Frame-Evoking and Lexical Prefixes in Bulgarian

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Abstract. The paper outlines an approach to the representation of lexical prefixes with a view to what is known as their argument-structure changing properties. The prefixes are treated as abstract frame-evoking predicates that interact with and subordinate the frame of the constant. A case study illustrates the specifics of this interaction and its effects on the conceptual structure and the syntactic properties of the derived verbs as compared with those of the constant.

1 Introduction

It has been widely acknowledged that Slavic verbal prefixes are a heterogeneous group that can be divided in at least two major classes - lexical and superlexical (Svenonius 2004, among others). This distinction, based on the capacity of the lexical prefixes of affecting the inherent structure of the verb, is recognised across theoretical accounts, although phrased in different terms with respect to the level affected - logical structure (Van Valin & LaPolla 1997), argument structure (Svenonius 2004), lexical conceptual structure (Spencer & Zaretskaya 1998), etc. In the following paper I assume that lexical prefixes are frame-evoking elements in the sense adopted in the Framenet project (Ruppenhofer et al. 2006). Following the idea of constants in Levin and Rappaport Hovav (1995 and subsequent work), I will refer to the predicates (as well as to other frame-evoking elements) that lexicalise the core idiosyncratic meaning subject to modification in the process of prefixation by that term or (where appropriate) also as verb roots. The interaction between the constant’s frame and the prefix’ abstract frame-evoking properties results in the subordination of the former, as a result of which a change is effected in the lexical meaning of the constant, and possibly in its conceptual structure (frame). Since the semantics of the prefix is rather abstract, the preverb does not necessarily evoke a single frame, but rather any of a small set of frames sharing certain properties. It is the interaction of the properties of the constant and the prefix that determines which of these frames will be realised.

2 A case study - the locative meaning of the prefix za-

In what follows I will discuss a group of verbs formed with the locative prefix za-. It denotes affecting the surface(s) of an object, or the object itself (on or
from (all) sides). The derived verbs fall into a small number of coherent semantic classes defined by the interaction between the idiosyncratic meaning of the constants and the meaning of the prefix, such as verbs of covering/filling (where the prefix evokes the frame Filling) or verbs of hiding (where the prefix evokes Hiding objects).

Let us first consider the interaction between verb roots and prefixes. According to Filip (Filip 2008) Slavic prefixes 'add meaning components that contribute to specifying a criterion for ordering of events' in the denotation of verbs, i.e. they define a scale that orders the set of events 'based on the degree to which they possess a certain measurable property' (spatial, temporal, etc.) and an upper bound. From the definition of za- it follows that the nature of the scale specified by the prefix is in the spatial dimension and that the constants that combine with it have some spatial component to them.

Indeed, many of the constants that form za- verbs are verbs of covering/filling, i.e. in terms of the chosen framework, they evoke the frame Filling defined in Framenet as including 'words relating to filling containers and covering areas with some thing, things or substance...'. The frame identifies the following core elements:

- **Agent** [Agt], a Sentient actor;
- **Cause** [cau], an Event which brings about the filling of the Goal;
- **Goal** [Goal], the area or container being filled, generally the NP Object;
- **Theme** [Thm], a Physical object (or substance) which changes location.

Consider the prototypical verb for the frame Filling pălnya (fill). It denotes the process aimed at covering/filling or, on general reading, the result of covering/filling. The prefix na- yielding the pair na-pălnya/na-pălmam contributes a meaning that corresponds to a scale specifying volume/quantity.


As an anonymous reviewer points out judgements are not always quite clear as to actually reaching the limit, i.e. the upper bound. Indeed, examples such as 'na-pălnya dopolovina' (fill half of) point to that, but they specify a different scale (half), and the verb specify 'exhaustiveness' with respect to it. In the absence of a clear indicator suggesting otherwise, the most likely interpretation is that of reaching a maximal degree on the specified scale.

With respect to the pairs na-pălnya/na-pălmam and za-pălnya/za-pălmam the crucial difference between them lies in the fact that the latter prefix specifies a

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1 throughout the paper the aspectual pairs of derived verbs are given in the following order - perfective/secondary imperfective; the secondary imperfective is derived by means of an imperfective suffix from the derived perfective; despite the aspectual differences the derived pair shares common properties with respect to conceptual (argument) structure and the distinction is therefore considered irrelevant for the purposes of the present account.
scale and an upper bound on a spatial locational dimension. As a result, with verb roots alternating between filling and placing interpretation, za- evokes the frame Filling and rules out Placing, hence 2f is ruled out. Na- verbs allow the Filling/Placing alternation (2a, 2c) in a similar manner as the constants do.

2a [Momcheto]_{AGENT} (na-)pˇ alni [sˇ ada]_{GOAL} [s voda]\_\_\_THEME.
2b [The boy]_{AGENT} filled [the container]_{GOAL} [with water]\_\_\_THEME.
2c [Momcheto]_{AGENT} (na-)pˇ alni [voda]_{THEME} [v metalnia sˇ ad]_{GOAL}.
2d [The boy]_{AGENT} poured [water]_{THEME} [in the container]_{GOAL}.
2e [Momcheto]_{AGENT} za-pˇ alni [metalnia sˇ ad]_{GOAL} [s voda]_{THEME}.
2f *[Momcheto]_{AGENT} za-pˇ alni [voda]_{THEME} [v metalnia sˇ ad]_{GOAL}.

To conclude, the prefix za- evokes frames related to affecting a surface in a manner that is compliant with the properties of the constant. In the case with filling constants the resulting verb evokes the same frame.

The semantics of the constants and the prefix in the above cases is to a great extent similar, which renders the result quite trivial. Let us now proceed to the interaction of the prefix za- with constants that evoke other frames. Consider for instance the verb pair zastroya/zastroyavam meaning ‘cover an extent or area with buildings’ derived from the verb stroya (build). The constant evokes the frame Building that ‘describes assembly or construction actions, where an Agent [Agt] joins Components [Cmpnt] together to form a Created entity [CrEnt], which is profiled, and hence the object of the verb.’ Beside the three core elements, the frame features a number of peripheral and extra-thematic elements that describe different aspects of the situation. One of the peripheral FEs - Place, identifies the place where the building occurs, syntactically expressed either by a prepositional phrase or by an adverbial phrase with a locative meaning.

(3) show the prefixed verb postroya where the prefix po- denotes the completion of the creation process and hence defines a scale related to the physical extent (Filip 2008).

3a [Rabotnitsite]_{AGENT} po-stroiha [golyama kˇ ashta]_{CR,ENT} ot [tuhli]_{CMPNT} v [poleto/tam]_{PLACE}.
3b [The workers]_{AGENT} built [a big house]_{CR,ENT} out of [bricks]_{CMPNT} in [the field/there]_{PLACE}.

Let us go back to the interaction between the prefix za- and the constant stroya. In the case of zastroya/zastroyavam (4) an element, semantically identical to the non-core Place FE of the Building frame, is conceptualised as a core FE. The attachment of the prefix za- to the constant stroya results in the verb pair’s evoking of the frame Filling:

4a [Rabotnitsite]_{AGENT} zastroiha [poleto]_{GOAL} s [kˇ ashti]_{THEME}.
4b [The workers]_{AGENT} covered(by-building) [the field]_{GOAL} with [houses]_{THM}.

The juxtaposition of stroya/postroya(vam) and zastroya(vam) reveals the way in which a prefix may affect the conceptual structure and, in consequence, the related levels of semantic and syntactic description.
(i) The constant preserves its idiosyncratic structure of participants and relations while the participants are (re-)mapped onto the frame evoked by the prefixed verbs. In the case under consideration physical object(s) of a particular semantic type (Created_entity), that is/are created by means of joining components together, come to occupy (as an abstract act of placement - Theme) an extent of land (Goal) under the influence of an Agent.

(ii) The core frame element projected as an external argument in the frame Building belongs to the semantic type Agent, whereas the respective frame element of the Filling frame may either be Agent or Cause. The constant stroya imposes selectional restrictions upon the corresponding frame element instantiated by zastroya(vam), resulting in the ruling out of the Cause examples.

(iii) The profiled core element Created_entity (Artefact) is conceptualised as Theme (Physical object). The entities that may be realised as the Theme element are subject to the semantic restrictions imposed by the constant stroya on the Building frame element Created_entity, therefore physical objects that are not artefacts are disallowed.

(iv) The core element Components of the Building frame is demoted to a non-core participant (Material (denoting components, ingredients, etc.)) of the frame Buildings (noun-evoking frame distinct from Building) evoked by the Theme element.

(v) Finally, the non-core element Place of the Building frame is conceptualised as the profiled core element Goal of the Filling frame. The selectional restrictions are those relevant for the Place element (areas and surfaces of land), so containers and other surfaces are not licensed.

To sum up the argument, the za- verb pair evokes a frame that is different from the constant’s and one that is predictable from the conceptual properties of the prefix. A stronger case is provided by verbs whose constants do not feature certain elements that are to be mapped onto the frame Filling. Consider the verbs zalesya/zalesyavam (afforest), zatreya/zatreyavam (grass - `cover with grass’), zamaglya/zamaglyavam (cloud, fog), zasnezh/zasnezhavam (snow up, cover with snow), derived respectively from the constants forest, grass, fog, snow. In abstract terms these verbs may be represented by the definition: ‘cover some area with N’, N being the constant, i.e. they also evoke the frame Filling. The constants share the property of having spatial extension, i.e. they occupy locations, spread over surfaces, etc. Obviously, they must evoke a frame that features some kind of locative relation FE, that is conceptualised as the Goal element of Filling.

Consider the verb zalesya(vam). As defined in Framenet, the constant forest evokes the Biological_area frame, that ’[...] denote large ecological areas as well as smaller locations characterized by the type of life present - in other words, geography locations as defined by biota.’ The frame has one core element: **Locale** [Locl] - a Location which ‘identifies a stable bounded area, and is typically the designation of the nouns of Locale-derived frames’;
There is an oak forest in the valley.

(i) The Locale frame element is conceptualised as the Goal argument of the derived pair. Being profiled, it is syntactically expressed as a direct object. Besides, the non-core element Constituent_parts [Cnst] of the Biological_area frame is conceptualised as the Theme element of the Filling frame (6):

6a [Rabotnitsite]AGENT zalesiha [dolinata]GOAL s [dabh]THEME.
6b [The workers]AGENT afforested [the valley]GOAL with [oak]THEME.

(ii) The Biological_area frame does not feature any FE that corresponds to the Agent/Cause of the Filling frame, hence this FE should be attributed to the frame-evoking properties of the prefix.

On the basis of the above observations it may be concluded that the prefix evokes frame(s) that subordinate the constant’s frame where subordination includes the mapping of FEs of the constant’s frame to FEs of the prefix’ frame, and/or the suppression of FEs, and/or the ‘introduction’ of FEs not available in the constant’s frame. Mapping may either be straightforward, re-mapping (non-profiled core to profiled core FE; profiled core FE to non-profiled core FE) or may include promotion (non-core to core movement) or demotion (core to non-core movement) of FEs.

I. Straightforward frame mapping (e.g. pahnya - zapatnya/zapatvam) where:
   I.1. the frames evoked by the root (henceforth - REF (root-evoked frame)) and the derived verb (henceforth - DVF (derived-verb frame)) are identical, i.e. the frame relations including the inventory and configurations of core and non-core FEs and their semantic types are the same.
II. Non-trivial frame mapping where:
   II.1. REF non-core FEs are promoted to core position in the DVF; (e.g. the Place FE of the Building frame maps to the Goal FE of the Filling frame, the Constituent_parts FE of the Biological_area frame - to the Filling Theme)
   II.2. REF core FEs are demoted to DVF non-core position; (the Components FE of the Building frame - to the Material FE in the Buildings frame)
   II.3. REF core FEs are re-conceptualised and re-mapped onto core positions in DVF; (the Created_entity FE of the Building frame as Theme of the Filling frame, the Locale FE of Biological area frame as the Filling Goal FE)
   II.4. non-REF FEs are mapped to DVF positions (Agent FE of the Filling frame with zalesya(vam)).

Straightforward mapping involving lexical prefixes results in the derivation of verbs that lexicalise the natural culmination of a process/activity with the lexical meaning additionally elaborated by the lexical component of the prefix.
Non-trivial mapping leads to verbs that may involve as a profiled FE a non-profiled core FE or a non-core FE. Non-REF FEs cannot be profiled. FE_{LOCATIVE} in (ii) stands for the FE that is to be mapped on the Goal FE.

(ii) \[\ldots\] FE_{LOCATIVE} \[\ldots\] ⇒ AGENT [GOAL]profiled THEME

Table 1 sums up the observation on a non-exhaustive list of constants’ frames that derive Filling za- verbs, the relevant constants’ FEs (CFE) that are to be mapped to the external argument, the Goal FE, the Theme FE, and examples.

<table>
<thead>
<tr>
<th>Constant/Frame</th>
<th>External argument</th>
<th>CFE \rightarrow Goal</th>
<th>CFE \rightarrow Theme</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filling</td>
<td>Ag/Cause \rightarrow Ag/Cause</td>
<td>Goal</td>
<td>Theme</td>
<td>zápatlyu/zápatlvam (heap) zatrup[v]úam (heap) zagarnu/zagrashtam ((be)smear) zastelya/zastljam (cover) zaseya/zasevam (plant)</td>
</tr>
<tr>
<td>Placing</td>
<td>Agent \rightarrow Agent</td>
<td>Goal</td>
<td>Theme</td>
<td>zametnu/zamyatam (throw over)</td>
</tr>
<tr>
<td>Building</td>
<td>Agent \rightarrow Agent</td>
<td>Place</td>
<td>Cr_Est</td>
<td>zastroya/zastroyavam</td>
</tr>
<tr>
<td>Motion</td>
<td>Carrier \rightarrow Cause</td>
<td>Area/Goal</td>
<td>Theme</td>
<td>zaveyu/zavyam (blowing over)</td>
</tr>
<tr>
<td>Fluidic motion</td>
<td>None \rightarrow Agent/Cause</td>
<td>Area/Goal</td>
<td>Fluid</td>
<td>zaleya/zalivam (cover with liquid)</td>
</tr>
<tr>
<td>Biological area</td>
<td>None \rightarrow Agent/Cause</td>
<td>Locale</td>
<td>Cnst</td>
<td>zalesyu(vam) (afforest) zatrezu[vam] (plant with grass)</td>
</tr>
<tr>
<td>Clothing parts</td>
<td>None \rightarrow Agent</td>
<td>Body Location</td>
<td>Subpart</td>
<td>zakachulya/zakachulvam (hood)</td>
</tr>
<tr>
<td>Clothing</td>
<td>None \rightarrow Agent</td>
<td>Body Location</td>
<td>Garment</td>
<td>zahrodyu/zahrazhdam (scarf)</td>
</tr>
<tr>
<td>Precipitation</td>
<td>Precipitation/None \rightarrow Cause/Agent</td>
<td>Place</td>
<td>Inc. theme</td>
<td>zasnezhu(vam) (cover with snow) zastlangua(vam) (frost)</td>
</tr>
<tr>
<td>Other</td>
<td>None \rightarrow Agent/Cause</td>
<td>Other</td>
<td>Other</td>
<td>zamaoglyu(vam) (befog) zadimyu(vam) (fill with smoke) zaprusha(vam) (cover with dust) zashamuyu(vam) (cover with leaves) zasmolyu(vam) (tar)</td>
</tr>
</tbody>
</table>
3 Frame correspondences induced by constants

The prefix za- is capable of evoking several frames that interact in a regular way with Filling - Abounding_with (together with an inchoative variant of the same frame not specified in Framenet), Adorning (and an inchoative variant of Adorning, also not specified).

The Abounding_with frame denotes the situation where: 'A Location is filled or covered with the Theme. The Location is realized as the External Argument, and the Theme [...] as PP complement [...].'. It designates a static relation which evokes verbs such as: teem, swarm, throng, as well as adjectives (participles) used predicatively (be) covered, (be) adorned, (be) coated, etc.:

7a [Nebeto] LOCATION be zastlano/se zastla [s oblatsi] THEME.
7b [The sky] LOCATION was covered/covered with [clouds] THEME.

The second verb in the examples has inchoative meaning that denotes the coming into the state. Leaving the aspectual properties aside, the inchoative variants share the conceptual properties of the stative frame, both specify two core FEs - a Theme (identical to the Filling Theme) and thus trivially mapped onto the relevant element, and a Location corresponding to the Filling Goal FE. No FE corresponds to the Agent/Cause.

The Adorning frame defines: 'a static (primarily spatial) relationship between a Location and a Theme. All of the verbs used statically in this frame can also occur in the frame Filling.' It is noted that the frame bears correspondence to Abounding_with. The difference lies in the point of view shift, i.e. while the Theme with Adorning is realised as the external argument and the Location is realised as an NP object, with Abounding_with it is vice versa. The inchoative variant is also given.

8a [Oblatsi] THEME zastilaha/zastlaha [nebeto] LOCATION.
8b [Clouds] THEME covered the [sky] LOCATION.

The relation between the three frames may be stated as follows: stative Abounding_with describes a state, the inchoative variant - a transition into a state, and Filling the causation of a transition into a state. For the inchoative variant the relation boils down to the causative-inchoative alternation. Unlike the Abounding_with where the focus is on the Location being (or coming to be) occupied by the Theme, Adorning conceptualises the relation of the Theme occupying or coming to occupy the Location.

The ability of a za- verb to evoke configurations of these frames lies in the interaction between the conceptual structure of the prefix and that of the constant, i.e. it depends on the idiosyncratic properties of the constant whether one or more of these frames will be evoked. For instance, agentive filling/covering verbs such as zastryaya(vam) do not have an inchoative variant (Levin & Rappaport-Hovav 1995), as don’t unaccusative motion verbs in the frames Motion and Fluidic_motion.

Other frames evoked by the prefix za- in the interaction with particular constants are Hiding_objects (and (or) its inchoative Eclipse, e.g. zabulya/zabulvam
(veil), zakriya/zakrivam (hide, conceal (behind/under)), etc., as well as Closure - zahlupya/zahlupvam (‘cover with a lid’), zapusha/zapushvam (stop up, plug up), zatapya/zatapvam (seal, cork). As already noted above, it is the nature of the constants that influences the construal of the situation, and hence the particular frame evoked.

4 Conclusion

As was shown throughout the paper, the interaction between a given lexical prefix and certain constants may be captured in terms of a small number of conceptual frames and frame-to-frame relations that give insights into the semantic properties and the ‘syntax’ of lexical prefixes, on the one hand, and reveal systemic relations between certain frames and, respectively, classes of verbs. The frame approach can be applied to polysemy owed to the interaction between alternating constants, e.g. sadya (plant) (Placing and Filling) and distinct senses of a prefix (e.g. za- (attachment) and spatial za-, respectively. Finally, it may also be extended to at least some superlexical prefixes in terms of defining (possibly subframal, i.e lexical-unit to lexical-unit) relations between verbs, consider za-sazhdam - (begin to plant) formed with the inceptive prefix za-.

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