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The Syntax and Semantics of Prefixed Adjectival Participles*

In this paper I investigate the interaction of lexical and superlexical prefixes with two types of adjectival participles in Czech. I argue that some of the prefixed adjectival participles have the following syntactic structure [$_{AP}$ A [$_{PartP}$ Part [$_{AspP}$ Asp [$_{vP}$ v [$_{\sqrt{P}}$ $\sqrt{}$ [$_{PP}$ P]]]]]], where the head A works as a stativizing operator and the appropriate prefix is an incorporated preposition. Since the stativizer is merged in a high syntactic position, there is no interesting syntactic interaction between it and prefixes. Both lexical and superlexical prefixes can occur in both types of adjectival participles. I show that both types of prefixes help verbs to derive adjectival participles because they induce perfectivity and can add an unselected argument. Both types of lexically as well as superlexically prefixed participles can also express the target state and the resultant state. I propose that prefixes introduce the state variable in their meaning – in addition to the event variable and the argument variable - which licenses the application of the target state operator.

1. Introduction

It has been argued that Slavic prefixes can be divided at least into two types - superlexical or external prefixes and lexical or internal prefixes - and that these two types differ with respect to their base position; see Babko-Malaya (1999), Di Sciullo & Slabakova (2005), Romanova (2006), Richardson (2007), Gehrke (2008), among others.

Lexical prefixes are standardly analyzed as merged in *v*P/VP. For instance, according to Gehrke (2008), Czech and Russian lexical prefixes are resultativity markers that head PredP, which is selected by the verbal head V. Romanova (2006) proposes that lexical prefixes are merged as the head of PP embedded under the R(esult) head, which is selected by V, or that lexical prefixes are merged directly as the head R. According to Richardson (2007), lexical prefixes are merged below *v*P, where they can affect the lexical aspect of the verb.

Superlexical prefixes are usually analyzed as merged in a position above *v*P. More concretely, according to Svenonius (2004), the majority of Slavic superlexical prefixes seem to be higher than Asp, and all lexical prefixes are lower than Asp. Gehrke (2008) argues that Czech superlexical prefixes behave like adverbial modifiers and that they are adjoined to VP. According to Ramchand (2004), superlexical prefixes are merged either directly in AspP, where they assert a definite time point, or in a higher functional projection like Cumul(ative)P.

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It has been shown that adjectival participles exhibit different syntactic and semantic properties in different languages (in this respect, adjectival participles can even differ in a particular language) and that they differ with respect to the height of attachment of the participial morpheme.

For instance, Kratzer (1994) argues that in certain German adjectival passives the participial affix - representing the head A - attaches to VP (which can be modified by an adverb, showing that the participle is not lexical). In verbal passives, the participial affix attaches to VoiceP (selecting VP) because VoiceP introduces the agent, which is present in verbal passives. Kratzer (2000) then argues that German adjectival passives can be divided into two subclasses: target state passives and resultant state passives. Whereas target state passives express states that are reversible (*Er ist versteckt*. 'He is hidden.'), resultant state passives hold forever (*Es ist bewiesen*. 'It is proven.'). Target state passives are derived by the stativizing operator $\lambda R \lambda s \exists e[R(s)(e)]$, which existentially binds the event variable *e* and projects the state variable *s*. Resultant state passives are derived by the operator $\lambda P \lambda t \exists e[P(e) \ \& \ \tau(e) < t]$, which also binds the event variable and then states that whenever the event time has a certain property, then any later time has the property as well.

According to Paslawska & von Stechow (2003), in Russian target state participles like *zakryto* 'closed', the participial affix (*-t-*) represents the Part(icipial) head and embeds VoiceP, which takes RootP as its complement.

Anagnostopoulou (2003), building on Kratzer (2000), argues that in German and Greek there are two different stativizing operators. The first one derives target states and attaches to RootP in both languages. The second one derives resultant states and attaches to *v*P in German and VoiceP in Greek.

Alexiadou & Anagnostopoulou (2008) propose that in Greek adjectival participles the participial morpheme - which syntactically represents the head Asp and semantically the stativizing operator - can attach to three different categories, in accordance with the eventive and agentive properties of particular participles. It can attach to *v*P, to VoiceP or directly to the Root.

Having said this, one expects that there will be a certain interaction between the two phenomena. An interesting prediction is that a superlexical prefix that attaches high in the syntactic structure cannot be contained in an adjectival participle which is formed by a participial morpheme merged in a position lower than the syntactic position of the appropriate

superlexical prefix. On the contrary, one expects that lexical prefixes can always be present in adjectival participles.

2. Data

In this section I investigate how the presence of particular prefixes in the syntactic structure affects derivation of *-lý* and *-ný*/*-tý* adjectival participles.[1] Let us begin with *-ný*/*-tý* participles.

2.1 *-ný*/*-tý* participles

It is a well-known fact that intransitive verbs do not form *–n/-t* participles and the *–n/-t* passive; see Mluvnice češtiny 2 (1986), Karlík, Nekula & Rusínová (1995), Karlík (2004). This holds for both unergatives, as shown in (1a), and unaccusatives, as demonstrated in example (1b). Then, it is not surprising that intransitive verbs also do not derive *-ný/-tý* participles, as illustrated in (2a) for unergatives and in example (2b) for unaccusatives.

(1) a. * jsem spán, je sněženo, jsem hučen, jsem hloubán
am slept is snowed am rumbled am pored over
b. * jsem červenán, jsem blednut, jsem vadnut, jsem kveten
am reddened am paled am withered am bloomed

(2) a. * spaný, sněžený, hučený, hloubaný
slept snowed rumbled pored over
b. * červenaný, blednutý, vadnutý, kvetený
reddened paled withered bloomed

The presence of an accusative object is a necessary condition for the formation of *-ný/-tý* participles. For instance, the transitive verb *číst* 'read' derives the *–n/-t* passive and *-ný/-tý* participles, as shown in (3). The example also shows that the verbal participle (3a,c) and the adjectival participle (3b,d) can be perfective (prefixed) as well as imperfective (unprefixed). If the verbal object bears a non-accusative case, then the default agreement appears on the auxiliary and the *–n/-t* participle in the passive sentence, as in (4a). The *-ný/-tý* participle, however, is ungrammatical, as shown in (4b). The fact whether the participle is prefixed or not is irrelevant here.

[1] In what follows, I refer to adjectival participles derived by the *–ný/-tý* and *-lý* suffixes as '*–ný/-tý* participles' and '*-lý* participles'. Verbal participles derived by the suffixes *–l* and *–n/-t*, I will call '*-l* participles' and '*-n/-t* participles'. I use only the masculine ending here but both verbal and adjectival participles inflect and express number, gender and case (case properties of verbal participles are reduced to structural cases though). Adjectival participles occur in constructions with the copular *být* 'be' and in the attributive position in DPs. Verbal participles occur in analytic verbal forms, concretely, *–l* participles occur in past tenses and modal constructions and *–n/-t* participles in passive and resultative constructions. *–N/-t* participles can also co-occur with the copular verb *být*.

(3) a. Ten román byl čten.
the novel was read
'The novel was being read.'

b. čtený román
read novel
'the novel that is being read'

c. Ten román byl pře-čten.
the novel was over-read
'The novel was read.'

d. pře-čtený román
over-read novel
'the novel that was read through'

(4) a. Bylo (po-)děkováno lingvistům.
was (up-)thanked linguists$_{dat}$
'They were thanking linguists.'
'They thanked linguists.'

b. * (po-)děkovaní lingvisté
(up-)thanked linguists

A nice contrast with respect to the necessity of the accusative object can be found in the following example. In (5a) the prefix does not affect case properties (instrumental) of the base verb, hence the default agreement appears in the passive and the *-ný/-tý* participle is ungrammatical, as demonstrated in (5b). In contrast, the prefixed verb in (5c) assigns structural accusative instead of instrumental, therefore the full agreement pattern arises in the passive and the *-ný/-tý* participle is grammatical, as in (5d).

(5) a. Bylo (do-)plýtváno vodou.
was (to-)wasted water$_{inst}$
'Water was being wasted.'
'They stopped wasting water.'

b. * (do-)plýtvaná voda
(to-)wasted water

c. Voda byla vy-plýtvána.
water was out-wasted
'Water was wasted.'

d. vy-plýtvaná voda
out-wasted water
'water that was wasted'

A closer look at the ungrammatical examples (1) and (2) reveals that the participles are unprefixed (imperfective). When a prefix is attached to the verbs, grammatical judgements change. As shown in (6), at least some of the verbs can derive *-ný/-tý* participles because they are transitivized by the prefix. It does not play a role whether the participles are based on reflexive verbs, as *zahloubat se* 'pore over' in (6a), or non-reflexives verbs, as *zasněžit* 'snow up', *vyspat* 'sleep off', *prospat* 'sleep through' in (6b)-(6d).

(6) a. za-hloubaný člověk
behind-pored over man
'the man who is engrossed in sth'

b. za-sněžená střecha
behind-snowed roof
'the snowy roof'

c. vy-spaná kocovina
out-slept hangover
'the hangover that was slept off'

d. pro-spaná schůzka
through-slept meeting
'the meeting that was slept through'

When a predicate is transitivized by the prefix but the object does not bear accusative case, then the *-ný/-tý* participle is ungrammatical, as demonstrated by example (7) containing the

dative clitic *si*. This again shows that the accusative object is necessary for the formation of *-ný/-tý* participles.

(7) a. spát
sleep
'to sleep'

b. po-spat si
up-sleep self$_{dat}$
'to sleep for a while'

c. * po-spaný
up-slept

In contrast, when the base verb is not transitivized by the added prefix, the *-ný/-tý* participle is ungrammatical, as demonstrated by the following examples. The grammatical sentence with the unergative verb in (8a) shows that the prefixed verb can form an *–l* participle, yet the prefixed verb cannot derive a *-ný/-tý* participle, as demonstrated in (8b). Similarly, in (9a) the prefixed unaccusative verb can derive an *–l* participle but it cannot derive a *-ný/-tý* participle, as shown in (9b). Concerning the unaccusative verbs in (1) and (2), I will show below, that they derive *-lý* participles.

(8) a. Motor do-hučel.
motor to-rumbled
'The motor stopped purring.'

b. * do-hučený motor
to-rumbled motor

(9) a. Pavel z-červenal.
Pavel from-reddened
'Pavel reddened.'

b. * z-červenaný Pavel
from-reddened Pavel

There is also an agentivity restriction on derivation of *-ný/-tý* and *-n*/*-t* participles. Even if the verb is transitive and an accusative argument is present, *-ný/-tý* and *-n*/*-t* participles can be ungrammatical, as shown in (10), containing the accusative experiencer (cf. Veselovská & Karlík (2004)). Example (10a) demonstrates that the verb derives the past tense form (*-l* participle). However, when the verb is passivized (the *-n*/*-t* participle is derived), the sentence is ungrammatical, independently of whether the experiencer or the theme appears in the subject position; consider (10b). The ungrammatical example (10c) then shows that the verb cannot derive the *-ný/-tý* participle, independently of which argument is modified. With respect to grammatical judgements, it is irrelevant whether or not the verb is prefixed.

(10) a. Pavla gól (za-)mrzel.
Pavel$_{acc}$ goal$_{nom}$ (behind-)regreted
'Pavel was sorry about the goal.'

b. * Pavel/gól byl (za-)mrzen.
Pavel/goal was (behind-)regreted

c. * (za-)mrzený Pavel/gól
(behind-)regreted Pavel/goal

2.2 *-lý* participles

In this section I shortly overview the relevant properties of *–lý* participles. Example (11) demonstrates that imperfective intransitives can form *-l* participles (and the past tense). This holds for both unergatives, as in (11a), and unaccusatives, as in (11b). However, neither of them derives *-lý* participles, as illustrated in (12).

(11)	a.	jsem spal,	sněžilo,	jsem hučel,	jsem hloubal
		am slept	snowed	am rumbled	am pored over
		'I was sleeping'	'It was snowing'	'I was murmuring'	'I was poring over'
	b.	jsem červenal,	jsem bled(nu)l,	jsem vad(nu)l,	jsem kvetl
		am reddened	am paled	am withered	am bloomed
	lit:	'I was reddening'	'I was paling'	'I was withering'	'I was blooming'

(12)	a.	* spalý,	sněžilý,	hučelý,	hloubalý
		slept	snowed	rumbled	pored over
	b.	* červenalý,	bledlý,	vadlý,	kvetlý
		reddened	paled	withered	bloomed

The following data show that the formation of *-lý* participles is sensitive to aspectual properties. When the appropriate verbs are prefixed, that is, perfectivized, at least some of them derive *-lý* participles; compare (12) with the grammatical *-lý* participles in (13).

(13)	a.	vy-spalý			
		out-slept			
		'well-slept'			
	b.	z-červenalý,	po-bledlý,	z-vadlý,	od-kvetlý
		from-reddened	up-paled	from-withered	away-bloomed
		'reddened'	'(a little) pale'	'withered'	'past blossom'

The formation of *-lý* participles is also sensitive to the (in)transitivity status of the appropriate verb. Concretely, in Modern Czech, transitive predicates do not derive *-lý* participles; see Lamprecht et al. (1986). Example (14a) shows that transitive verbs can form *-l* participles and (14b) then demonstrates that adding the adjectival ending *–ý* results in ungrammaticality.

(14)	a.	za-hubil,	s-míchal,	z-líbal,	vy-koupal
		behind-destroyed	with-mixed	from-kissed	out-bathed
		'he killed'	'he mixed'	'he kissed'	'he bathed'
	b.	* za-hubilý,	s-míchalý,	z-líbalý,	vy-koupalý
		behind-destroyed	with-mixed	from-kissed	out-bathed

In fact, the formation of *-lý* participles is even more restricted. A closer look at (13) reveals that only unaccusative verbs, but not unergative verbs, derive *-lý* participles. The only exception appears to be the participle *vyspalý* in (13a). However, the participle is based on the

reflexive verb *vyspat se* 'sleep well', which suggests that something happened with its argument structure (comparing it with the unprefixed verb *spát* 'sleep'). In addition, the participle cannot be modified by agent-oriented adverbs like *úmyslně* and *schválně* 'on purpose'. This suggests that the participle is in actuality derived from an unaccusative verb.

3. The analysis

3.1 The main proposal

I begin this section with the following observation. Since the past participle affix *–l* can attach to imperfective verbs, as in example (11), the ungrammaticality of *-lý* participles in (12) is not based on selectional requirements of the affix *–l* (on the assumption that the two *–l*s are identical elements). The ungrammaticality of (12) also cannot be based on requirements of the agreement marker *–ý* because it can attach to imperfective verbs, too, as shown in (3b). Thus, the reason must be somewhere else.

I propose that there is a covert affix between the participial *–l* and the ending *–ý* that represents the head A and functions as a stativizing operator, following Kratzer (2000). Note that *–lý* participles – which can be derived only from perfective verbs - have the stative (resultative) interpretation, as can be seen in (13), similarly as *-ný/-tý* participles derived from perfective verbs (cf. Kopečný (1962)). For this reason, I also extend the proposal to the perfective *-ný/-tý* participles. Since the target state operator can apply only to verbs that have a 'visible' state, as argued by Kratzer (2000) and Alexiadou, Rathert & von Stechow (2003) and since prefixes make verbs perfective and mostly turn atelic eventualities into telic ones, I propose that the appropriate prefixes introduce a state variable.[2] Having the main idea in mind, let us look at the syntactic structure of adjectival participles.

3.2 The stativizer and the structure of *-lý* and *-ný/-tý* participles

I proposed above that the stativizing operator is located between the participial affix and the agreement morpheme. In this section, I will discuss this proposal in more detail.

Looking at morphological properties of adjectival participles, it is obvious that they contain the participial affix: *-l* or *-n*/*-t*. The stativizing operator cannot reside in the participial affixes because these affixes also derive words which certainly do not have the stative meaning. Consider, for instance, the imperfective *-n* participle *čten* in (3a) and the *-l* participle *červenal* in (11b). For the same reason, the stativizer also cannot be attached somewhere

[2] I will discuss both types of states here but primarily I will be concerned with target states.

lower in the structure because then one would expect the stative meaning to be possible with all words that syntactically embed the operator (unless its effect is somehow neutralized). One might also propose that the stativizer is merged somewhere lower in the syntactic structure and that the attachment is possible only if a prefix is already present in the derivation. This, however, does not work. Although prefixation brings about perfectivity, it does not necessarily induce stativity. Consider prefixed *–l* participles like *vybledl* 'paled'. It is perfective, yet it has the eventive meaning. This is also obvious from the fact that *vybledl* cannot co-occur with the copular *být* 'be', which selects only stative complements (cf. Krchňavá (2010)). The copular *být* can be combined only with *–lý* participles (as in *jsem vybledlý* 'I am paled'), which supports the view that stativity comes into play after merging the participial morpheme.[3,4]

The stativizing operator also cannot be represented by the adjectival ending *–ý* itself because the suffix can occur in words not bearing the stative meaning, as demonstrated in (15). The translations show that in (15a) the interpretation is progressive and in (15b) numeral-nominal.

(15) a. topen-ý člověk
drowned-m.sg.nom man
'the man who is being drowned'
b. čtver-ý rum
four-m.sg.nom rum
'four kinds of rum'

Given this, I propose that there is a covert head that embeds the participial projection PartP headed by the participial affixes *-l* and *-n*/*-t*. The covert head represents the stativizing operator and is of adjectival nature since *-lý* participles and *-ný/-tý* participles decline as adjectives. The ending *–ý* is just an agreement marker expressing the checked φ–features of the head A (the same holds for short endings of verbal participles because I prefer an analysis that does not include two different heads (A and Part) bearing unvalued φ–features). Given the fact that unprefixed (imperfective) *-ný/-tý* participles cannot have the stative interpretation – in contrast to *-lý* participles and prefixed *-ný/-tý* participles -, the head A does not necessarily have the stativizing meaning. To put it differently, the stativizer head A selects

[3] Note that *–l* participles bear short adjectival endings; hence the incompatibility of the copular *být* and *–l* participles cannot be explained away by arguing that the copular *být* selects only an adjectival category (*–lý* participles). In addition, as we will see below, the copular *být* can also be combined with certain *-n/-t* participles, which also bear the short adjectival endings.

[4] Other arguments (with agentive phrases and agent-oriented adverbs) supporting the high attachment of the stativizer are presented below.

only perfective *-l* and *-n*/*-t* participles (PartP). Since I assume a head incorporation analysis for participles, the head A can see the relevant information on the complex head Part containing the incorporated lower heads.

We have already seen that *-l* participles can be derived from both imperfective and perfective verbs, whereas *-lý* participles are derived only from perfective verbs. For this reason, I assume that in contrast to *-l* participles, the head A deriving *-lý* participles bears the selection perfective-feature.

Czech *-l* participles can be derived from all three types of verbs: transitives, unergatives and unaccusatives. In contrast, *-lý* participles are derived only from unaccusative verbs, as discussed in section 2.2. This means that the stativizing head A bears the selection unaccusative-feature and selects a complement containing the unaccusative *v*. Consequently, we arrive at the following structures for *-lý* and *-l* participles, showing the selection features of the stativizing head A.

(16) a. *-lý*: $[_{AP}\ A_{stativizer\ [pf,\ unacc]}\ [_{PartP}\ l\ [\ ]]]$
b. *-l*: $[_{AP}\ A\ [_{PartP}\ l\ [\ ]]]$

Now let us turn to *-nýt/-tý* participles. In section 2.1, we saw that *-n*/*-t* participles can be derived only from transitive verbs and that there is also an agentivity restriction on the formation of *-n*/*-t* participles. Therefore, the head Part bears the selection transitive-feature and the agentive-feature. We also saw that *-n*/*-t* participles receive the default agreement when the verbal object bears a non-accusative case and that *-nýt/-tý* participles are ungrammatical with non-accusative objects; consider (4) and (5) again. For this reason, I assume that in addition to the selection perfective-feature, the stativizing head A selecting the *-n*/*-t* PartP also bears the accusative-feature, as demonstrated in (17a).[5] Given the data in section 2.1, this also holds for the non-stativizing head A in *-nýt/-tý* participles; consider structure (17b). Example (17c) shows the adjectival head for *-n*/*-t* participles. This head is identical to the head A in *-l* participles; compare (17c) with (16b).

[5] There are three types of the head *v*: the unaccusative *v*, which does not introduce an external argument and is present in *-lý* participles; the active *v*, which introduces the external argument DP (and assigns the structural accusative) and is present in active sentences; and the passive *v*, which selects an agentive PP (typically an instrumental agent) and is present in *-n*/*-t* participles (passives) and *-nýt/-tý* participles. There is a problem with the passive *v* because the stativizing A wants to know whether or not the verb can assign structural accusative but in the case of passive participles, accusative case is blocked in standard analyses (Burzio's generalization). For this reason, I assume that the passive *v* also assigns structural accusative and follow Biskup (2009), who proposes that structural cases can be overwritten.

(17) a. pf. *-ný/-tý*: $[_{AP}\ A_{stativizer\ [pf,\ acc]}\ [_{PartP}\ n/t_{\ [trans,\ ag]}\ [\ ]]]$
b. impf. *-ný/-tý*: $[_{AP}\ A_{\ [impf,\ acc]}\ [_{PartP}\ n/t_{\ [trans,\ ag]}\ [\ ]]]$
c. *-n/t*: $[_{AP}\ A\ [_{PartP}\ n/t_{\ [trans,\ ag]}\ [\ ]]]$
d. *-n/t*: $[_{AP}\ A_{stativizer\ [pf,\ acc]}\ [_{PartP}\ n/t_{\ [trans,\ ag]}\ [\ ]]]$

Given the data discussed so far, one might think that only adjectival participles (i.e. *-lý* and *-ný/-tý* participles) can be stative. However, the situation is a little more complicated because there are also cases of *-n*/*-t* participles bearing the stative interpretation. More concretely, stative *-n*/*-t* participles can be derived only from perfective verbs and can occur in constructions with the copular *být*, which selects only stative complements; consider the following example.

(18) Ten toustovač je rozbit (už dva týdny).
the toaster is broken (already two weeks)
'The toaster is broken (already two weeks).'

As discussed above, *-n*/*-t* participles receive the default agreement in the passive when combined with a non-accusative object and *-ný/-tý* participles are ungrammatical with non-accusative objects. How does it work in the case of stative *-n*/*-t* participles present in copular constructions? Example (19) shows that stative *-n*/*-t* participles are ungrammatical with non-accusative underlying objects; the verb *pomoci* 'help' assigns dative case to its object.

(19) * Dítě je pomoženo.
child is helped

For this reason, I assume that the stativizing A of *-n*/*-t* participles also bears the accusative-feature, as demonstrated in (17d). A comparison of (17d) and (17a) reveals that there is only one type of the stativizing head A in *-n/-t* and *-ný/-tý* participles and that (17d) and (17a) can be reduced to one structure.

Let us move down in the participial structure. Example (20) demonstrates that the secondary imperfective suffix *-va-* is closer to the root than the participial morphemes *–l* and *-n*/*-t* (the same also holds for the secondary imperfective suffix *-a-*). Since the participial morphemes represent the head Part and the secondary imperfective suffix represents the aspectual head Asp (see Svenonius (2004) for this proposal for Russian) or some lower head, it follows that PartP is higher than AspP in the participial structure.

(20) a. při-děl-á-va-l
at-make-th-si-part
'fixed'

b. při-děl-á-vá-n
at-make-th-si-part
'fixed'

The examples also show that there is a thematic vowel between the root and the secondary imperfective suffix. Since thematic vowels determine the syntactic (verbal) category, I assume that they represent the verbalizing head *v*. Taken together, we receive the following structure for adjectival participles.

(21) $[_{AP}$ A $[_{PartP}$ Part $[_{AspP}$ Asp $[_{vP}$ *v* $[_{\sqrt{P}}$ $\sqrt{}$]]]]]

Given this structure and the proposal that the agent argument is introduced by the head *v*, one expects that adjectival participles can contain an agentive phrase. This prediction is correct, as demonstrated by the following example, with the participle *zašpiněný* and the instrumental agent.

(22) Pavlem zašpiněný stůl
Pavel$_{inst}$ smeared table
'the table smeared by Pavel'

In this respect, Czech is similar to Greek and Russian, in which certain adjectival participles and the past participle passive, respectively, can co-occur with the instrumental agent, and different from languages like English and German, in which the agent cannot be present.[6]

In section 2.2, I showed that the formation of *-lý* participles is restricted to unaccusative verbs and in this section I proposed that *-lý* participles contain the unaccusative *v*, which does not introduce an external argument. However, there are also cases where a *-lý* participle co-occurs with an inanimate causer, as shown in (23a).

(23) a. Dveře zabouchlé větrem.
doors slammed wind$_{inst}$
'the door that was blown shut by the wind.'
b. * Dveře zabouchlé Petrem.
doors slammed Petr$_{inst}$
c. * Dveře zabouchlé sousedovou kočkou.
doors slammed neighbour's cat$_{inst}$

Since the examples with the human causer in (23b) and with the non-human animate causer in (23c) are ungrammatical, we need a passive *v* that introduces only inanimate causers. For this reason, I assume that the passive *v* in (23a) contains an inanimate feature, which is saturated by the argument *větrem* (for discussion of different types of verbs and their features, see e.g.

[6] Agent-oriented adverbs are standardly used as a test for the height of attachment of the stativizing operator. Example (i) shows that the stativizer attaches higher than *v*P in *-ný/-tý* participles because these participles can contain agent-oriented adverbs, which are licensed by the passive *v*P (which introduces PP agents).

(i) úmyslně / záměrně / opatrně otevřené okno
on purpose / on purpose / cautiously opened window

Levin & Rappaport Hovav (1995), Folli & Harley (2006), Kallulli (2006)). This means that in the case of *-lý* participles the stativizing A can take not only PartP with the incorporated unaccusative *v* but also PartP with the incorporated passive *v* of the inanimate type.

3.3 Prefixes and the structure of *-lý* and *-ný/-tý* participles

In the preceding section, I argued that the stativizer is attached high in the structure of Czech adjectival participles. It is the head A – which selects PartP – that bears the stativizing semantics. In this section, I investigate which types of prefixes can appear in which adjectival participles and how they interact with the stativizing head.

It has been argued that superlexical prefixes differ from lexical prefixes in several aspects; see discussion in Svenonius (2004), Di Sciullo & Slabakova (2005), Romanova (2006), Richardson (2007), Gehrke (2008), among others. One can find the following claims. In contrast to lexical prefixes, superlexical prefixes do not affect the argument structure of the verb to which they attach. They also do not change the aspectual class of the base verb, in contrast to lexical prefixes. They cannot derive the secondary imperfective, in contrast to lexical prefixes. The superlexical prefix must precede the lexical prefix. Whereas lexical prefixes bring about compositional (spatial) or idiosyncratic meaning, the effect of superlexical prefixes is predictable and the resulting meaning only compositional. These distinctions should reflect the different base positions of the two types of prefixes (cf. discussion in section 1). One can also find approaches questioning such a distinction or arguing that such a distinction is too rough and that a more fine-grained analysis is necessary (e.g. Biskup (2007), Tatevosov (2008), Žaucer (2009)).

3.3.1 Lexical prefixes

Let us begin our investigation with lexical prefixes. The claim that this type of prefixes is merged very low in the structure seems to be correct. Every lexical prefix can indeed appear in some adjectival participle. We already saw the lexical prefixes *pře-* 'over', *vy-* 'out', *za-* 'behind', *pro-* 'through' occurring in *-ný/-tý* participles.[7] I repeat the relevant examples in (24)

[7] The status of the perdurative prefix *pro-* is uncertain. Some authors argue that the prefix is superlexical (see Isačenko (1982) and Ramchand (2004) for Russian) and others that it is a lexical prefix (see Žaucer (2009) for Slovenian *pre-* and Russian *pro-*). The facts that *pro-* in (24d) adds the unselected argument and can form the secondary imperfective support the lexical prefix analysis.

for the sake of convenience.[8] Some other cases of lexical prefixes in *-ný/-tý* participles can be found in (25).

(24) a. pře-čtený román
over-read novel
'the novel that was read through'

b. vy-plýtvaná voda
out-wasted water
'water that was wasted'

c. za-hloubaný člověk
behind-pored over man
'the man who is engrossed in sth'

d. pro-spaná schůzka
through-slept meeting
'the meeting that was slept through'

(25) a. na-foukané kolo
on-blown tyre
'the inflated tyre'

b. ode-čtené číslo
away-read number
'the subtracted number'

c. do-kázaný teorém
to-preached theorem
'the proven theorem'

d. po-foukaná rána
up-blown wound
'the soothed wound'

e. roz-foukané listí
apart-blown leaves
'scattered leaves'

f. při-dělaný háček
at-made hook
'the fixed hook'

These prefixes can also appear in *-lý* participles. Examples with the prefixes *vy-* 'out' and *od-* 'away' we already saw in section 2; they are repeated in example (26).[9] The other prefixes are shown in example (27).

(26) a. vy-spalý
out-slept
'well-slept'

b. od-kvetlý
away-bloomed
'withered'

(27) a. pro-padlá střecha
through-fell roof
'the roof that caved in'

b. za-padlé pero
behind-fell pen
'the pen that fell behind sth'

c. pře-padlý člověk
over-fell man
'the man who fell over sth'
'the haggard man'

d. roz-padlý dům
apart-fell house
'the ruined house'

e. po-rostlá zeď
up-grew wall
'the wall overgrown with sth'

f. do-padlý meteorit
to-fell meteor
'the fallen meteor'

g. (na mrazáku) na-mrzlý led
on freezer on-froze ice
'the ice frozen onto the freezer'

h. při-mrzlý led
at-froze ice
'the ice that is frozen to sth'

[8] The so-called empty prefixes or purely perfectivizing prefixes (in our case, *po-* in (4) and *z-* in (9) and (13b)) seem to be closer to superlexicals than to lexicals because they do not affect the lexical aspect of the verb (Richardson 2007), they do not form secondary imperfectives (Filip 1999) and they just slightly modify the meaning of the base verb; they bring about the pure resultative meaning (Isačenko 1982).

[9] *Vyspalý* (modifying e.g. *člověk* 'man') can alternate with the form *vyspaný* when it relates to the reflexive verb *vyspat se* 'sleep well'. But it is not possible with non-reflexive verbs. The transitive (ia) can be combined only with the participial head *–n* (ib), not with the participial head *–l* (ic).

(i) a. vy-spat kocovinu
out-sleep hangover
'sleep off hangover'

b. vy-spaná kocovina
out-slept hangover
'the hangover that was slept off'

c. * vy-spalá kocovina
out-slept hangover

These data are not surprising because participial morphemes *–l* and *-n/-t* are merged in the same syntactic position in the structure of adjectival participles. Therefore, from the syntactic point of view, one expects no difference between *-lý* and *-ný/-tý* participles with respect to their compatibility with a particular lexical (or superlexical) prefix.

Given different semantic properties of *-lý* and *-ný/-tý* participles, however, one expects that there will be differences in the formation of particular participles with respect to properties of the base verb and the attached prefix. Recall that the participial head *-n/-t* selects a complement with transitive and agentive properties, in contrast to the participial head *–l*, which has no such selectional requirements. Recall also that the head A of stative *-ný/-tý* and *-n/-t* participles selects a complement with perfective and accusative properties, in contrast to the stativizing A of *–lý* participles, which selects a complement with perfective and unaccusative or inanimate properties. Thus, since lexical prefixes affect the argument structure of the verb and can change its aspectual class, as discussed above, they should have an effect on the choice between *–lý* or *-ný/-tý* affixes.

With respect to the argument structure, the following generalization emerges from data (24)-(27). One and the same prefix can appear in both types of participles, which is in line with the syntactic prediction discussed above. It then depends on the type of the base verb (root) whether the prefixed verb derives a *–lý* participle or a *-ný/-tý* participle. Specifically, examples (26b) and (27) show that when the appropriate prefixes are attached to unaccusative verbs, then *–lý* participles are derived. In contrast, when the prefixes are attached to unergative verbs, as in (24c,d) and (25a,d,e), then the base verb is transitivized and a *-ný/-tý* participle is derived (recall that unergatives do not derive *-ný/-tý* participles). In this respect, Czech behaves in the same way as Russian (for discussion of Russian, see Schoorlemmer (1997)). That the resulting type of the prefixed verb is determined mainly by the verbal properties is shown by the comparison of examples with different prefixes attached to the same verb; compare the derived transitives in (25a), (25d) and (25e) for *-ný/-tý* participles, and for *-lý* participles, compare the derived unaccusative (27a) with (27b), (27c), (27d), (27f).

I account for this pattern in the following way. Lexical prefixes can be analyzed as incorporated prepositions, as argued e.g. in Romanova (2006) and Biskup (2007, 2009); for non-Slavic verbal prefixes analyzed as incorporated prepositions, see Walinska de Hackbeil (1986), Mulder (1992), Miller (1993), among others. In the case of *–lý* participles, the root is selected by the unaccusative *v* and is merged with a prepositional phrase (the projection of the prefix), which is in complementary distribution with the nominal complement of the root.

Therefore, the argument structure of the base verb is not augmented.[10] And since the participial head *-n/-t* selects a complement with agentive and transitive properties, in contrast to the participial head *–l*, only a *–lý* participle can be derived. This is in accordance with the requirements of the stativizing head A of *–lý* participles, which selects an unaccusative complement, as discussed in connection with (16).[11]

In the case of *-ný/-tý* participles related to base unergative verbs, the root occurs in a syntactic environment with the external argument (the passive *v*). Since lexical prefixes are incorporated prepositions, prefixation then introduces the unselected argument(s) and we observe an augmentation of the argument structure of the base verb.[12] Given this transitivity function of prefixes and the selectional properties of the *-n/-t* participial head, a *-ný/-tý* participle is derived. Since prefixation induces perfectivity of the verb and the passive *v* assigns accusative case, the selectional requirements of the stativizing head A are also satisfied.

Finally, when the prefixes are attached to transitive verbs, as in examples (24a,b) and (25b,c,f), the prepositional phrase replaces the nominal complement of the root, hence the prefixed verbs remain transitive and the prefixes contribute an additional predicate to the verb. It is typically the figure argument (locatum) of the prefix (preposition) which becomes the direct object of the derived verb; see e.g. (25b). Example (25b) can be used to show that prefixes can also introduce the ground argument in the case of base transitive verbs: *číslo odečtené od jiného čísla* 'the number subtracted from another number'. As in the case of unergative verbs, given the selectional properties of the participial head *-n/-t* and the stativizing head A, a *-ný/-tý* participle is derived.

Taken together, the resulting structure with lexical prefixes projecting a prepositional phrase, which can be either transitive or intransitive, is shown in (28).

(28) $[_{AP}$ A $[_{PartP}$ Part $[_{AspP}$ Asp $[_{vP}$ *v* $[_{\sqrt{P}}$ $\sqrt{}$ $[_{PP}$ P]]]]]]

[10] To derive the regularities under discussion, the information about unaccusativity/unergativity/transitivity must be either present in the root or the root must bear information about the environment(s) in which it is licensed (e.g. whether or not it can co-occur with the agentive *v*).

[11] In certain cases, the prefixed verb requires the presence of PP, which shows that the argument structure of the preposition (prefix) can be transitive. Consider (i), where *pero* expresses the figure argument of the preposition and *gauč* the ground argument. For some reason, the presence of the prepositional phrase is not obligatory with adjectival participles like (27b).

(i) Pero za-padlo * (za gauč).
pen behind-fell behind couch
'The pen fell behind the couch.'

[12] If the prepositional phrase merged with the root is again in complementary distribution with the nominal object, we come near the explanation of why there are almost no four-place predicates.

As already mentioned, prefixes make verbs perfective, regardless of whether they are lexical or superlexical. Therefore, I assume that prefixes bear a perfective feature. Since I analyze prefixes as incorporated prepositions, it is the incorporated preposition that bears the perfective feature. I also assume that the head Asp with the perfective meaning selects a complement with the perfective feature. Then, the complex head containing Asp incorporates into the head Part and the selectional requirement of the stativizing head A is satisfied. Recall that the stativizing A of *–lý* and *-ný/-tý* participles bears a perfective-feature. A closer look at examples (24)-(27) reveals that the participles are indeed perfective.

The examples also reveal that lexically prefixed *–lý* and *-ný/-tý* participles bear a resultative/change of state meaning. This is not surprising because it has been argued that lexical prefixes are resultativity markers and introduce a result state subevent (cf. Svenonius (2004), Romanova (2006), Gehrke (2008), Žaucer (2009)). I already mentioned that lexical prefixes can contribute an additional predicate to the verb. Thus, the noun modified by the adjectival participle is the subject of the state expressed by the appropriate participle in examples (24)-(27). In other words, prefixation can turn atelic eventualities (states and activities) into telic eventualities (accomplishments and achievements) by adding the state predicate, as shown in (27g), where the participle *namrzlý* 'frozen on sth' is related to the atelic verb *mrznout* 'freeze'. Since it has been argued that telicity is not equal to perfectivity (see Bertinetto (2001), Borik (2002) and Filip (2003)), I analyze the two phenomena differently: perfectivity in terms of the perfective feature on the prefix selected by the perfective head Asp and telicity as a lambda-bound state variable introduced in the meaning of the prefix (as we will see in section 3.4).

As discussed in the introduction, there are two types of states: resultant states and target states. The two states can be differentiated by means of *still* (Nedjalkov and Jaxontov (1988), Kratzer (2000)). Czech also has both types of states; consider examples (24)-(27) (cf. also Taraldsen & Medová (2007)). The test with *stále ještě* 'still' shows that both *–lý* and *-ný/-tý* lexically prefixed participles can express the resultant state as well as the target state.

(29) a. Ten román je (*stále ještě) přečtený.
the novel is still read
b. To kolo je stále ještě nafoukané.
the tyre is still inflated
c. Ta kytka je (*stále ještě) odkvetlá.
the flower is still withered
d. Ta střecha je stále ještě propadlá.
the roof is still caved-in

Example (29a) demonstrates that the *-ný* participle *přečtený* expresses the resultant state because it is not compatible with *stále ještě* (the state is irreversible). In contrast, the *-ný* participle *nafoukané* expresses the target state because it can co-occur with *stále ještě*, as shown in (29b). The state of the tyre's being inflated is reversible; it may last just for ten minutes. As for lexically prefixed *–lý* participles, *odkvetlá* in (29c) expresses the resultant state and *propadlá* in (29d) the target state. The state in (29d) is reversible because it does not have to hold forever that there is a hole in the roof.[13]

3.3.2 Superlexical prefixes

Let us turn to superlexical prefixes. In the preceding section, I showed that lexical prefixes can appear in both types of participles. I also showed that *–lý* and *-ný/-tý* lexically prefixed participles can express the resultant state as well as the target state. Given that lexical prefixes are incorporated prepositions projecting PP that is merged as the complement of the root and given that the stativizer represents the head A, these facts are not surprising. Since it has been argued that superlexical prefixes usually merge in positions above *v*P, their interaction with the stativizing head A could be a more interesting issue. Indeed, some authors argue that superlexical prefixes cannot appear in adjectival participles; see Romanova (2006) for Russian and Gehrke (2008) for Russian and Czech.

I will investigate the same prefixes as in the preceding section. Almost all of them can be used as a superlexical prefix. Only the prefix *vy-* 'out' is inherently incapable of bearing a superlexical meaning, which conforms to the view that superlexical prefixes form a subset of the lexical prefixes (Biskup 2007); compare also the Russian *vy-*.

With respect to *-ný/-tý* participles, we already saw the completive prefix *do-* in (5) and (8), the delimitative *po-* in (7), and the inceptive *za-* in example (10).[14] Three of the *-ný/-tý* participles are repeated in (30).

(30) a. * do-hučený motor
to-rumbled motor

b. * po-spaný
up-slept

c. * za-mrzený Pavel/gól
behind-regreted Pavel/goal

The ungrammaticality of these examples can be accounted for as follows. The prefix *do-* seems to behave as described for superlexical prefixes above. It does not affect the argument structure; it only adds the completive meaning to the base unergative verb. We know that only

[13] There is a contrast between *propadlá střecha* and *propadlý žák* 'failed pupil'. Whereas the state in *propadlá střecha* is reversible (the roof can be repaired), the state in *propadlý žák* is irreversible (the pupil has to repeat the class). This suggests that for the licensing of a particular state, properties of the appropriate argument are also important (for some authors also discourse properties, see Maienborn (2007)).

[14] I leave the pure perfectivizing prefixes aside.

transitive verbs derive *-ný/-tý* participles. Hence, the ungrammaticality of (30a) can be based on selectional requirements of the head Part, which selects transitive complements, as argued in section 3.2.

As for the ungrammatical status of *pospaný*, it seems to be based on unsatisfied selectional requirements of the head A, which selects a complement with *v* assigning structural accusative. Although the prefix *po-* can augment the argument structure – in contrast to the standard view on superlexical prefixes presented in the literature – it is only the dative argument *si* 'self' (*pospat si* 'sleep for a while') that is added.

In the case of the *-ný* participle in (30c), the prefix *za-* changes the aspectual class of the base stative verb, yet the argument structure and agentivity properties remain unchanged. Thus, since the participle is based on the experiencer verb, the agentive selectional requirement of the head Part is not satisfied and the example is ungrammatical. To sum up, the ungrammaticality of examples in (30) is not ascribed to a too high merger of the superlexical prefixes.

In fact, there are grammatical cases of *-ný/-tý* participles containing the completive prefix *do-* and the inceptive *za-*, as demonstrated in (31).

(31) a. do-hraný zápas
to-played match
'the match that was finished'

b. za-koktaný řečník
behind-stammered speaker
'the speaker who started stammering'

In (31a), the prefix *do-* seems to contribute the resultative predicate to the verb *hrát* 'play', which can be both intransitive and transitive and can assign structural accusative. Hence, the match is in the state of being finished and the participle is grammatical. In (31b), the prefix *za-* adds the unselected accusative argument (*zakoktat se*) to the intransitive verb *koktat* 'stammer'; therefore the *-ný/-tý* participle can be derived.

As for the delimitative *po-*, I proposed above that the ungrammaticality of *pospaný* is based on the lack of the accusative object. However, *-ný/-tý* participles are also ungrammatical when they are related to a transitive verb with the accusative object like *počíst si knížku* 'read a book for a while'; consider (32a). Thus, this cannot be the whole story. One might propose that the problem lies in the atelic status of the derived words and that the prefix *po-* does not introduce the state variable, which is important for the derivation of stative adjectival participles. The adverbial modification test in (32b) shows that the *po*-verbs are indeed atelic because the event time can be measured by the *for*-adverb *hodinu* 'for an hour', but not by the *in*-adverb *za hodinu* 'in an hour'.

(32) a. * po-čtená kniha
up-read book

b. Hodinu/*za hodinu si po-četl / po-spal.
hour in hour self$_{dat}$ up-read up-slept
'He read/slept (a little) for an hour / *in an hour.'

However, this proposal has a problem with data like (33) and (34), where the *-ný* participle containing the delimitative *po-* is grammatical despite the fact that the *po*-verb is atelic. A comparison of (32) with (33) and (34) shows that there is a correlation between the ungrammaticality of the *-ný* participle and the presence of the unselected dative argument with the *po*-verb. Therefore, I propose that if the prefix adds a new argument, then the *-ný* participle is grammatical only if the modified argument is identical to the argument added by the prefix. This excludes cases like (32a). Since *po-* in (33) and (34) behaves like a genuine superlexical prefix, i.e., it does not add a new argument, the *po*-participles are not affected by the proposed condition.[15]

(33) a. po-vařený špenát
up-cooked spinach
'the spinach that was cooked for a while'

b. Po-vařil špenát pět minut / * za pět minut.
up-cooked spinach five minutes / in five minutes
'He cooked spinach for 5 minutes / *in 5 minutes.'

(34) a. po-dušený špenát
up-steamed spinach
'the spinach that was steamed for a while'

b. Po-dusil špenát pět minut / * za pět minut.
up-steamed spinach five minutes / in five minutes
'He steamed spinach for 5 minutes / *in 5 minutes.'

The other superlexical prefixes in *-ný/-tý* participles are shown in (35), concretely, the excessive *pře-* in (35a), the attenuative *při-* in (35b), the completive *od-* in (35c), the inceptive *roz-* in (35d), the perdurative *pro-* in (35e), and the cumulative *na-* in (35f).[16]

[15] Examples (33a) and (34a) are resultant states; hence, given the semantics of the resultant state operator, it does not pose a problem if the prefix *po-* does not introduce the state variable.

[16] As already mentioned in fn. 7, the perdurative *pro-* is problematic. The *pro-* in (35e) shows inconsistent behaviour: it adds the unselected argument but cannot form the secondary imperfective (for inconsistent behaviour of other superlexicals, see below).

(35) a. pře-křičený řečník
over-shouted speaker
'the speaker who was drowned by shouting'

b. při-hřátá polívka
at-warmed soup
'the soup that was (a little) warmed'

c. od-zpívaná písnička
away-sung song
'the song that was finished'

d. roz-houpané dítě
apart-swung child
'the child that started swinging'

e. pro-plakaná noc
through-cried night
'the night that was wept away'

f. na-plakané moře (slz)
on-cried see (of tears)
'a lot of/see of tears'

These superlexical prefixes can also appear in *-lý* participles. We already saw the delimitative (attenuative) prefix *po-* in example (13b), for convenience repeated as (36). The other superlexical prefixes are shown in example (37). Consider the completive *od-* in (37a), the inceptive *za-* in (37b), the excessive *pře-* in (37c)[17], the attenuative *při-* in (37d), the inceptive *roze-* in (37e), the completive *od-* in (37f), the perdurative *pro-* in (37g) and the cumulative *na-* in (37h).

(36) po-bledlý
up-paled
'(a little) pale'

(37) a. do-hořelá cigareta
to-burned cigarette
'the burned-out cigarette'

b. za-znělé tóny
behind-sounded
'tones that sounded'

c. pře-rostlé vlasy
over-grew hair
'overgrown hair'

d. při-tuhlá nafta
at-solidified oil
'solidified oil'

e. roze-chvělé listí
apart-vibrated leaves
'vibrating leaves'

f. od-ležely sýr
away-lay cheese
'the well-seasoned cheese'

g. pro-běhlá zima
through-ran winter
'the last winter'

h. na-běhlé ruce
on-ran hands
'swollen hands'

The data show that all superlexical prefixes can occur in both types of participles; there is no interesting interaction with the stativizing head A. This suggests that superlexical prefixes are merged below the head A, similarly as lexical prefixes.

This is also supported by certain argument-structural facts. We have seen that in contrast to the usual claims in the literature, at least some superlexical prefixes can affect the argument structure of the base verb; consider the *-ný/-tý* participle in (31b), (32b) and (35a,e,f). Note that the standard assumption is that argument structure is determined in the *v*P domain. As in the case of lexical prefixes, the generalization is that when the prefix is attached to an unaccusative verb, then the *–lý* participle is derived, as in (36) and (37). When the prefix is merged with unergative verbs - which cannot derive adjectival participles -, then the base verb

[17] The meaning is not locational here. The hair exceeds a certain contextual parameter.

is transitivized and consequently the *-ný/-tý* participle is derived, as in (31b) and (35a,e,f). And when the prefix is attached to a transitive verb, the derived verb remains transitive and the *-ný/-tý* participle is derived, as shown in (31a), (33), (34) and (35b,c,d). Thus, at least some superlexical prefixes can be analyzed on a par with lexical prefixes, i.e., as an incorporated preposition projecting its argument structure in PP merged with the root.

The argument structure (non-)augmentation facts and the derivation of *–lý* and *-ný/-tý* participles can be accounted for as in the case of lexical prefixes through complementary distribution of PP and the object and through selection features of Part and A. This means that the appropriate superlexical prefixes fulfil two functions: the quantificational/aspectual/adverbial function and the argument-structural function, i.e., they project the PP complement. With respect to the first function, the appropriate prefixes can be analyzed as an uninterpretable-feature reflection of some higher functional category (like the negative concord prefixes on arguments in Czech). For instance, the cumulative *na-* or the delimitative *po-* introducing *si* are merged as P, project their argument structure and later check the corresponding interpretable feature of the cumulative and delimitative head. To obtain the right scope properties, the cumulative and the delimitative head must be merged higher than the secondary imperfective suffix in the structure. However, not all superlexical prefixes must be analyzed in this way; recall that there are superlexicals adding no argument, as *do-* in (31a) and *po-* in (33) and (34).

That superlexical prefixes are merged below the stativizing head A is also evidenced by the morphological aspect data. We already saw that lexical prefixes make the verb perfective; compare (38a) and (38b). Slavic languages also employ the secondary imperfective suffix, which scopes over lexical prefixes and makes the verb imperfective, as shown in (38c). Superlexical prefixes in turn can scope over the secondary imperfective suffix and make the verb perfective again, as illustrated by the distributive *po-* in (38d).[18,19] As demonstrated in (38e), the stativizing head A (and Part) can attach to the perfective superlexically prefixed stem and form the *-ný* participle. Recall from section 3.2 that the stativizing head A bears the selection perfective-feature. Hence, if the superlexical prefix were merged higher than the

[18] The superlexical prefix does not affect the argument structure of the already prefixed verb, hence it can be analyzed as merged in a higher syntactic position and the lexical prefix *od-* then as a preposition projecting PP in the complement position of the root.

[19] Not all superlexicals scope over the secondary imperfective. As shown by (i), taken from Filip (1999, 197), certain superlexicals do not perfectivize the secondary imperfective. Compare also Žaucer (2009) for the Slovenian *pri-*.

(i) a. vy-dělá-va-t^{IMPF}
PREF-do-IPF-INF
'to earn' / 'to be earning'

b. při-vy-dělá-va-t^{IMPF}
ADD-PREF-do-IPF-INF
'to earn additional income'

head A in the structure, then the stativizing A would have to be capable of selecting imperfective complements. (Although the participle *odkrývaná* can be derived, it has only the eventive meaning.)

(38) a. krýt^{IMPF} b. od-krýt^{PF} c. od-krý-va-t^{IMPF} d. po-od-krý-va-t^{PF}
cover away-cover away-cover-si-inf up-away-cover-si-inf
e. po-od-krý-va-n-á tajemství
up-away-cover-si-part-n.pl.nom mysteries
'mysteries uncovered one by one'

Example (38) shows that the distributive *po-* scopes over the secondary imperfective suffix and changes the morphological aspect of the verb. Superlexical prefixes also perfectivize verbs without the secondary imperfective suffix and the lexical prefix; all examples with the superlexical prefixes in (31)-(37) are perfective. These examples also argue for merging superlexical prefixes below the stativizing A. Again, if the superlexical prefixes were merged higher than the stativizing head A, then the stativizing A would have to be capable of selecting an imperfective complement, contrary to fact.

The next argument for merging superlexical prefixes below the stativizing head A is based on semantic properties of the stativizing operator (which will be discussed in greater detail in the next section). Recall from the discussion above that the target state operator existentially binds the event variable and projects the state variable and that it can apply only to verbs that have a 'visible' state. Since it is the prefix that introduces the state variable, it follows that the appropriate superlexical prefixes must be merged below the stativizing A.

We have seen that the argument-structural criterion for distinguishing between lexical and superlexical prefixes is problematic because many superlexical prefixes can affect the argument structure of the verb. The secondary imperfectivization criterion seems to be problematic as well. According to this criterion superlexicals do not derive the secondary imperfective, in contrast to lexical prefixes. In fact, the capability of deriving the secondary imperfective is dependent on properties of the verb to a certain extent. Examples (32)-(34) show two types of the delimitative *po-* and none of them derives the secondary imperfective with the appropriate verbs. However, with other verbs, the delimitative *po-* can form the secondary imperfective; consider e.g. *pobývat* 'stay'. A similar behaviour of the delimitative *po-* can also be observed in Russian. Compare also Žaucer (2009), who argues that the availability of secondary imperfectives of lexically prefixed verbs is just a strong tendency and that the validity of secondary imperfectivization as a diagnostic is questionable.

One expects that prefixes behave consistently with respect to the criteria. However, this is not the case. We find all four combinations of the two criteria in our examples. For instance, the inceptive *za-* affects the argument structure of the verb *koktat* 'stammer' in (31b) and can derive the secondary imperfective (*zakoktávat se*). The delimitative *po-* does not affect the argument structure of *vařit* 'cook' and *dusit* 'steam' in (33) and (34) and cannot derive the secondary imperfective. In contrast, in (32b), the delimitative *po-* affects the argument structure of *číst* 'read' and *spát* 'sleep' and does not derive the secondary imperfective. The same holds for the excessive *pře-* with *křičet* 'shout' in (35a). Finally, the completive *do-* does not affect the argument structure of *hrát* 'play' in (31a) but derives the secondary imperfective (*dohrávat*). To conclude this discussion, the pure structural analysis of the availability of secondary imperfectives with superlexical prefixes - building on the mutual syntactic position of the secondary imperfective suffix and the superlexical prefix - does not work and the secondary imperfective suffix itself cannot be used as a reliable diagnostic for the structural position of superlexical prefixes.

With respect to resultativity and aspectual classes, *–lý* and *-ný/-tý* participles with superlexical prefixes behave similarly to adjectival participles containing lexical prefixes. Superlexical prefixes can also turn atelic eventualities into telic eventualities by adding a new subevent, as demonstrated e.g. in (31b), where the telic participle *zakoktaný* 'stammered', derived by the inceptive *za-*, is related to the activity verb *koktat* 'stammer', and in (37f), where the resultative (accomplishment) participle *odleželý* 'well-seasoned' is related to the stative predicate *ležet* 'lie'. In fact, if a superlexical prefix forms a target state participle, then given the meaning of the stativizing operator, it should be capable of introducing the state variable. Note that according to some authors superlexical prefixes are resultative as well; cf. Brecht (1985), Klein (1995) and Bertinetto (2001).

If it is correct that lexical-aspectual properties are determined in the argument domain (*v*P), then the discussed data can be used as another argument for the merger of superlexical prefixes in *v*P.

The following example demonstrates that adjectival participles containing a superlexical prefix can express both the resultant state and the target state. The test with *stále ještě* 'still' shows that it holds for both *–lý* and *-ný/-tý* superlexically prefixed participles.

(39) a. Ten zápas je (*stále ještě) dohraný.
the match is still finished
b. To dítě je stále ještě rozhoupané.
the child is still set swinging

c. Ta cigareta je (*stále ještě) dohořelá.
the cigarette is still burned-out
d. Jeho vlasy jsou stále ještě přerostlé.
his hair are still overgrown

More concretely, (39a) demonstrates that the *-ný* participle *dohraný* expresses the resultant (irreversible) state because it is not compatible with *stále ještě*. In contrast, in (39b) the *-ný* participle *rozhoupané* expresses the target state because it is compatible with *stále ještě*. As for superlexically prefixed *–lý* participles, *dohořelá* expresses the irreversible state in (39c), i.e. the resultant state, and the participle *přerostlé* then the target state in (39d) because the hair can be cut.

To summarize this section, s*ince the stativizing operator is merged in a high syntactic position, we do not find an interesting syntactic interaction between it and prefixes. Both types of prefixes can occur in –lý* as well as *-ný/-tý* participles. Both lexical and superlexical prefixes can also introduce an unselected argument. They typically transitivize unergative verbs; hence they make it possible for the verbs to derive a *-ný/-tý* participle. I have proposed that lexical prefixes and argument-introducing superlexical prefixes can be analyzed as incorporated prepositions, projecting PP in the complement position of the root. *Superlexical prefixes generally are merged below the stativizing head A.* We have also seen that both types of prefixes help verbs to derive adjectival participles because they induce perfectivity, which is a necessary condition for derivation of *-lý participles and stative -ný/-tý* participles. Both types of prefixes can also add a new subevent and turn atelic eventualities into telic eventualities. Finally, lexically and superlexically prefixed *-lý* and *-ný/-tý* participles can express the target state as well as the resultant state.

3.4 The semantic analysis

As already mentioned in section 3.3, lexical prefixes can be compositional (in the case of spatial meanings) as well as non-compositional, in contrast to superlexical prefixes, which are standardly viewed as compositional. Non-compositional lexical prefixation can be found in participles like *odečtený* ‘subtracted’, *dokázaný* ‘proven’ and *nafoukaný* ‘inflated’. It is obvious that the meaning of *dokázat* ‘prove’ is not composed of the meanings *do* ‘to’ and *kázat* ‘preach’. Other cases of non-compositional prefixation are somewhat more transparent, e.g. *odečtený*, which is derived from *od(e)* ‘away’ and *číst* ‘read’. Compositional lexical prefixation can be found in participles like *namrzlý* ‘frozen on sth’ and *zapadlý* ‘fallen behind sth’. In this section, I discuss two particular derivations; the first one stands for compositional

prefixes and the second one for non-compositional prefixes. Because of lack of space, I will deal only with target state participles.

I begin with compositional prefixes projecting the PP complement, concretely, with the *–lý* participle *namrzlý* from the example (*na mrazáku*) *namrzlý led* 'the ice frozen onto the freezer' in (27g). That this participle indeed expresses the target state is evidenced by its compatibility with *stále ještě*:

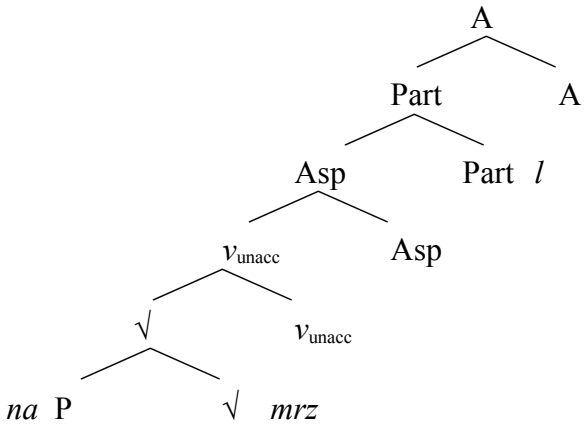
(40) Ten led je na mrazáku stále ještě namrzlý.
the ice is on freezer still frozen
'The ice is still frozen to the freezer.'

The syntactic structure of *namrzlý* with selection features of the stativizing head A is shown below. Since *led* 'ice' is located on *mrazáku* 'freezer', it is the figure argument of the preposition *na* 'on' and *mrazáku* is the ground argument.

(41) $[_{AP}\ A_{stativizer\ [pf,\ unacc/inanim]}\ [_{PartP}\ l\ [_{AspP}\ Asp\ [_{vP}\ v_{unacc}\ [_{\sqrt{P}}\ mrz\ [_{PP}\ led\ [_{P'}\ na\ mrazáku]]]]]]]$

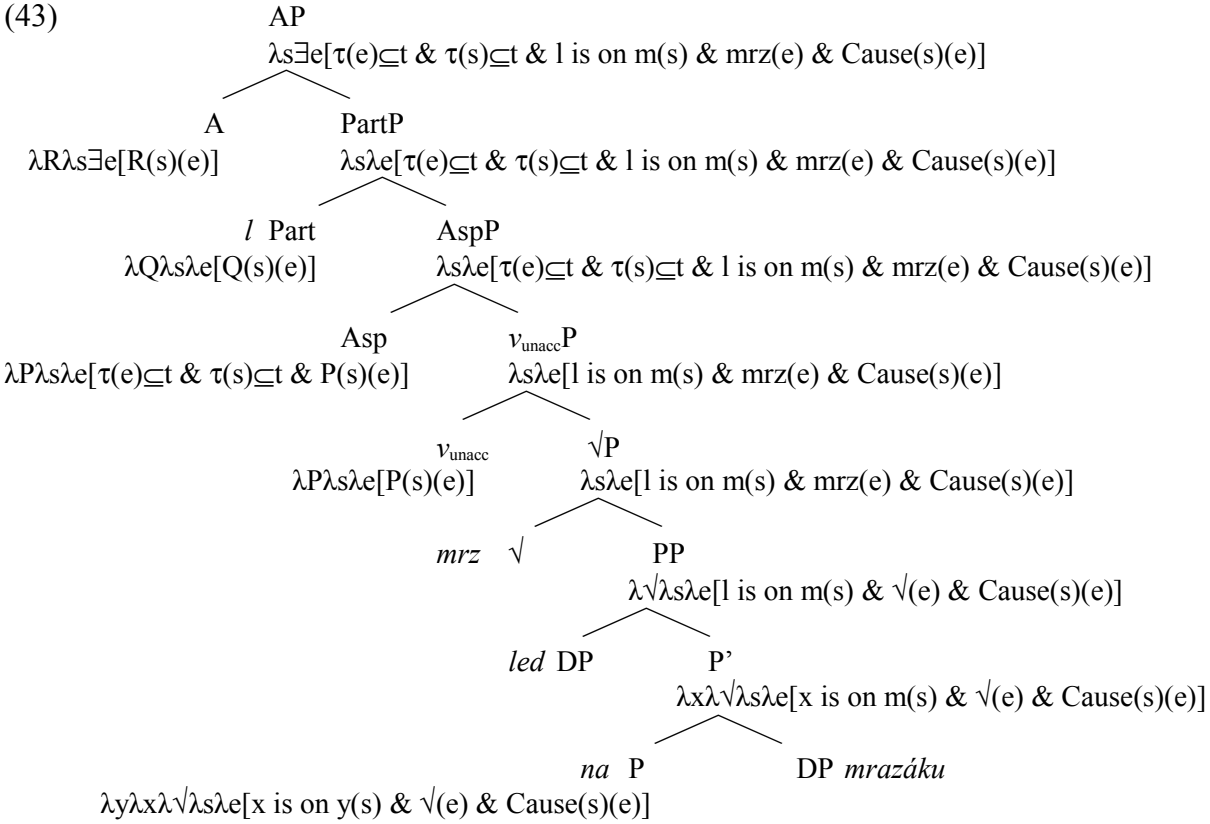
By means of head incorporation, we receive the complex head in (42). Since the head *v* is of the unaccusative type and the incorporated preposition *na* bears the perfective-feature, the selectional requirements of the stativizing head A are satisfied (the perfective-feature also satisfies the selection feature of the perfective Asp head). As shown in (42), head incorporation derives the right order of morphemes: *na-mrz-l*. The form of the participial ending (in our case *–ý*) is determined by the case and φ–features of the modified argument *led*.

(42)



Having the syntactic structure in mind, let us now turn to the semantic analysis. For the relevant part of the example under discussion, I propose the semantic derivation in (43).

(43)



The preposition *na* 'on' localizes the external argument (figure) with respect to the internal argument (ground). This is the result state and it is expressed by the first conjunct in the meaning of *na* in (43). Thus, the prefix introduces the lambda-bound state variable, which allows the application of the target state operator, which according to Kratzer (2000) applies to verbs expressing a relation between an event and a state. The second conjunct then allows PP to combine with the root. A comparison of prefixed and unprefixed verbs of this type reveals that it is the prefix that brings about the causative relation between the result state and the other subevent. This is expressed by the third conjunct of the meaning of *na*.[20] Thus, for compositional prefixes, I propose the generalized meaning (44), which is based on dyadic prepositions (not counting the state argument), but the number of prepositional arguments can vary.[21]

(44) λyλxλ√λsλe[P(y)(x)(s) & √(e) & Cause(s)(e)]

[20] I do not place Cause in the head *v* because theme vowels - which represent *v* - are identical in prefixed and unprefixed verbs in most cases.

[21] For superlexical prefixes merged as the complement of the root, I assume without further discussion that the superlexical semantics is present in a higher head (e.g. in the cumulative head in the case of the cumulative prefix) and that the prefix is an overt reflection of this semantics and is related to the higher head by means of a formal feature.

Let us turn back to the semantic derivation in (43). The preposition *na* applies to the DP *mrazák*, which gives the meaning of P', where *mrazák* replaces the argument variable *y*. The ground argument does not have to be expressed overtly. Instead of *mrazák*, there could be just a free variable, bound later by the context. The meaning of P' then applies to the external argument *led*, which replaces the variable *x*.

In the next step, PP combines with the root, resulting in the meaning that ice is in the state of being on the freezer and this is caused by the event of freezing. Then, √P is composed with the unaccusative *v*, which determines the syntactic category of the root and works as an identity function (as we will see below, non-unaccusative *v*s have an agentive semantics).

After this, *v*P combines with the head Asp. The perfective aspectual head is standardly treated as a perfective operator, which localizes the event time (the running time of the event) within the reference time; consider e.g. Paslawska & von Stechow's proposal (2003, 322): $\lambda P \lambda t \exists e.\tau(e) \subseteq t \ \& \ P(e)$. I modify the meaning by adding the state variable and changing the existential quantification of the event variable to lambda binding. The reason for this is that it should be the target state operator that existentially binds the event variable (following Kratzer 2000). The time variable *t* is free and is interpreted by the context. Since the stativizing operator (the head A) is higher than the participial suffix (Part), the participial morphology is meaningless, in accordance with Kratzer (2000). Thus, the proposed meaning of Part applied to the meaning of AspP returns the same value.

In the final step, PartP combines with the head A, i.e., Kratzer's target state operator, as shown in (43). This operator existentially closes the event argument and externalizes the state variable, which gives birth to the stative interpretation.

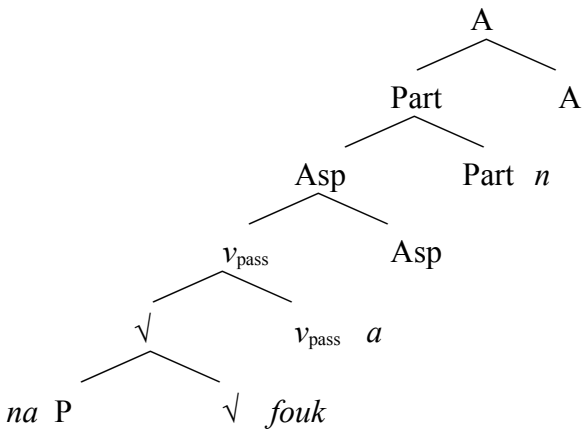
I now turn to non-compositional prefixes, specifically, to the *-ný* participle *nafoukané* from the example *nafoukané kolo* 'the inflated tyre' in (25a). We already saw in (29b) that the participle expresses the target state. The syntactic structure of *nafoukané* with selection features of the stativizing head A and the head Part is demonstrated in (45).

(45) $[_{AP}\ A_{\text{stativizer [pf, acc]}}\ [_{PartP}\ n_{\text{[trans, ag]}}\ [_{AspP}\ Asp\ [_{vP}\ v_{pass}\ [_{\sqrt{P}}\ \textit{fouk}\ [_{PP}\ \textit{na kolo}]]]]]]$

Since the passive *v* assigns structural accusative (as mentioned in fn. 5) and the incorporated preposition *na* bears the perfective-feature, the selectional requirements of the stativizing head A are satisfied. And since the passive *v* introduces the (instrumental) agent and the root is merged with the PP complement, the selectional requirements of the head Part (bearing the agentive-feature and the transitive-feature) are satisfied as well.

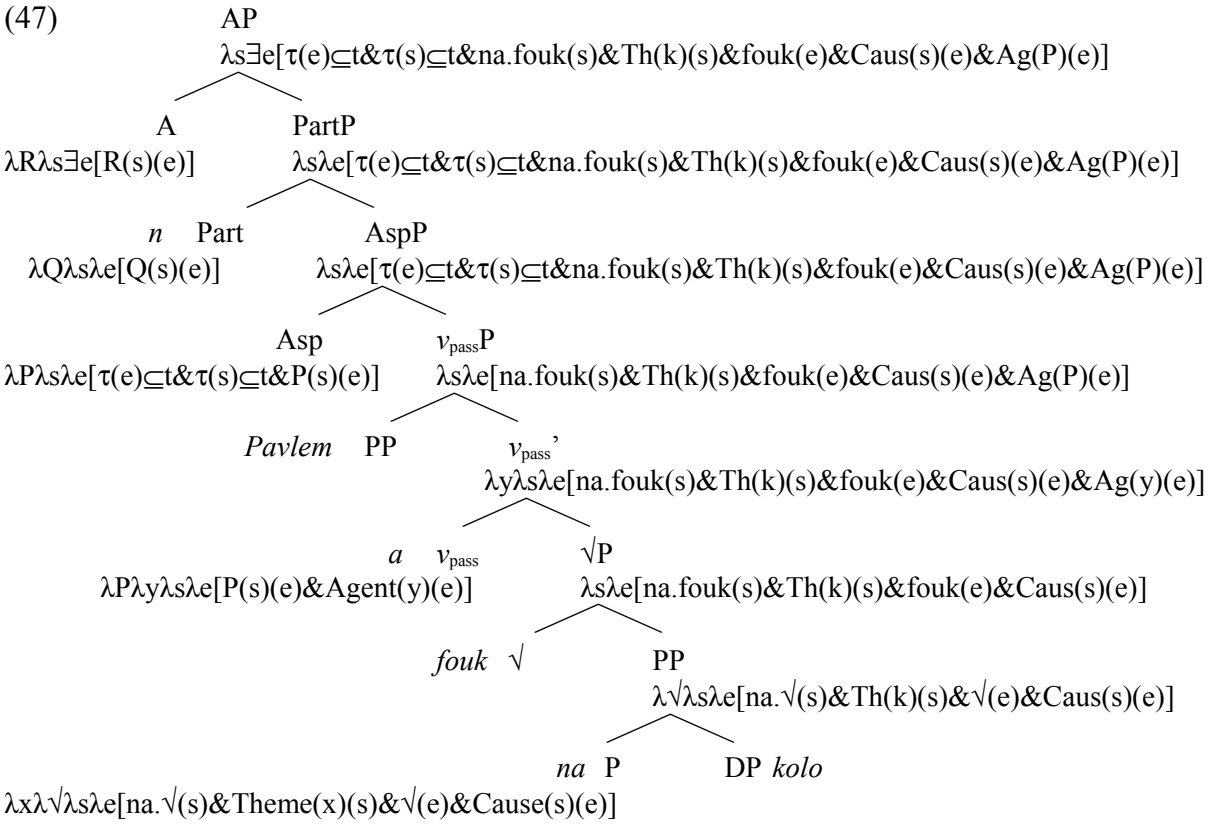
Head incorporation derives the complex head (46), with the right order of morphemes: *na-fouk-a-n*. The form of the adjectival ending (here -*é*) is determined by the case and φ–features of the modified argument *kolo*.

(46)



Let us look at the semantic analysis. For the relevant part of *nafoukané kolo*, I propose the following LF:

(47)



As in the case of compositional prefixation, one would like to separate the prefix from the root and other morphemes. An interesting question is how to deal with the fact that combination of the prefix and the root brings about an idiosyncratic meaning. For the non-

compositional prefix *na*-, I propose the meaning shown in (47). Concretely, in the first conjunct, the dot stands for concatenation, which is a binary operation that produces one word (string) at LF when both sides of the dot are specified. This means that the first conjunct cannot be interpreted until the root is added. The first conjunct expresses the result state and the second conjunct says that *x* is the theme of the result state, which renders the transitivizing effect of prefixation, as discussed in preceding sections. Thus, the prefix again introduces the lambda-bound state variable, which allows the application of the target state operator. The third conjunct then allows PP to combine with the root. As in the case of compositional prefixes, the fourth conjunct expresses that there is a causative relation between the result state and the other subevent. Generally, non-compositional prefixes bear meaning (48), where *P* stands for the appropriate preposition.

(48) λxλ√λsλe[P.√(s) & Theme(x)(s) & √(e) & Cause(s)(e)]

In the semantic derivation in (47), the meaning of *na* applies to DP *kolo* and *kolo* replaces the argument variable *x*. Then PP combines with the root, with the result that the first conjunct can be interpreted. Thus, the tyre is in the state of being inflated and this state is caused by the event *e*.

In the next step, √P combines with the passive *v*, with the meaning that *y* is the agent of the event *e*. For expository reasons, the meaning of v_{pass}' applies to PP *Pavlem* and *Pavlem* replaces the argument variable *y*, resulting in *Pavlem nafoukané kolo*. The agent, of course, can be covert, as in the case of *nafoukané kolo*. Then, *v*P combines with the head Asp bearing the same semantics as in the case of compositional prefixes. Concretely, the time of the event *e* and the state *s* is included in the reference time *t*. AspP is composed with the head Part, which again maps the meaning of AspP onto the same value.

Finally, the meaning of PartP combines with the target state operator, as in the case of compositional prefixes. The stative interpretation of the participle is the result of existentially quantifying the event variable and projecting the state variable.

As is obvious from (44) and (48), the meaning of compositional and non-compositional prefixes differs from the standard prepositional meaning. This is in the spirit of Baker (1988), according to whom prepositions can appear in more forms; the non-incorporated preposition can differ from the incorporated preposition (affix). The meanings of prefixes proposed above reflect the fact that the preposition incorporates into the root and that they form a word together, in contrast to non-incorporated prepositions.

One may propose that the difference in prepositional meanings (and in the form in certain cases, e.g. with respect to vocalic length and the stress pattern) is based on the phase status of prepositions. Specifically, when the preposition incorporates into the root, then it is spelled out in the same phase as the root and the two elements must negotiate the meaning and the form together. However, this is not the case when the preposition does not incorporate into the root and is spelled out (and interpreted) in its own phase. Compare also prefix verbs with particle verbs (and unprefixed verbs selecting PP) in German. Prefix verbs, which contain an incorporated preposition, have a different stress pattern and more idiosyncratic meanings than particle verbs. A detailed discussion of this proposal, I leave for future research.

4. Conclusions

I have argued that both *–lý* and *-ný/-tý* participles are headed by the head A, which functions as a stativizing operator. Since the stativizer is attached high in the syntactic structure, *lexical and superlexical prefixes can occur in both types of* adjectival participles. We have seen that lexical and at least some superlexical prefixes can introduce an unselected argument, add a new subevent and turn atelic eventualities into telic eventualities. Both lexically and superlexically prefixed *-lý* and *-ný/-tý* participles can express the target state as well as the resultant state. I have analyzed lexical prefixes and argument-introducing superlexical prefixes as incorporated prepositions, projecting PP in the complement position of the root. For compositional prefixes in target state participles, I have proposed the meaning λyλxλ√λsλe[P(y)(x)(s) & √(e) & Cause(s)(e)] and for non-compositional prefixes the meaning λxλ√λsλe[P.√(s) & Theme(x)(s) & √(e) & Cause(s)(e)], where *P* stands for the appropriate incorporated preposition. The prefixes introduce the lambda-bound argument variable(s), the state variable and the event variable in their meaning. The argument variable is replaced by the argument merged in PP and the state variable is projected and the event variable existentially bound by the target state operator.

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