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# **SEMANTICS OF FALLING: A CROSS-LINGUISTIC APPROACH**

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## **SEMANTICS OF FALLING: A CROSS-LINGUISTIC APPROACH<sup>3</sup>**

The paper gives a cross-linguistic insight into the domain of falling predicates. The research employs the methods based on combinability restrictions of lexical items in different languages developed by the Moscow Lexical Typology Group. The basic typologically relevant parameters that constitute the domain are the object of a falling event, the source of the motion and the goal of the motion. The lexical data presented in the study was collected from more than 20 languages.

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## 1. Introduction

Until recently, methods of linguistic typology were merely employed to investigate grammatical or phonological phenomena. Cross-linguistic analysis of lexical systems, focusing on typological universals and variation in lexical categorization of conceptual domains, is a relatively new area of linguistic study. Nevertheless, it has already attracted considerable attention from many researchers and formed its own tradition. Certain lexical domains have been so far thoroughly described. Apart from classical work on the description of colour terms (Berlin & Kay 1969), those, among others, include giving events, body positions, eating and drinking (Newman (ed.) 1998, 2002, 2009), human senses (Majid & Levinson (eds.) 2011), etc.

The objective of the present paper is to present a cross-linguistic description of falling predicates developed by the Moscow Lexical Typology Group (for details on the group's research activities, see <http://lextyp.org/en/>).

## 2. Methodology

Among the most prominent methodologies proposed in the area of lexical typology are Natural Semantic Metalanguage or NSM (Anna Wierzbicka and Cliff Goddard) and denotation-based approach (MPI Nijmegen: Asifa Majid, Stephen Levinson, et al.).

The former generates results on the basis of so called semantic primitives. The obvious advantage of this approach is a closed set of basic elements that enables the comparative analysis of semantic distribution across languages. In practice, however, each particular study dwells heavily on introspection, which impedes the verification process (see Goddard & Wierzbicka 1994, 2014).

The latter implements experimental tools, such as visual stimuli (pictures, short video clips) to elicit lexical reactions from native speakers of various languages (cf., among others, Majid & Bowerman (eds.) 2007, Levinson 2008, Majid & Levinson (eds.) 2011). Extralinguistic nature of the stimuli ensures clear *tertium comparationis* and objectivity, although such methodology is not universally applicable. It thus seems to be absolutely inappropriate for studying subjective experience domains, of which predicates of pain serve as a bright illustration. Even if one takes enough courage to prick a native speaker, the linguistic result would be poor, because all individuals have a different threshold of perception and experience pain differently. It is therefore clear that pain terms need another – non-experimental – approach, see (Reznikova et al. 2012). Of subjective experience, that constitutes a large part of what is expressed in human languages, pain is not the only instance, cf. also physical qualities, like *soft*, *sharp* or *heavy*.

Another feasible limitation to be pointed out in relation to denotation-based approach is that, heavily dependent on straightforward stimuli, it only checks for direct meanings and is unsuitable for exploring the typology of metaphorical extensions.

The current study employs an alternative methodology proposed by the Moscow Lexical Typology Group (MLexT). This approach combines two traditions: deep semantic analysis of the lexicon with a special focus on synonymy, as developed by the Moscow Semantic School, and traditional methods of grammatical typology (see Rakhilina, Reznikova 2014). Roughly speaking, we aim at describing “linguistic behavior” of lexical items through combinability restrictions. To do so, we resort to a number of sources and tools: dictionaries, corpora and specially designed questionnaires used in fieldwork. This methodology has already resulted in detailed descriptions of several domains of different kinds. The Moscow Lexical Typology Group projects include typological research in activities & states, cf. verbs of aquamotion (Maisak & Rakhilina (eds.) 2007), pain metaphors (Reznikova et al. 2012), sound metaphors (Rakhilina 2010, Reznikova et al. 2015), verbs of rotation (Kruglyakova 2010), verbs of oscillation (Rakhilina & Prokofieva 2005, Shapiro 2015), and physical qualities (e.g. ‘sharp’, ‘wet’, ‘soft’, ‘even/flat’, cf. Kyuseva 2012, Kashkin & Vinogradova 2015, and others).

Each study within the given framework starts with collecting all lexical items covering the field in the native language of the researcher, these items are subsequently matched with their dictionary translations from the languages in the sample. The collected raw data are verified with the help of questionnaires presented to native speakers of the languages, and lexical distribution is further checked in linguistic corpora if available. The questionnaires are also used to access vocabularies of minor languages that are poorly presented in dictionaries and have no corpora. To illustrate the procedure we shall turn to the analysis of OLD property and demonstrate the procedure as if we departed from the system of the English language.

First, all the occurrences of the English adjective *old* are to be found in the corpus. The property that is expressed with the word *old* is sometimes named with another lexeme, all the synonyms discovered in the corpus form the initial list of relevant terms, cf. *old woman*, *old horse*, *old tree*, *old town (+ancient)*, *old clothes*, *old director (+ former)*. These terms are searched for in bilingual dictionaries to define the set of quasi-synonymous lexemes for each language in the sample, cf. French *vieux*, *âgé*, *ancien*, Japanese *oita*, *furui*, Georgian: *moxuci*, *beberi*, *dzveli*, *qop'ili*, *adrindeli*, etc.

Then the data are subjected to corpus (if corpora are available for a given language) and dictionary analysis to see how the quasi-synonyms from our list are distributed between different contexts. For example, in Japanese the adjective *oita* is used to describe people, while all other

situations are expressed with another word *furui*. Based on the data coming from different languages, we pick out minimal classes of contexts that are opposed in at least one analyzed language.

This classification is introduced into a questionnaire for native speakers. Below we demonstrate part of this questionnaire:

- *We have an \_\_\_oak close to our house; my great-grand father planted it many years ago.*
- *His \_\_\_ wife was kind-hearted and the new one is beautiful but bad-tempered.*

By comparing the results of the questionnaires completed for different languages we extract a set of situations that are recurrently opposed in various lexical systems. We refer to such situations as frames. Presenting a slightly simplified picture, we list four main frames that cover the domain of OLD:

- ‘having lived for many years’ (*old woman*) –for the sake of brevity we label it as “person”
- ‘object being in use for a long time, has become useless and/or decayed’ (*old clothes, old house*) – “clothes”
- ‘the object that is no longer in use or the duty that is not performed any more’ (*old flat, old director*) – “director”
- ‘dating from the remote past’ (*old coins, old city*) – “coins”

Typological data are further visualized as semantic maps. Points (words) in these maps refer to frames, coloured lines show the coverage of the lexemes in the domain, as is shown in Fig. 1:

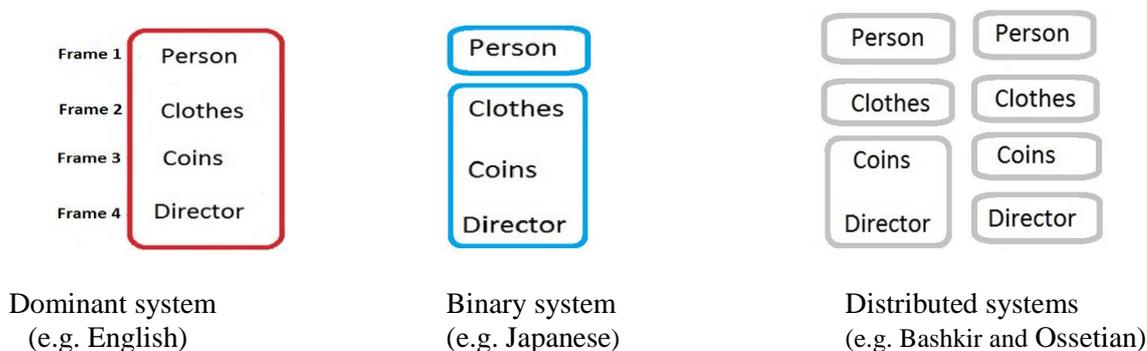


Fig. 1. Semantic maps for the domain of OLD

Fig. 1 illustrates three types of lexical systems found across languages. In dominant systems one lexeme can be used to cover all 4 frames (this doesn't mean, however, that there are no quasi-synonyms that share one of the frames with the dominant lexeme). Distributed systems either match each frame with a separate lexeme or have three obligatory lexemes in the domain. The frames in binary system languages are distributed between two words.

In the remainder of the paper we will present the preliminary results of a research employing the same methodology for the domain of FALLING. The data presented in the study are result of collaborative work by BA and PhD students and faculty of the Higher School of Economics, our colleagues from Lomonosov State University and other academic institutions of Moscow in 2015<sup>4</sup>.

The language sample for the present study includes 23 languages: 2 Slavic (Russian, Slovenian), 3 German (English, Yiddish, German), 1 Romance (French), 6 Uralic (Finnish, Izhem dialect of Komi-Zyrian, Moksha, Besermyan dialect of Udmurt, Mari, Samburg dialect of Tundra Nenets), 3 Turkic (Tatar, Kyrgyz, Chuvash), 4 Caucasian (Kabardian, Aghul, Georgian, Armenian), 2 Iranian (Tajik, Shughni), as well as Japanese and Indonesian.

### 3. The domain of FALLING

We determine falling as a downward motion with two distinctive features. First, the motion should be uncontrollable, this means that the situation of a bird lowering during its flight is not considered as falling due to its intendedness. Second, the trajectory should have no contact with a surface in the course of motion, thus sliding down does not also belong to the domain that we are studying (see Kuzmenko, Mustakimova 2015). The prototypical situation of falling is vertical downward motion caused by gravity, cf. examples from Mari and French:

(1) Mari [Zakirova 2015]

*olma pu gəč kamvozo*  
'An apple fell from the apple tree'.

(2) French

*Une pomme lui est tombée sur la tête.*  
'An apple fell on his head'.

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A distinguishing feature of the FALLING domain is that the majority of lexical systems from the sample are dominant, i.e. there is one lexeme that covers the largest share of all relevant frames, cf. English *fall*, French *tomber*, Russian *padat'*, Besermyan *uš'anə*, etc. Meanwhile certain situations of falling can lie within the scope of both the dominant lexeme and a lexeme with more specific semantics. There are also instances when the dominant lexeme is not accessible and using the specialized word is the only way to lexicalize the situation.

Below we give semantic accounts of dominant lexemes from various languages and define cognitively relevant aspects of FALLING that obtain their specific lexical coding.

Lexical diversity in verbal lexis is usually explained by the diversity of semantic classes of arguments (Reznikova, Rakhilina 2014). Within the domain of falling three basic arguments are pointed out: object of falling, source (initial point or position) and goal. In the remainder of the paper we will focus on those types of arguments that are relevant for lexical choice.

### 3.1. Type of object (trajector)

Languages are lexically sensitive to several properties inherent to the object of a falling event. As our results demonstrate, those that recurrently lead to lexical oppositions are **animacy / inanimacy, multiplicity and fluidity** (referring to powders, such as flour, and liquids). Animate and inanimate nouns are used with different verbs of falling, for example, in Nenets (cf. *moqnas'* 'fall' used with animate subjects and *xəwəs'* 'fall' with inanimate nouns<sup>5</sup>) and Shughni (*gārō* 'fall' used only with inanimate trajectors).

**Multiple objects** (leaves, apples, stones etc.) are also combined with a particular falling predicate in many languages. An example is Armenian, where, apart from the dominant lexeme *anknel* describing practically all situations of falling, another verb *t'ap'vel* is normally used with multiple trajectors.

#### (3) Armenian

*k'are'r t'ap'vum en saric'.*

'The rocks are falling from the mountain'.

Two different types of objects that we are looking at in the final part of this small section are liquids and powders. In many cases this type of falling is lexicalized with a single predicate, that's why we have brought them together under the property of **fluidity**. Such is German (cf. also the English verb *pour* having the same distribution):

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<sup>5</sup> Apart from *moqnas'* and *xəwəs'*, Nenets has a dominant verb *məntas'* 'to fall from above' that can be used with both animate and inanimate trajectors.

(4) German

- a. *Der Regen wird heftiger, das Wasser **rinnt** in Strömen.*  
'The rain is getting stronger, the water is streaming down'.
- b. *Der Sand **rinnt** aus dem oberen Glas in das untere.*  
(of sand-glass) 'The sand is pouring from the upper bowl to the lower one'.

Another illustration comes from a different language family – the Ural family. In Komi-Zyrian “falling” liquids and powders are described with a special verb *kis's'yny*, and are not included in the scope of the dominant lexeme *us'ny*:

(5) Komi-Zyrian [Kashkin 2015]

- a. *pyz'ys mešeks'ys **kis's'e**.*  
'Flour is pouring from the bag'.
- b. *pätälaks'ys vays **kis's'e**.*  
'Water is pouring from the ceiling'.

However, there are languages that draw a line between these two types of objects, like in Kabardian (*jəž'an* ‘fall’ for liquids and *ləlen* ‘fall’ for powders) [Kyuseva, Ryzhova 2015] and Russian (*lit'sja* ‘fall’ for liquids and *sypat'sja* ‘fall’ for powders):

(6) Russian

- a. *Sverxu **lilas'** voda.*  
'Water was pouring from above'
- b. *So stola **sypetsja** saxar.*  
'Sugar is pouring from the table'

Powders are sometimes expressed with the same lexeme as a multiple trajector, cf. Georgian, where falling sand, leaves and even carts are described with the same predicate *cvena*. However, there are instances when those are opposed. In Besermyan Udmurt, for example, the predicate of falling that collocates with nouns meaning apples and glasses is *kərdəne*, while the one used for naming the same motion for flour is different (*kiškanə*).

Having their particular lexical distribution are hair and teeth, that can be expressed with a dominant lexeme or take the same predicate as pouring substances, cf. the Armenian verb *t'ap'vel*, also used for liquids:

(7) Armenian (East Armenian National Corpus, <http://www.eanc.net>)

- Arden t'ap'vel ēin glxi bolor mazerə.*  
'All the hair fell out off the head already'.

In some languages predicates of falling combining with hair are opposed to those combining with teeth, cf. Agul *adaqas*, used with teeth vs. *ala<sup>w</sup>as*, used with hair: here teeth are

conceptualized as powders, i.e. *adaqas* also describes falling sand, and hair as liquids, cf. *alafwas*, which names the downward motion (pouring) of water.

Other distinctive frames that profile the trajectory type include collapsing buildings or other constructions (like bridges) and precipitations. Although both situations are quite different from prototypical falling, they describe uncontrollable downward motion and thus can in some languages be encoded with a dominant verb of falling (cf. *pudota* in Finnish, which can, among many other objects, describe falling bridges, or *prams* in Moksha used for almost all types of falling including precipitations). The idea of falling here, though, is peripheral, cognitive salience is granted to the idea of destruction for collapsing constructions and the natural phenomenon for precipitations, for this reason these frames frequently lie beyond the scope of the dominant verb, cf. *kwaškanə* in Besermyan or *p'lvl* in Armenian for constructions and special verbs derived from nouns that denote precipitations like *rain* in English or *snežiti* 'to snow' in Slovenian.

### 3.2. Source of the falling motion

The second important parameter that we account for in the present paper is **the source of falling**. Types of sources typically include containers, objects that the trajector was initially attached to and high peaks.

Falling out of a container is frequently lexicalized through derivatives, cf., for example, Slavic languages, where prefixed verbs normally express this meaning. Such are the Slovenian verb *izpasti* and the Russian verb *vypast'* (both meaning 'fall out of/from a container'):

(8) Russian

*Ptenec vypal iz gnezda*  
'The chick has fallen out of the nest'.

Certain languages use the same lexical coding for such trajectors as hair and teeth, like Estonian, where the verb *kukkuma välja* is normally used to express both frames (see the previous section for more detail).

Particularly marked are also the situations when the trajector, initially attached to another object, loses its point of fixation or a bearing point, cf. Russian:

(9) Russian

*Veryovka soskočila s gvozdyä.*  
'The rope fell off the nail'.

The last type of lexically distinguished sources of falling is a peak or a great height. It is specially marked, among others, in English (*to plummet*), Slovenian (*strmoglaviti*) and French (*chuter*):

(10) English

*The plane plummeted to Earth with such force that “almost everything vaporized on impact”.*

(11) Slovenian [Kuleshova 2015]

*Neki galeb je strmoglavil na tla, otepa s krili in poskusi, da bi vstal.*

‘A seagull fell on the ground, it is moving its wing, trying to get up’.

Falling from an elevated source implies a quick abrupt downward motion. This extends the use of such verbs to the contexts of a sudden quick fall:

(12) French

*Elle chuta de sa chaise.*

‘She plummeted off the chair’.

We have so far discussed only those situations that involve the change of the bearing surface, i.e. the trajector moves from one surface to another (from the upper to the lower one) as a result of a falling event. However, a situation when the trajector changes its initial vertical orientation and still resides on the same surface is also conceptualized as falling. Despite the fact that in some languages it is described with the dominant predicate of the domain, cf. Estonian *kukkuma* (‘fall’, used for all possible types of frames), this opposition can also be lexically marked. Examples, among others, are the Kabardian verb *wək<sup>w</sup>ərjəjən*, used to describe standing objects changing their vertical orientation while falling, and Yiddish:

(13) Yiddish [Kuzmenko, Mustakimova 2015]

a. *Der farvunderter iz umgefahn.*

‘The wounded soldier fell on his back’.

b. *Er hot zikh aropgevalgert funem dakh.*

‘He fell down from the roof’.

### 3.3. Goal of the falling motion

The last parameter to be discussed in this section is **the goal of the falling motion**. If the goal point is implied, the situation of falling is potentially expressed with a special lexeme, cf. Shughni (*ðod*). An interesting manifestation of lexical sensitivity to this parameter is found in Georgian, where the verb *cvena* takes different prepositions depending on the topological class

of the goal point (cf. *da-cvena* coding the falling event ending on a horizontal surface, and *ča-cvena* which implies a hollow as a goal point).

A particular type of goal is the final position of the trajector after the falling event. This opposition is primarily characteristic of people. Typical frames<sup>6</sup> in this group are falling on the back, face down or sideways, cf. Nenets verbs *t'indas* (lit. 'falling forward') and *lasas* ('falling backwards'):

(14) Nenets [Pleshak 2015]

- a. *mən'jid t'indiw*  
'I fell into the water face down'.
- b. *p'et'a jid l'asejq*  
'I fell into the water on my back'.

Special lexemes are also used for layers as particular goal points, see example (15) from Mari:

(15) Mari [Zakirova 2015]

*maj luməško pulvujəško šumeš puren kajəšəm.*  
'I fell into the snow to the knee'.

Typically, languages distinguish falling into the water as a separate frame. These combinations are most often described with words that combine falling and sound semantics, cf. Russian and Kabardian:

(16) Russian

*On pljuxnulsja v lužu.*  
'He landed into the puddle'. (implying that the event was accompanied with a special sound)

(17) Kabardian [Kyuseva, Ryzhova 2015]

*pχer jərjəhəžerjə meqəš'xo qəpəɽ<sup>w</sup>č<sup>w</sup> psəm xex<sup>w</sup>a*  
'The log rolled on and fell into the water'

Apart from the basic participants, languages sometimes specifically mark the circumstance causing the falling situation. This is the case primarily if the subject of falling is a person who can fall out of tiredness, or clumsiness (stumbling over something).

## 4. CONCLUSIONS

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<sup>6</sup> That doesn't imply, however, that this parameter is irrelevant for inanimate nouns, however those should be topologically unambiguous.

In the present study we have given a typological account of the lexical domain covering falling events. We have shown the main parameters and frames that govern the lexical choice. Collected data suggest that the largest share of the domain, which is quite rich lexically, is usually covered with one dominant lexeme. At the same time certain subtypes of falling can be expressed with a special lexeme, either sharing the marking with the dominant one or being the only possibility to describe the meaning. Such “cognitively salient” situations include, for example, falling of a person or a multiple trajector, changing the initial vertical position while remaining on the same surface, falling into the water, etc.

The representation of the FALLING domain in the paper is based on three basic parameters: trajector, source and goal. These parameters were analyzed in terms of participant types that can potentially lead to lexical oppositions across languages. Such an approach may produce the impression that the structure of FALLING is reduced to a set of independent semantic features, and their combinations in existing lexical items are specified by listing, as accepted in the theory of componential analysis (cf. Lehrer 1974). However, we have chosen this approach to systematize the representation of the data. The FALLING domain is a bright illustration of interconnectivity between various parameters of the situation. Moreover, defining one of them often specifies the situation as a whole. For instance, if the falling event implies hair or teeth as trajectors, the goal point of the motion is no longer relevant, and, if the goal point is water, irrelevant is the trajector type. In other words, the semantic domain is specified with the set of integral images – gestalts – profiling certain aspects of a given situation. Within our framework, these holistic units correspond to lexical frames, which gives clear evidence that the approach developed by MLexT is cognitively relevant.

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