family resemblance (Wittgenstein 1953). It is also usually difficult to find their equivalents in other languages because in a different language as a rule they are matched with another row of near-synonyms with its different set of distinctive parameters (Loukaschevitch N. V. 2010).

If one considers how character nominations are represented in some of the existing ontologies, one can say that none of them seem to be able to account for semantic features of this group of words properly. This can be partly explained by inappropriate approaches to representing near-synonyms (Loukaschevitch N. V. 2010). However, existing ontologies also seem to show very few links between such concepts and the rest of the ontology.

For example, for such characteristics as *sincere*, *frank* and *candid* WordNet predictably provides lists of synonyms such as < **sincere** (open and genuine; not deceitful) > , <<u>earnest</u>, <u>sincere</u>, <u>solemn</u>>, <<u>blunt</u>, <u>candid</u>, <u>forthright</u>, <u>frank</u>, ...> and <<u>candid</u>, <u>open</u>, <u>heart-to-heart</u>>. These synsets demonstrate (but in no way explicate) distinctions between *sincere* and *candid* and, unlike other sources, some distinctions between *sincere*, *frank* and *candid*, leaving the distinction between *frank* and *open* unaccounted for.

FrameNet resource relates the three lexemes to the Candidness frame listing such elements of the general situation relevant to all three characteristics as Speaker, Message, Topic, etc.

In MikroKosmos ontology the characteristics in question are related to concepts representing abstract qualities, e.g. *chestny* ('honest') is related to HONESTY-ATTRIBUTE meaning "the degree of honesty with which a person or group conducts himself or themselves" and belonging to scalar-human-attribute. All traits of character which are covered in the ontology fall into two subclasses of SCALAR-OBJECT-ATTRIBUTE. Such concepts as HONESTY-ATTRIBUTE, MODESTY, SHYNESS and KINDNESS belong to SCALAR-HUMAN-ATTRIBUTE ("scalar-attributes involving social-roles"). At the same time DECISIVENESS and SERIOUSNESS-ATTRIBUTE are in SCALAR-SOCIAL-ATTRIBUTE subclass ("an attribute with a numerical range which describes some socially-related phenomena such as salary cost-of-living ... etc").

It is therefore clear that the only relation linking these concepts with other concepts in MikroKosmos ontology is the relation existing between a quality and its possessor. Other meaningful connections like, for instance, a connection between HONESTY-ATTRIBUTE and the principles involved in this type of behaviour are not represented at all. Besides that near-synonymic rows of character nominations would inevitably raise the issue of what information should be ontologised in the concept (or concepts) for a particular character trait cluster, and what should be dealt with in lexical entries. It would not seem feasible to introduce a separate concept for each particular characteristic named by one word from a list of near-synonyms, as such concepts would obviously be highly language-specific. But it is not clear how the existing HONESTY-ATTRIBUTE should be distinguished from hypothetically possible CAN-DIDNESS-ATTRIBUTE (should there be a separate concept introduced in this case).

In lexico-semantic studies aimed at describing the meaning of the words of a discussed semantic field and / or the structure of the field or some of its subsections we can find insights that can be used for building this part of the ontology (either universal or culture-specific). Thus, some traits of character are described as marking an attitude of a person toward some sort of entity (see e.g. an analysis of the group of words like *stingy*, *generous* and the like as denoting one's attitude towards material welfare, assets at one's disposal in (Lomtev 1969)). In the ontology such a semantic feature may be reflected by allowing conceptual relations between PROPERTY concepts

and other classes of concepts, e.g. a special relation MARKS-ATTITUDE-TO with a domain including the class of SCALAR-HUMAN-ATTRIBUTE and a range that can cover different classes of OBJECTS and EVENTS. In case we want to introduce an attribute, say, GENEROSITY into our ontology, and we already have an object concept ASSET in it (as it is in MicroKosmos ontology), we could describe the place of a new attribute not only by connecting it with IS-A relation to the class as SCALAR-HUMAN-ATTRI-BUTE but by adding a slot MARKS-ATTITUDE-TO(SEM(ASSET)). In a similar way the attribute COURAGE can be related to the event-concept HAVE-FEAR (both are present in the ontology). In the analysis of a Russian word spravedlivyj 'just, fair' Shmelev A. D. insightfully mentioned that such a trait may be attributed to a person only in a special situation, when this person is in charge of distributing resources or inflicting punishment to other people (Shmelev 1999). For such a conceptual dependency a relation connecting a character trait to a situation in which it could be manifested, e.g. MANIFESTED-IN-EVENT with a domain including the class of SCALAR-HUMAN-AT-TRIBUTE and a range over EVENTS. There also exists an obvious conceptual relation between some character traits and some concepts corresponding to «core human values» either universal or culture-specific, e.g. the concept FAIRNESS belonging to the SCALAR-SOCIAL-ATTRIBUTE class can be related to the concept JUSTICE belonging to the ABSTRACT-IDEA class in the MicroKosmos ontology. Another obvious conceptual property of some character trait concepts is their evaluative modality: polar values of attributes like FAIRNESS, HONESTY-ATTRIBUTE, LOYALTY and many others (but not WEALTH-ATTRIBUTE or SHYNESS) are associated with polar axiological evaluation (i.e. the corresponding mappings onto the good-bad scale). The axiological aspect of such concepts should also be captured in this domain of the ontology. Connecting character trait attributes to other types of ontological concepts by conceptual relations would certainly make them «more visible» in the ontology. More insight into the ontology of human characters can be achieved from the cognitive standpoint.

Within the framework of cognitive lexical semantics an approach to representing meanings of character nominations was suggested in (Lukashevich N. Yu. 2002, Lukashevich N. Yu. 2004) which seems to provide a better account for specific features of this group of words than traditional methods of semantic analysis. This approach is based on the following ideas. It is crucial that a trait of character is considered to be a behavioural stereotype which is realized with high probability in a situation typical for this trait (e.g., for otkrovenny 'frank, candid' the behavioural stereotype can be roughly put as 'to say something about themselves which puts them at a disadvantage' and the typical situation as 'when it is not necessary to mention a fact about themselves or say what they think or feel'). Therefore the most appropriate way to represent the meaning of a word denoting a character trait would be to set a typical situation and a stereotype of behaviour in such conditions. This can be done using behaviour pattern, a notion introduced by Yu. Martemianov and G. Dorofeyev in their works on automatic language processing ((Martemianov, Dorofeyev 1969); (Martemianov 1999)). It is based on a generalized implicative scheme establishing an association between the initial typical situation and the stereotyped behavioural response of a person with this trait of character. It is suggested in (Lukashevich N. Yu. 2002, Lukashevich N. Yu, 2004) to provide such behaviour patterns with prototypical

('best') examples of real-life situations and specific behaviour in them (e.g. *otkrovenny* 'a frank, candid person' would say that he or she often acts carelessly).

How can this approach help to represent this area of knowledge in an ontology? Our general suggestion is that character nominations should be related to ontological concepts representing actions instead of attributes or abstract qualities, as seems to be the case with present-day ontologies. (For example, for the group of character traits describing candidness INFORM can be considered as such main action (possessors of these traits communicate something to the addressee).)

The reason for doing so is that character nominations are quite dissimilar to many other kinds of attributes (like e.g. size, material or nationality) at least in one aspect. As it has already been said above, any character trait presupposes certain actions of its possessor in certain circumstances. Because of that all character nominations invoke references to various connections reaching across sentence boundaries and existing among elements of a text in a way «routine», «typical» sequences of events (often called scripts (Schank and Abelson 1977), scenarios or complex events (Nirenburg, Raskin 2004)) do.

Although scripts generally involve multiple agents and multiple actions, while character nominations refer mostly to one action performed by one agent, the latter group of words still requires some generalized episodic knowledge in order to be understood correctly. A certain set of conditions has to be satisfied for this action to be triggered and to be classified as a manifestation of a particular character trait (e.g., a person may be sociable, shy, outgoing, etc. when with particular company (specific people or types of people); a person will be called candid in expressing their opinion only if this person does not intend to get any personal benefit from doing so, etc.).

In view of that our second suggestion is that typical situations relevant to character traits should be somehow accounted for in the ontology. Introducing such information would also link concepts representing such human characteristics with various other concepts in the ontology.

A typical situation involved in some character trait manifestation can be represented as a list of statements about the general state of affairs related to a possessor of this character trait. What is important is that such lists of statements seem to be more or less the same for words naming characteristics which belong to one cluster of character traits and forming a row of near-synonyms, with differences between them mostly expressed by different values taken by such statements for different near-synonyms. (This is illustrated below in the table showing a possible list of statements about typical situations for words naming character traits belonging to candidness group.) Each particular near-synonym would then be associated with a unique set of values taken by statements from the general list. In this case, while only one concept related to each row of such near-synonyms would be introduced in the ontology, the list of statements describing typical situations would allow to distinguish between various near-synonymic characteristics. (It may even prove possible to talk of one and the same list of such statements for all character nominations which might also be universal for different languages. This, however, requires substantial further research.)

As for the way typical situations should be represented in ontology, it remains an open question. For example, in MikroKosmos ontology this can possibly be done with the help of precondition and effect ontological properties (an attempt at representing

character traits pertaining to the concept of CANDIDNESS in this manner is shown in the table below). However, in this case it will be necessary to allow for different degrees of significance of sence elements forming precondition and effect for specific characteristics. Otherwise, such information will have to be included into respective lexical entries in the lexicon.

Another possible solution may be to use an additional level of representation as suggested in (Edmonds, Hirst 2000) in order to account for fine-grained distinctions between near-synonyms. Besides the traditional two levels of representation, a conceptual-semantic level and a syntactic-semantic level, the authors introduce a third subconceptual/stylistic level. Near-synonyms are regarded as explicitly related to each other not at a conceptual, but at a subconceptual level. A cluster of nearsynonyms is believed to have internal (language-dependent) structure and is situated within a conceptual model (the ontology) on the one side and a linguistic model on the other. It is suggested that near-synonyms should be clustered under a shared coarsegrain concept rather than linked each to a separate concept. The essential shared denotational meaning of near-synonyms is represented as a core denotation on the conceptual-semantic level. As for semantic, stylistic and expressive distinctions between near-synonyms within a cluster, they are represented in terms of peripheral concepts (defined in terms of concepts in the ontology) on the subconceptual/stylistic level. While all near-synonyms in the cluster convey the concepts in the core denotation, the peripheral concepts to be conveyed depend on a particular near-synonym.

Using this approach would make it possible both to use only one concept for a row of near-synonymic characteristics and to represent typical situations in terms of concepts of the same ontology, while leaving the opportunity to account for language-dependent differences between such rows.

Another open question is how to account for the best example of a category. Some way to introduce this information is definitely desirable. This would be important not only for character nominations, but for other lexical groups of words as well, such as the ones denoting emotional relations (*love*, *friendship* etc.) or expressing interpretative notions (e.g. *help*, *heroic deed*, *betrayal*).

The problem here is that in the case when ROBIN is specified as the best example (prototype) for BIRD in English, two ontological concepts can be linked, while the same cannot be done for character nominations as it is likely there would be very few separate concepts for particular characteristics if any. Using an additional subconceptual level of representation might provide a solution in this matter as well.

To illustrate the suggested approach the table below compares much simplified representations of meanings for such Russian characteristics as *iskrenny* 'sincere', *otkrovenny* 'frank, candid', *otrkyty* 'open', *pryamoi* 'straightforward' and *pryamolineiny* 'straightforward'.

(All elements of meaning and distinctive parameters for Russian lexemes are given on the basis of analysis done within a candidate's thesis written and defended at the Department of Theoretical and Applied Linguistics of Philological Faculty of Moscow State University (Lukashevich N. Yu. 2004). For each of the words from the list an analysis of the way they are used in journalistic texts and fiction was carried out. Two text corpora were used for this purpose: the Computer corpus of Russian

newspapers which included some of the full issues of 13 Russian newspapers dated 1994–1997 (provided by the Laboratory for General and Computational Lexicology and Lexicography, the Faculty of Philology, Moscow State University) and later the Russian National Corpus. Initially the analysis was carried out using only classical literature texts of the XIXth century and the newspaper corpus. The results obtained were later revised when Russian National Corpus, covering a much wider variety of texts in genre and style, became available.

Another source of information for Russian lexemes was an experiment similar to the one conducted by Pinto de Lima as mentioned above. In this experiment subjects were asked to write short stories describing what they believed to be optimal instances of human behaviour denoted by character nominations presented to them.)

The aim of this comparison was to see what part of meaning is shared by characteristics describing the candidness cluster of character traits (i.e. may be ontologised in a concept/concepts) as it was not clear from the start how many concepts would be needed to represent these characteristics. (The fact that various dictionaries group these lexemes differently and none list all of the characteristics in one synonymic row supports the idea that the choice would not be obvious here.) Another purpose was to check if distinctions between these words can be formulated in terms of features of typical situations.

(Though expressed in a rough and informal way, all elements of meaning are of a general nature and can supposedly be formulated in terms of specific ontology's concepts.)

As it follows from the table, the characteristics describing the candidness cluster of character traits share the main action — for all of them it is 'X informs Y of Z' where 'Z corresponds to the real state of affairs'. (It should be mentioned here that not all of these characteristics manifest themselves only in speech. Thus *iskrenny* has other channels of expression, therefore in this case INFORM would only be one of the possible actions.)

Important differences lie in the topic of the communicative message a person with such character traits is making. While *iskrenny* tells the addressee something about their inner world, *otkrovenny* и *otrkyty* are disclosing not only that but also facts about themselves; besides, what *otkrovenny* is saying puts the speaker at a disadvantage. As for *pryamoi* and *pryamolineiny*, they are talking of some general state of affairs.

It is obvious that some elements of typical situations are the same for all the five characteristics. Such conditions as 'There is nothing which makes X act this way', 'X does not intend to get any personal benefit' and 'X wants Y to know Z' all need to be realized for any of these characteristics to manifest itself. It can also be noted that such behaviour is not quite standard in a sense that it is a certain deviation from the behaviour of an average person, i.e. people do not usually act this way.

Some elements of typical situations are present in some characteristics and not present in others. Thus, for *pryamoi* u *pryamolineiny* there exists a certain behaviour rule, which prohibits telling such things to other people. (This can be explained by the fact that the speaker says something which can lead to negative consequences both for the speaker and for other people.) When acting this way, *pryamoi* and *pryamolineiny* understand that they are violating this rule, but

they believe this to be a necessary and right thing to do. As far as *iskrenny*, *otkrovenny* and *otrkyty* are concerned, there is no rule which prohibits acting this way (which is apparently so because even if such behaviour may lead to negative consequences for other people, they are insignificant or unlikely). However, there are still some tacit common-sense guidelines recommending not to do such things (because this way the speaker may harm himself to some extent), which is revealed by the fact that such behaviour is perceived as not quite standard, and *iskrenny*, *otkrovenny*, *otrkyty* are aware that they are violating such common-sense rules. This can be proved comparing these characteristics with *neposredstvenny* 'unaffected, straightforward': in the latter case a person with such quality is also violating some behaviour rules, but he or she is doing it because they do not know these rules or have forgotten about their existence.

There are also features where it is possible to talk of various degrees of manifestation of some sense element in different characteristics. Thus for *otkrovenny* it is a distinctive feature that the speaker is harming himself. As for *iskrenny*, there are also cases when what such a person is saying hurts the person and/or other people, but they are not so typical as for *otkrovenny*. Who suffers more from the negative consequences — the speaker or other people — is crucial for choosing between *pryamoi* and *pryamolineiny*: what the speaker says is harmful to both parties, but *pryamoi* is used when the harm is mostly to the speaker, while *pryamolineiny* indicates that the damage is mostly done to other people.

The table below also shows that for the English group of nominations describing candidness (*sincere*, *frank*, *candid*, *open*) the set of conditions is very similar and the differences lie in the same zones which distinguish Russian lexemes from each other. (It should be noted here that the distinctions suggested in the table need to be further confirmed by additional research, as British National Corpus used for the analysis proved to be of insufficient size to provide enough material to define them.)

The above analysis therefore proves that a significant part of their meaning is shared by all character nominations belonging to the candidness group. On this ground to introduce one concept representing the whole cluster in the ontology would be fully justifiable. It is also shown that typical situations can be represented as lists of statements about the general state of affairs related to a possessor of such character traits and these statements are also rather similar for different characteristics.

To make a conclusion it can be said that the suggestions discussed above seem to provide a more appropriate and effective approach to treating character nominations for the purposes of natural language processing.

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- — the element is not present in this character trait
- (+) the element is present to a small degree in this character trait
- + the element is present to a high degree in this character trait

		iskrenny	otkrovenny	otkryty	pryamoy	pryamolineiny
action	X informs Y of Z	+	+	+	+	+
	Z corresponds to the real state of affairs	+	+	+	+	+
		information Z is about what X feels and thinks	Z is any negative information about X	Z is any infor- mation about X:	Z is any informa- tion	Z is any information
pre- condi- tions	There is nothing which makes X act this way;	+	+	+	+	+
	X does not intend to get any personal benefit;	+	+	+	+	+
	People usually do not tell such things to other people;	+	+	+	+	+
	There is a behaviour rule which prohibits telling such things to other people;	-	-	-	+	+
	X is aware that he is vio- lating a be- haviour rule by acting this way;	-	-	-	+	+
	X is aware that he is vio- lating a com- mon-sense rule by acting this way;	+	+	+	-	-
	X wants Y to know Z;	+	+	+	+	+

		iskrenny	otkrovenny	otkryty	pryamoy	pryamolineiny
effects	if Y knows Z, it may lead to negative consequences to X;	(+)	+	+	+	(+)
	if Y knows Z, it may lead to negative consequences to other people	(+)	(+)	?	(+)	+

		sincere	frank	candid	open
action	X informs Y of Z	+	+	+	+
	Z corresponds to the real state of affairs	+	+	+	+
		information Z is about what X feels and thinks or intends to do	Z is any (often negative) informa- tion	Z is any infor- mation about X or X's (mostly negative) opin- ion on some state of affairs	Z is any infor- mation
pre- condi- tions	There is nothing which makes X act this way	+	+	+	+
	X does not intend to get any personal benefit	+	+	+	+
	People usually do not tell such things to other people	+	+	+	+
	There is a behaviour rule which prohibits telling such things to other people	_	?	?	?
	X is aware that he is violat- ing a behaviour or com- mon-sense rule by acting this way	+	+	+	+
	X wants Y to know Z	+	+	+	+
effects	if Y knows Z, it may lead to negative consequences to X	(+)	+	+	+
	if Y knows Z, it may lead to negative consequences to other people	(+)	+	+	+