Poljarnyj vestnik: Norwegian Journal of Slavic Studies, vol. 23, 2020, pp. 1–17
https://doi.org/10.7557/6.5548

How do we measure "measure"?
Russian measure constructions and Metaphor

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1. Introduction

In this study I examine four Measure constructions of Contemporary Standard Russian from the perspective of cognitive linguistics. These constructions share similar syntactic structure: a noun in the capacity of a quantifier (in this work I am going to use the term "nominal quantifier" for such nouns) followed by a noun in the Genitive case: куча NP-Gen as in *куча денег* 'pile of money', груда NP-Gen as in *груда ответственности* 'pile of responsibility', море NP-Gen as in *море цветов* 'sea of flowers', and туча NP-Gen as in *тучи песчинок* 'rain clouds of sand grains'. NP-Gen here is a formal representation of a fillable slot in the constructions consisting of a noun phrase (NP) in the Genitive case (Gen) [1].

Generally, most constructions of this type express an indefinitely large quantity of an object [Ли 2005: 3, Рахилина 2010: 353]. However, these constructions have semantic differences, resulting in various combinatorial restrictions. Based on Lakoff and Johnson's theory of metaphor and other concepts of cognitive linguistics, I will attempt to present a systematic view on the usage of the constructions in question. Results of this study can help further researchers of Measure constructions in the Russian language, and will be especially useful for learners and teachers of Russian as a second language.

[1] The Russian Constructicon adopts a system of glosses used in Universal Dependencies analysis (UD, see https://universaldependencies.org), employed by all existing construction projects (including constructicons for English, German, Swedish, Brazilian Portuguese, and Japanese [Lyngfelt et al. 2018]. In this paper, I adopt the same glossing system.

This research departs from my work in the Russian Constructicon[2] project (https://site.uit.no/russian-constructicon/, henceforth RC), that is building a searchable database of Russian constructions. In this database, the constructions are accompanied with descriptions of their semantic, structural and stylistic properties, and illustrated with corpus examples [Janda et al. 2018]. This resource contains an extensive classification and an advanced system of semantic tags that can be used to develop linguistic descriptions of Russian constructions. Translation of definitions into other languages and indexing according to levels of complexity make this resource useful to students and teachers of L2 Russian.

Along with collecting new constructions for the database, the participants of the project undertake additional descriptive and typological work, including grouping constructions into meaningful semantic groups. 112 constructions in the database form a Measure category. These constructions share the common semantics of Measure, but otherwise are differ from each other both semantically and structurally. For the convenience of description, search, and work with these patterns, I adopt a Cognitive Linguistics approach and model my data in terms of a radial category [Rosch 1973 a,b]. A radial category is a network of members that can have more central or more peripheral status and are organized around a Prototype [Rosch 1977, 1978]. The 112 Measure constructions under scrutiny are classified into eleven related families with some subcategories and partial overlap. The constructions are grouped based on their semantic and structural similarity to the prototypical concept of measurement and central constructions, and also according to the additional meanings the constructions denote apart from measuring. Constructions in the Measure class encode quantity of objects or quantified properties of an object along dimensions such as length, volume, weight, etc. Based on their syntactic and semantic features, I propose a radial category model for Measure constructions, grouped into 11 closely related families that in some (mostly peripheral) cases can overlap with each other.

The constructions in question belong to the Intensity family of the Measure radial category. Together with two more constructions, уйма NP-Gen as in *уйма денег* ‘a lot of money’ and толпа NP-Gen as in *толпа студентов* ‘crowd of students’, they form a group of constructions with nominal quantifiers as a common component. However, after addressing the semantics of the nominal quantifiers *толпа* and *уйма* and their examples, I decided to leave these constructions beyond the scope of this study for the following reasons:

The noun *уйма* appears to be a quantifier, similar to *много* ‘a lot’. According to Vinogradov [Виноградов 2010] this word is interpreted as “variety, large quantity of something”, used in colloquial language and doesn’t have any extra semantics other than intensifying the speaker’s attitude to the amount or quantity. The etymology of the noun *уйма* does not reveal any additional semantics - apparently the word originates from Common Slavonic “as much as one can take” [Фасмер 1964]. Therefore, no metaphor and

[2] In recent studies, the term “constructicon” refers to both the structured inventory of constructions in a language and a thorough representation of this inventory [Lyngfelt et al. 2018; Fillmore 2008; Fillmore et al. 2012; Janda et al. Forthcoming].

no collocational restrictions on the objects of quantification can be found in the construction уйма NP-Gen.

Unlike *уйма*, the nominal quantifier *толпа* in the construction толпа NP-Gen allows a very limited range of collocations. Based on the dictionary definition of the word *толпа*, it's first and most concrete meaning is "unorganised group of people" [Ушаков 2012]. *Толпа* occurs only with nouns defining people (*толпа людей, толпа народа* 'crowd of people'), different social groups of people (*толпа студентов* 'crowd of students'), human-like (*толпа орков* 'crowd of orcs') or hominified objects (*толпа призраков* 'crowd of ghosts'). Therefore, in all presented corpus examples this noun is used in its literal meaning.

According to earlier research, there are about 30 nouns that can act as a nominal quantifier and form a Measure construction [Рахилина 2010: 363]. In this work, however, I only address the four constructions already included in the Russian Constructicon database:

Construction	Illustration
куча NP-Gen	*куча денег* 'pile of money'
груда NP-Gen	*груда ответственности* 'pile of responsibility'
туча NP-Gen	*тучи песчинок* 'rain clouds of sand grains'
море NP-Gen	*море цветов* 'sea of flowers'

Table 1: The four Measure constructions with nominal quantifiers from the Russian Constructicon

While collecting and formalizing constructions with the meaning of measure, I have noticed that they express their meaning in different ways: through syntax (NP-Gen.Pl Num - *лет тридцать* 'about thirty years', *человек пять* 'about five people'), lexical markers (Num NP в длину/ширину/высоту 'in length/width/height' - *пять метров в длину* 'five meters long', *три сантиметра в ширину* 'three centimeters wide'), or metaphorical extensions (NP-Gen.Pl выше крыши 'over the roof'- *проблем выше крыши* 'too many problems'). Constructions with nominal quantifiers can have either literal or metaphorical meaning. In this paper I focus mostly on the cases where a transition takes place from a literal meaning of a noun to a metaphorical one.

To illustrate this metaphorical transition, compare the following phrases: *глубокое синее море* 'deep blue sea' vs. *море флагов* 'a sea of flags'. The word *море* in its first definition is "a large body of water, limited on one or several sides by land and separated from the ocean by islands or elevations of underwater terrain" [3] [Кузнецов 2014]. In this definition the noun *море* cannot be followed by a noun in the Genitive to specify its contents, because by default it is always filled with water, not by anything else. However, in *море флагов* we use *море* as a source domain to show that a large quantity of flags

[3] The original text is as follows: "большое водное пространство, ограниченное с одной или нескольких сторон сушей и отделяемое от самого океана островами или возвышенностями подводного рельефа".

(target domain) is vast and looks like a sea. This way the noun loses its original meaning, or at least parts of it, and turns into a nominal quantifier. This term is adopted from Lee Su Khen's study of such constructions, where she also offers some conclusions regarding co-occurrence of nouns with various nominal quantifiers based on the examples from the Russian National Corpus [Ли 2005]. The term allows us to draw parallels between the nouns in question and "standard" quantifiers of the Russian language. The closest are quantifiers such as *много* 'a lot', *столько* 'so much'. According to Keenan and Paperno's classification, these are the value judgement quantifiers [Paperno 2012]. In the same way as the nominal quantifiers, they govern a noun in the Genitive case and convey the meaning of an indefinitely large quantity based on the speaker's attitude. However, the value judgement quantifiers *много* or *столько* have no restrictions on semantic classes of the quantified nouns, as opposed to the nominal quantifiers.

Because of the semantic differences of the nominal quantifiers, constructions with similar syntactic structure can behave very differently in terms of their meaning and collocations. For example, a native speaker can easily call a crowd of people at a rock concert *море людей* 'a sea of people', but hardly ever *?груда людей* 'a pile of people'. A scary swarm of bees can be described as *туча пчёл* 'a rain cloud of bees', but unlikely as *?море пчёл* 'a sea of bees'. It seems that every nominal quantifier has its own range of co-occurrence with quantified nouns. Still, there are many overlapping cases: a rich person can have a large sum of money and call it *куча денег* 'a pile of money', as well as *море денег* 'a sea of money'. These differences are not obvious for learners of Russian as a second language, and it seems quite difficult, if not impossible, to find descriptions of such constructions in textbooks or dictionaries.

In this paper, I use data from the Russian National Corpus (RNC) to describe several widely used measure constructions from a Cognitive Linguistics perspective. Such analysis makes it possible to understand how the use of metaphors influences their combinatorial restrictions. My corpus analysis in this paper investigates the types of metaphor and metonymy used in the constructions with nominal quantifiers, and reveals that the nominal quantifiers in question differ in collocations with various types of concrete and abstract nouns.

The scientific novelty of this paper compared to Lee's (2005) study lies in a deeper cognitive analysis of the metaphors that underlie the data and in a more complex overview of the corpus data. In the next paragraphs I will describe the dataset and methodology of my research.

The article is structured as follows. In section 1 I presented the problem overview, research question and hypothesis of the study. Section 2 includes description of the corpus data and methods of study. My analysis is presented in Section 3, where subsection 3.1 focuses on the literal and metaphorical uses of the quantifiers, subsection 3.2 describes the structure of the metaphors behind the quantifiers. The main conclusions are summarized in section 4.

2. Data and Methodology

To create my database of Measure constructions with nominal quantifiers, I used the main corpus of written text in the RNC, one of the largest openly available corpora of various

Russian texts with convenient search instruments. Firstly, I extracted examples of each construction from the RNC. To do so, I used the lexico-grammatical search engine of the RNC website. I looked for the target lemma (*море/туча/куча/груда*) followed by a noun in the Genitive case. To limit the number of results, in this study I did not include constructions with nominal phrases in the Genitive case (such as *надо запускать кучу малых проектов* 'we need to start many (lit. a pile of) little projects) and limit it only to single nouns (*работая над дипломом, я перерыла кучу материалов* 'while working on the thesis, I dug through a pile of papers). In addition, I have decided not to use examples from texts written earlier than year 2000. This also allowed me to limit the number of search results, but mainly ensured that I exclude collocations that are not frequently used in contemporary Russian (for example, the word combination *куча сора* 'a pile of garbage' was frequent in the 19th century, but cannot be found in examples after 2000, according to the RNC).

The next step of preparing the data was 'cleaning'. Apart from relevant examples, search results also included some cases of word-form homonymy (*на берегах Балтийского моря города один за другим стали переходить в руки Петра* 'on shores of the Baltic sea the cities started to fall into Peter's hands one by one'; homonymy between the Genitive Singular and the Nominative Plural of the noun *город* 'gorod'), homonymy of different parts of speech (*Тучи были гораздо ниже и ещё ближе* 'rain clouds were much lower and even closer'; the word *были* 'were' here is a past form of the verb *быть* 'to be', but it is homonymous to the Genitive Singular of the noun *быль* 'truth'), some references to proper names (*моря России* 'Russian seas', *море Лаптевых* 'Laptev Sea'), or occasional sequence of nouns, e.g. at the borderline of two clauses (*казарки стаей бросаются в море, чайки замирают на лету* 'a flock of barnacles rushes from to the sea, gulls freeze mid-fly), etc. Such sentences had to be excluded manually. As a result, the database included 1353 'clean' examples of constructions with *куча*, 385 sentences with *море*, 364 with *груда* and 111 with *туча*. For closer study I have listed 100 randomly picked examples of each construction. Thus, the database for this study consists of four hundred examples, where each construction (куча Np-Gen, груда NP-Gen, туча NP-Gen, море NP-Gen) is represented by 100 randomly picked sentences from the corpus of contemporary Russian language in the RNC.

3. Analysis of the Data

3.1. Literal and metaphorical uses of the four quantifiers

My first research goal was to determine the factors that underlie the literal and the metaphorical usage of the four quantifiers.

Море. As mentioned earlier, the noun *море* in its literal meaning is a sea filled with water and cannot be followed by a Genitive construction to specify its contents. Therefore, *море* can only be used in construction море NP-Gen in a metaphorical sense. Exceptions are Genitive constructions with proper names (*море Лаптевых* 'the Laptev Sea') or territorial belongings (*моря России* 'Russian seas').

Туча. Similarly to *море*, the original definition of the noun *туча* already specifies that it consists of water: "a large, usually dark cloud, bringing rain, snow, or hail" [4] [Евгеньева 1957]. This means that any construction with an object in the Genitive case, describing what *туча* consists of, is a metaphor with a rain cloud as its source domain.

Куча. The definition of the noun *куча* does not specify what kind of objects it goes with: "a large amount of something in one place in a shape of a small hill" [5] [Ушаков 2012]. This definition highlights several features of the object: quantity (large amount), layout (in one place), and shape (a small hill). According to this definition, *куча* can consist of any objects, and the analysis of the corpus examples has shown that it is rarely used outside of the Genitive construction, except in some fixed expressions like *сваливать в кучу* or *лежать кучей*. In such cases, the contents of *куча* are usually clear from the context. In the database for this study, there are 31 examples of the nominal quantifier *куча* in its literal meaning, and 69 examples of metaphorical usage. The definition of the construction was considered metaphorical if it was clear from the context that the noun *куча* lacks one of its original features (quantity, layout, shape). Compare the following sentences:

(1) *Он сбегал к куче хлама и притащил два ящика.*
'He ran to a pile of rubbish and dragged back two crates'.
(2) *Прихожу на свою остановку, куча людей…*
'I come to my bus stop, [and see a] crowd of people...'
(3) *Борис Иммануилович, богатейший человек, владелец кучи предприятий.*
'Boris Immanuilovitsch, an extremely rich man, owner of a heap of enterprises'.

In the first example we can imagine a pile of rubbish - a large amount of some objects, all situated together in the shape of a hill. In the second example the object is people at a bus stop, it is still possible that their quantity is large and they are standing close to each other, but it is highly unlikely that they are heaped one over another. In the third sentence the objects of *куча* are enterprises. It is clear that the author underlines the large quantity of the enterprises, but they cannot literally be all in one place, let alone shaped in a pile. Therefore, examples two and three are metaphorical.

Груда. The definition of the word *груда* is very close to *куча*: a large amount of objects piled disorderly, one on top of the other. Just as *куча, груда* is defined through quantity (large amount) and layout (one on top of another, which is practically the same as in one place). The distinctive feature of *груда* compared to *куча* is disorder of objects, lack of shape - shapelessness. *Груда* is also regularly followed by a noun in Genitive. However, the ratio of literal and metaphorical meanings differs substantially from *куча*: there are 77 examples of the literal usage of *груда* vs. 23 metaphorical ones[6]. The following examples show the difference between literal and metaphorical meanings in Genitive constructions with the nominal quantifier *груда*:

[4] The original text is as follows: "Большое, обычно темное облако, несущее дождь, град, снег".
[5] The original text is as follows: " Большое количество чего-н., наваленное в одном месте горкой".
[6] I call these examples metaphorical, though further in the paper I will show that some of these constructions are formed by a combination of metonymy and metaphor..

(4) *Это значит, она увидела обложку журнала в груде газет и книг у постели.*
'It means that she saw a magazine cover in a heap of newspapers and books by the bed'.

(5) *Он перерывал груды источников, чтобы найти единственно необходимое и беспрекословно убедительное для возможного оппонента.*
'He searched through piles of sources to find only necessary and unquestioningly convincing things for a potential opponent'.

In the first example the literal *груда* of newspapers and books is mentioned: there are many objects, they are in disarray and piled together in one place. On the contrary, in the second sentence the objects are literature sources, which most likely are not collected in one place. Thus, the first example of the *груда* construction is literal, and the second one is metaphorical.

To sum up, measure constructions with nominal quantifiers *море* and *туча* are always used metaphorically, whereas constructions with *куча* and *груда* can be either literal or metaphorical. Despite very close definitions of the nouns *куча* and *груда*, literal and metaphorical examples are distributed unequally among them, as shown in table 2:

	МОРЕ	ТУЧА	КУЧА	ГРУДА
Literal meaning	0	0	31	77
Metaphor	100	100	69	23

Table 2. Ratio of literal and metaphorical examples of the constructions with nominal quantifiers in the database

3.2. The structure of the metaphors behind the four quantifiers

In the next paragraphs I will take a closer look at the types of metaphors involved in the measure constructions with the four nominal quantifiers.

According to the Contemporary Theory of Metaphor [Lakoff 1993] a metaphor is 'a cross-domain mapping in the conceptual system'. To understand how metaphors in the constructions with nominal quantifiers work, we need not only to identify source and target domains for each metaphor, but also to define the features that were transferred from the source domain to the target domain, since mapping is selective. The analysis of the quantified objects in the database has shown that metaphors are mapped differently depending on the semantics of the objects.

To categorize the objects (nouns in the Genitive case) into different types according to their meaning, I used a system of semantic tags provided by the RNC. Semantic tagging allowed me to discover several tendencies for each of the four quantifiers:

Море. The nominal quantifier *море* occurs rather often with liquids (30 examples out of 100). Apparently, this collocation is the most natural one, since the noun *море* has liquid (water) as part of its literal meaning. For example:

(6) *На столе доктор увидел опрокинутую чернильницу и море чернил.* 'On the table, the doctor saw an overturned inkwell and a sea of ink'.

In this sentence, both the source and the target domains (sea and ink) are liquids, and the image of the large amount of water in a sea is mapped onto the large amount of spilled ink. Both terms here are concrete, and the comparison is occasional, not systematic. This is an image metaphor, similarly to the following sentences:

(7) *Она старалась не прикасаться к бесконечным бутербродам* [...], *после которых хотелось выпить море жидкости.*
She tried not to touch the endless sandwiches [...], after which she wanted to drink a sea of liquid.
(8) *А потом ты сказала — присоединяйся, у нас море пива.*
'And then you said — join us, we have a sea of beer'.

The most frequent collocation of the type *море* + liquid is *море крови*, and the metaphor is more complicated in this case. On the construction level, this is also an image metaphor, where a large amount of liquid (water) of the source domain is compared to a large amount of liquid (blood) in the target domain. Thus, the phrase *море крови* can be defined as "large amount of blood". However, this set expression can have various meanings in a sentence depending on the predicate and broader context. In some cases it is used in a literal sense, as in the example 9, but mostly it is used as a poetic description of war and violence (examples 10 and 11). The usage of this phrase is remarkable in a metonymic context: bloodshed occurs as one of the results of injury, and injury is one of many actions typical for wars and armed conflicts. Therefore, a large amount of blood, or metaphorical "sea of blood" in examples 10 and 11 can be considered a metonymic shift from effect to cause (injury causes bloodshed), and from subevent to complex event (injury as one of the events of war) according to Geeraerts and Peirsman's definition of metonymy as a prototypically structured concept [Peirsman, Geeraerts 2006].

(9) *Видеоряд впечатлял: перевернутые столы, трупы на полу, из-под которых натекли целые моря крови.*
'The video was impressive: upturned tables, corpses on the floor, from under which leaked whole seas of blood'.
(10) *Двести лет Россия соприкасалась с Чечней, и было пролито море крови.*
'For two hundred years, Russia came into contact with Chechnya, and a sea of blood was shed'.
(11) *Эти моря крови позволили отбросить врага под Москвой, выстоять под Ленинградом, победить в Сталинграде.*
'These seas of blood allowed to fend off the enemy near Moscow, to survive near Leningrad, to win in Stalingrad'.

The metaphor *море слёз* is less frequent than *море крови* (3 examples against 20), but has the same structure and describes grief and suffering:

(12) *Реки крови, море слез, а им все нипочем!*
'Rivers of blood, a sea of tears, but they don't care!'

The nominal quantifier *море* is used with other concrete objects, apart from liquids:

(13) *Венки, море цветов – они стеной закрыли свежий холм.*
'Floral tributes, a sea of flowers - covered the fresh hill like a wall'.
(14) *В зале — море делегатов, съехавшихся из многих, даже самых отдаленных городов и районов Прикамья.*
'In the hall there is a sea of delegates who have gathered from many, even the most remote towns and regions of Prikamye'.

In the examples 13 and 14 *море* is also a source domain for the image metaphor, but instead of quantifying liquids we compare a large number of solid objects that, like a sea, cover a vast surface.

Sometimes the nominal quantifier loses most of its original definition, as in the following example:

(15) *Вот я вам прочитаю, если хотите, море эсэмэсок.*
'Let me read you, if you like, a sea of text messages'.
(16) *Море одежды для дома — в « Мире Ковров», Paradise, Yves Delorme, Pimonteks.*
'A sea of home clothes is at the "Carpet World", Paradise, Yves Delorme, Pimonteks'.

Sentences 15 and 16 are examples of a dead metaphor, or, in terms of Cornelia Müller, a sleeping metaphor [Sullivan 2018]. The only feature of the sea in such examples is a large quantity, and the noun *море* acts as a "pure" quantifier, without any additional semantics. However, such metaphors are often "awakened":

(17) *Да и попади туда, как сориентироваться в этом море документов?*
'Even if someone gets there, how can one find their way in this sea of documents?'
(18) *Однако большинство непрофессиональных читателей ощущает настоятельную потребность в [...] анонсах, ориентирующих в необозримом море литпродукции.*
'However, the majority of non-professional readers feel an urgent need for [...] announcements orienting in the boundless sea of literature'.

In the examples 17 and 18 the verb *сориентироваться*, the participle *ориентирующих* and the adjective *необозримом* borrow the same source domain of a sea being endless and hard to navigate and transfer these features to the target domains (documents and previews). In some cases the sea metaphor becomes rather elaborate, including not only the features of a literal sea, but also biblical references:

(19) *Они пошли обратно сквозь море невест, которое расступалось перед ними, словно перед народом Моисея.*
'They went back through the sea of brides, which parted before them, as if before the people of Moses'.

The nominal quantifier *море* often forms a measure construction with abstract nouns. These nouns denote objects that have no concrete physical representation. There are more collocations of abstract nouns with *море* than with any other nominal quantifier in this paper. Apparently, this result is caused by an ontological metaphor EMOTIONS ARE LIQUIDS [Stefanowitsch 2006], as most abstract nouns in the data are emotions (*впечатления, желания, счастье, удовольствие*):

(20) *Подарите любимой женщине море чувств и темперамент Казановы.* 'Give your beloved woman a sea of feelings and Casanova's temper'.

To sum up, metaphors with the nominal quantifier *море* are mostly based on the partial mapping of its original definition i.e. being a vast amount of liquid. The database shows that *море* is more frequent with liquid objects and emotions. The latter can also be considered liquids via conceptual metaphor EMOTIONS ARE LIQUIDS.

Туча. In a similar manner to *море*, most metaphors with *туча* are of the image metaphor type. The distinctive features of *туча* are not listed in its dictionary definition,

but can be drawn from our idea of a raincloud: it is a mass of small particles of water (raindrops, snowflakes, or hailstones) located in the air and capable of moving. Especially significant is moving towards the speaker, because it brings consequences such as rain, or snow, or hail.

The most frequent semantic tag of objects to co-occur with *туча* is 'stuff', which is assigned to substances and materials (nouns like *пыль* [17 examples], *песок* [8], *дым* [5], *брызги* [5], etc). In all sentences with the tag 'stuff', the context shows that the objects are hanging or moving in the air as a result of some event:

(21) *Армейские «кобры» уже облетали дорогу, а один вертолет опустился, поднимая тучу пыли.*
'Army "cobras" already flew around the road, and one helicopter descended, raising a cloud of dust'.

(22) *Поднявшийся от винтов ветер взбаламутил тучи песка, и забор, казалось, вот-вот сорвется и улетит прочь.*
'The wind rising from the propellers stirred up clouds of sand, and the fence seemed to be about to fall off and fly away'.

(23) *Она вдруг поскользнулась и бултыхнулась прямо в ванну, подняв тучу брызг.*
'Suddenly she slipped and fell right into the bath, raising a cloud of splutter'.

In all these examples construction туча NP-Gen is an image metaphor, based on similarity between a rain cloud and described events by a large quantity of small particles in the air.

Another frequent semantic tag is 'animal'. Metaphors with animals have similar structure to the objects referring to 'stuff'. Almost all animals in constructions with *туча* are small flying animals, usually staying in big groups: insects (*комары* 'mosquitos' [8], *мухи* 'flies'[5], *мошкара* 'flies' [4] etc.) or birds (*воронье* 'crows', *галки* 'daws', *голуби* 'pigeons', *чайки* 'seagulls'):

(24) *В ветреные дни пригоняет тучи комаров на городок.*
'On windy days, it brings clouds of mosquitoes to the town'.

(25) *И тучи воронья носились каруселью вокруг крестов.*
'And the clouds of crows carouseled around the crosses'.

However, not all objects in the sentences with *туча* are airborne. There are several examples where the metaphor becomes more complicated:

(26) *… В то время как мы остановились на Рыбнорядской площади, на нас налетела сзади целая туча чекистов, сразу же сваливших нас на землю…*
'As we stopped at Rybnoryadskaya Square, a whole cloud of Chekists flew at us from behind, immediately tackling us to the ground'.

(27) *Знаете, сколько мне лет? Вам пальцем качнуть — туча девочек налетит.*
'Do you know how old I am? You only need to swing a finger — a cloud of girls will come swarming'.

(28) *Здесь у тебя будет туча поклонников.*
'You will have a swarm of admirers here'.

The grammatical objects in 26, 27 and 28 are humans, incapable of flying. Still, not only the quantifier *туча* is used here, but also the verb *налететь* in the examples 26 and 27, which confirms mapping with a source domain, capable of flying. However, this verb along

with the rest of contexts in these sentences show that the objects here initiate the act of flying, opposed to the rain cloud that flies due to external impact. Therefore, the source domain in the last three examples is not a raincloud, but more likely a swarm of insects or birds, and the target domains are mapping the feature of active swooping upon someone (compare with the Russian fixed expression *как пчёлы на мёд*).

There is another feature that is sometimes mapped from the source domain 'rain cloud':

(29) *Люди ходили по дощатым мосткам, окруженным болотом, и летом над прохожими вились скрывающие солнце тучи комаров.*
'People walked on boardwalks surrounded by a swamp, and in the summer, clouds of mosquitoes hiding the sun would swarm above the passers-by'.

The ability to hide the sun is mapped not only in the literal sense, as in example 29, but also through the conceptual metaphor EMOTION IS LIGHT. The ability to hide the light in the source domain is mapped with negative consequences in the target domains:

(30) *Станция забита эшелонами и тучей народа.*
'The station is packed with trains and a swarm of people'.

(31) *… рисковать, когда в случае поражения теряешь тучу денег, на моем месте не стал бы никто.*
'No one would risk in my place, when you lose a lot of money in case of defeat'.

In several examples negative attitude is underlined by using adjectives with *куча* like *чертова*, *хренова*, *фигова*:

(32) *Народ платит хренову тучу денег, чтобы его оттюнинговать.*
'People pay a damn cloud of money to tune it up'.

Куча. This is the most frequent nominal quantifier of all four discussed in this paper (1353 examples of *куча*-constructions vs. 385 examples with *море*, 364 with *груда* and 111 with *туча*), and it has the widest range of collocations. Unlike *море* and *туча*, Genitive constructions with *куча* can be literal, not only metaphorical. Out of 100 examples 31 in my database include the word *куча* in its literal meaning, there is an actual pile of objects that the speaker describes:

(33) *Переступив через внушительную кучу одежды, она устало опустилась на стул, готовая разреветься от отчаяния.*
'Stepping over an impressive pile of clothes, she sat down on a chair wearily, ready to burst into tears out of despair.

However, most of the sentences with *куча*, like example 34, are metaphorical.

(34) *Во-вторых, чтобы пользоваться услугами Интернета, не нужно оформлять у того же провайдера кучу договоров и прочих документов.*
'Secondly, in order to use the Internet services, you do not need to draw up a bunch of contracts and other documents with the same provider'.

There is no literal pile of documents lying somewhere, and it is unlikely that someone would collect them and put them into a shape of a small hill, as the dictionary definition suggests. According to Lee Su Khen, the quantifier *куча* is the most grammaticalized [Ли 2005], i.e. has lost most of its semantics and almost turned into a quantifier, that only denotes large quantity. In fact, the only difference from a "standard" quantifier *много* is

that *куча* is used in colloquial speech and conveys some of the speaker's intense attitude towards the subject. This intensity may be caused by remaining mapping from the original definition of *куча*: not only the large quantity is mapped, but also the shape, through primary metaphor QUANTITY IS VERTICALITY (a pile with more objects is higher than the one with fewer objects) [Lakoff, Johnson 1980: 15-16] . The frequent co-occurrence of verbs with the prefix *на-* in sentences with *куча* (10 examples) may be supporting this assumption:

(35) *Друзья Гольдбергов нанесли кучу денег, и Таня переводила их в разные кулинарные изыски.*
'Friends of the Goldbergs brought a lot of money, and Tanya transformed them to various culinary delights'.

(36) *Хочется вернуться живым и здоровым, потому что знаешь, что наработана куча материалов, жутко полезных для всех, для нашей работы и для себя.*
'You want to return alive and healthy, because you know that a lot of materials have been accumulated that are terribly useful for everyone, for our work, and for yourself'.

In Genitive constructions *куча* appears most frequently with nouns describing money (*деньги* [11], *бабки* [1], *гранты* [1]). The metaphor here has the same structure as in example 34, and only adds expressiveness, money being an important part of everyday life:

(37) *А на все эти удовольствия уходит куча денег, и нужно быть по-настоящему прижимистой, чтобы сохранить хоть какие-то запасы.*
'And all these pleasures take a lot of money, and you need to be really fisted in order to save up at least some reserves'.

Груда. Even though the definition of the word *груда* is very close to *куча*, Genitive constructions with the nominal quantifier *груда* are significantly less frequent than those with *куча* (381 RNC examples for *груда* against 1459 for *куча*). The noun *груда* in Genitive constructions is more often used in its literal meaning (77 direct against 23 metaphorical examples):

(38) *Пройдете по камням, перелезете через ограждение, обойдете груду бочек, там он и будет.*
'Walk on the stones, climb over the fence, go around the pile of barrels, and there he will be'.

In the 100 examples of my database there are co-occurrences of the nominal quantifier *груда* with abstract nouns. Further research of the full data on *груда* has revealed only one such example[7]. There are several sentences, where the noun *груда* is grammaticalized and acts similarly to *куча* in example 34 — as a quantifier in colloquial speech:

[7] Воскресенский Михаил, сын священника, по прозвищу «замоскворецкий Вальтер Скотт», умер в 1867 году, а живьем чутко улавливал запросы читателя «среднего состояния», «писун толкучего рынка», его любили, и в романах его (сорок томов) «целые груды страстей, законных и противозаконных, события верхом на событиях», демонические герои, чувствительно возвышенный слог — кто давал Володе книги Воскресенского? [Александр Терехов. Каменный мост (1997-2008)]

(39) *Вот только я одного не могу понять, зачем меня заставляют читать такую груду бумаг?*
'But I just can't understand why they force me to read such a pile of papers?'

However, the majority of *груда* constructions are image metaphors that map shapelessness as a distinctive feature of the source domain onto the target domain:

(40) *Когда мы покупали линию, мы приобретали не просто груду металла, мы покупали возможность производить определенную продукцию.*
'When we bought the line, we were not just buying a pile of metal, we were buying the opportunity to produce certain products'.

In this example, the shapelessness of a pile of metal is opposed to the structure and functionality of equipment (*линия* 'processing line'). This feature is often highlighted by adjectives such as *непослушная*, *пережеванная*, *бесформенная* to the word *груда*:

(41) *...он окажется для нас чем-то вроде компьютера, на клавиатуре которого большинство клавиш западает, и надо еще ухитриться что-то ввести в эту непослушную груду железа и микросхем.*
'...It will turn out to be something like a computer for us, with the keyboard with most keys sunk, and we still have to manage to enter something into this naughty pile of iron and circuits'.

14 out of 23 metaphorical examples have a structure and a meaning similar to examples 40 and 41. This is another case of combined metaphor and metonymy. As already noted, the construction *груда металла* in example 40 is an image metaphor mapping lack of structure from the source domain (*груда*) to the target domain (equipment). However, the semantic shift between metal and equipment happens in the same domain (equipment), as metal is one of the materials the equipment is made of. In example 41, a computer is compared to a pile of iron and circuits. This is a combination of metonymy (material to object) [Peirsman, Geeraerts: 283] and image metaphor from the source domain (shapeless pile) to the target domain (computer). In most of such sentences, metonymic transfer from material to object is used to highlight damage, malfunction, or uselessness of various kinds of machines, such as vehicles or computers. Several examples use the same metonymic transfer (example 42), or transfer from part to whole [Peirsman, Geeraerts 2006: 280] (example 43) to show a human's apparent "malfunction" — negative transformation or sickness:

(42) *И все-таки пристрастный взгляд Серпухина угадывал в заплывшей жиром груде мяса того, молодого Мокея, что так любил жизнь и нравился женщинам.*
'Still, Serpukhin's biased glance could recognize the young Mokey, who loved life so much and was liked by women, in the heap of meat swollen with fat'.

Comparing a person to the meat he consists of shows the speaker's attitude towards some negative changes that happened to this person.

(43) *Может статься, он и был грудой тряпья, ибо тела в нем уже почти не оставалось.*
'It may well be that he was the pile of rags, for there was almost no body left in him'.

The same combination of metaphor and metonymy can also be found in the construction with *куча*, but it is not frequent - there is only one such example in the dataset:

(44) *Мы приехали без скелетонов и только в последний момент выпросили у организаторов какую-то кучу металлолома на коньках.*
'We arrived without skeletons and only at the last moment we managed to ask the organizers for some pile of scrap metal on skates'.

Again, a skeleton sleigh is named after the material it is made of via 'material to object' metonymy, and at the same time it is compared to a pile of metal via image metaphor to highlight its bad quality.

4. Conclusion

In this work I address the semantics of the four measure constructions with the nominal quantifiers куча/море/туча/груда NP-Gen, based on the data from the RNC. Unlike similar "standard" quantifiers such as *много* or *столько*, each of these constructions has its own collocational restrictions on the governed noun in the Genitive case.

Constructions with the nominal quantifiers can have either literal or metaphorical meaning. During the transition to a metaphorical nominal quantifier, the noun loses its literal meaning, but still keeps some distinctive features. These features determine the collocational restrictions of a quantifier. They also allow usage of metaphor and metonymy in the structure of the measure constructions to highlight certain aspects of the quantified objects. In these cases, the original definitions of the nouns *куча*, *груда*, *море*, and *туча* act as the source domain, and the quantified objects are target domains. All four quantifiers convey the idea of a large amount of an object. The word *куча* is the most grammaticalized quantifier, which has lost most of its original semantics, whereas other nouns usually map their distinctive features to target domains. The main feature of *море* is 'being a liquid', therefore it is more frequent with liquid objects and emotions via the conceptual metaphor EMOTIONS ARE LIQUIDS. *Туча* is mostly distinctive by consisting of small particles being in the air, thus it appears most often with free-flowing materials such as dust or sand as well as with insects and birds. *Куча* is the most frequent quantifier and has the widest range of collocations, its distinctive features are almost non-detectable in the sentences. *Груда* is the least metaphorical quantifier, and mostly used in its literal meaning (a pile). When we use *груда* in metaphorical sense, the construction груда NP-Gen represents a combination of metaphor and metonymy to express malfunction of the object or negative attitude of the speaker.

To summarize, this research has shown that measure constructions with the nominal quantifiers *куча*, *море*, *туча*, and *груда* are used in different, though overlapping, collocations determined by the original definitions of the nouns. These nouns can be used in their literal meanings, as well as in creating metaphors or even combinations of metaphor and metonymy.

Data Sources

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The Russian National Corpus http://www.ruscorpora.ru/

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APPENDIX

Dataset in Google Sheets:

https://docs.google.com/spreadsheets/d/1EIXI4ygbvLB1rJtxo0gasJb3xdwXAzl7IKW9AVk_PWY/edit?usp=sharing

Complete model of the radial category for MEASURE constructions:

https://drive.google.com/file/d/1dl0JcbcyU9zGg_0l-BXuEAkQkUoZCpHj/view?usp=sharing

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