Slavic Prefixes and Adjectival Participles[1]

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1. Introduction

This paper provides an analysis of prefixed adjectival participles. It is concerned mainly with superlexical prefixes and past passive participles and past participles of the *-lý* type. Numerous researchers have argued that Slavic prefixes can be divided into two types: lexical (internal, qualifying, resultative) prefixes and superlexical (external, modifying) prefixes, see Isačenko (1962), Babko-Malaya (1999), Svenonius (2004), Di Sciullo & Slabakova (2005), Ramchand (2004), Romanova (2004, 2006), Gehrke (2008), among others. The following differences are often cited in the literature: Superlexical prefixes do not affect the argument structure of the base verb in contrast to lexical prefixes. They also do not change the aspectual class of the unprefixed verb, in contrast to lexical prefixes. Superlexical prefixes mostly do not derive secondary imperfectives, in contrast to lexical prefixes. Superlexical prefixes can stack in contrast to lexical prefixes and the superlexical prefix must precede the lexical prefix if they co-occur. Superlexical prefixes have only a compositional (adverbial) meaning in contrast to lexical prefixes, which have an idiosyncratic or spatial meaning. It has also been argued that superlexical prefixes do not form certain adjectival participles in contrast to lexical prefixes.

In what follows, I scrutinize some of these claims and show that in many cases superlexical prefixes behave like lexical prefixes. Building on data from different Slavic languages, I argue that at least some superlexical prefixes can be treated in the same way as lexical prefixes. That is, they are merged in the complement position of the root, where they project PP, and then incorporate into the predicate. I show that superlexical prefixes can fulfil both the lexical and the superlexical function. As to semantic properties of certain superlexically prefixed adjectival participles, I propose that the meaning of superlexical prefixes is based on the locative meaning of prepositions and in addition it introduces the event and state variable, which license the application of the state operator present in the adjectival head.

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The paper is organized as follows. Section 2 is concerned with the morphosyntactic structure of adjectival participles. Section 3 deals with the position of prefixes in the structure of adjectival participles and with argument structure effects of prefixation. Section 4 presents several arguments for the identity between prefixes and prepositions. Section 5 argues for the low merger of superlexical prefixes and for the uniform analysis of lexical and superlexical prefixes. The core of my proposal is presented in section 6. This section shows a sample syntactic and semantic derivation of an adjectival participle containing a superlexical prefix. It shows that the superlexical meaning is dissociated from the prefix itself and from its locative meaning.

2. The syntactic structure of adjectival participles

The stem of Slavic verbs consists of the root and the theme suffix, see e.g. Isačenko (1962), Rubach (1984), Komárek (2006). The theme suffix determines the syntactic category of the root (and the conjugation class); compare the Russian, Polish and Czech infinitive in (1a), (2a), (3a) containing the theme vowel *–a-*, with the nouns bearing the nominal suffix *-∅-*, *-m-*, *–b-* in (1b), (2b) and (3b).[2,3] For this reason, I assume that the theme suffix represents the head *v*.

Examples (1c), (2c) and (3c) show that there are suffixes *-yva-*, *–ywa-*, *-va-* next to the theme vowel or the root, which imperfectivize the prefixed stem. Since these suffixes affect aspectual properties of the predicate and derive the secondary imperfective, I take them to represent the aspectual head.

(1) a. del-a-t’ — do-TH-INF — ‘to do’

b. del-∅-o — do-NMLZ-NOM.SG.N — ‘work’

c. do-del-yva-t’ — to-do-SI-INF — ‘to finish the work’ (R)

d. do-del-a-n — to-do-TH-PTCP — ‘finished’

e. do-del-a-nn-yj — to-do-TH-PTCP-NOM.SG.M — ‘finished’

2 Besides the theme vowel, the theme suffix can be instantiated by a null morpheme or by a more complex suffix like *–nu-* in Russian, *-ną-* in Polish, *–nou-* in Czech or by *–ova-* in Russian, *–owa-* in Polish and *–ova-* in Czech. The verbal stem can also contain a prefix; see e.g. (1c-e), (2c-d) and (3c-e).

3 I use the following glosses: ACC = accusative, F = feminine, M = masculine, NMLZ = nominalizer, NOM = nominative, LOC = locative, PL = plural, PTCP = participle, SG = singular, SI = secondary imperfective, TH = theme vowel.

(2) a. pis-a-ć
write-TH-INF
'to write'

b. pis-m-o
write-NMLZ-NOM.SG.N
'script, journal'

c. prze-pis-ywa-ć (P)
over-write-SI-INF
'to rewrite, to prescribe'

d. prze-pis-ywa-n-y
over-write-SI-PTCP-NOM.SG.M
'rewritten, prescribed'

(3) a. řez-a-t
cut-TH-INF
'to cut'

b. řez-b-a
cut-NMLZ-NOM.SG.F
'carving'

c. na-řez-á-va-t (CZ)
on-cut-TH-SI-INF
'to cut a little (repeatedly)'

d. na-řez-á-vá-n
on-cut-TH-SI-PTCP
'being cut a little (repeatedly)'

e. na-řez-á-vá-n-ý
on-cut-TH-SI-PTCP-NOM.SG.M
'cut a little (repeatedly)'

The suffix *-n*/*-t* occurs next to the secondary imperfective suffix or the theme vowel and derives passive participles; consider (1d), (2d) and (3d) (the same distribution holds for the participial suffix *–l* (*-ł*)). Therefore, I assume that these suffixes represent the participial head.

Finally, the participles in (1e), (3e) and the Polish participle in (2d) bear adjectival endings, hence I assume the presence of the adjectival head in the syntactic structure of the participles.[4] Given the ordering of morphemes, I propose the following structure for adjectival participles (abstracting away from prefixes for a moment).

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

3. The syntactic position of prefixes in adjectival participles

In this section, I am concerned with the positioning of prefixes in the syntactic structure of adjectival participles. According to Schoorlemmer (1997), perfective paired verbs (i.e. prefixed verbs deriving secondary imperfective forms like *peremërznut'*/*peremerzat'* 'all to freeze', *podrasti*/*podrastat'* 'to grow up', *zabolet'*/*zabolevat'* 'to become ill') always have an internal argument in Russian. Thus, intransitive paired verbs must be unaccusative. Regarding prefixed verbs derived from unergatives, Schoorlemmer argues that derivation of paired verbs from unergative predicates always involves transitivization; as shown by the following verbs:

4 In the case of the Russian and Czech short form participles in (1d) and (3d), the masculine singular ending is null.

razigrat'/*razigryvat'* 'to raffle', *oplakat'*/*oplakivat'* 'to bewail', *naguljat'*/*nagulivat'* 'to walk a lot'. Similar facts can be observed in Czech; consider (5), containing *-lý* participles, and (6), containing *-ný*/*-tý* participles.

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

b. za-znělé tóny (CZ)
behind-sounded tones
'tones that sounded'

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

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

e. pro-padlá střecha
through-fell roof
'the roof that caved in'

f. za-padlá mince
behind-fell coin
'the coin that fell behind something'

(6) a. do-dělaný úkol
to-made homework
'the finished homework'

b. při-dělaný věšák
at-made rack
'the fixed rack'

c. pře-křičený řečník
over-shouted speaker
'the speaker drowned by shouting'

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

e. při-hřátý guláš
at-warmed goulash
'a little warmed goulash'

f. vy-spaná kocovina
out-slept hangover
'the hangover that was slept away'

Note first that all verbs underlying the participles in (5) and (6) can derive the secondary imperfective. Examples in (5) demonstrate that if the prefixes are attached to an unaccusative verb, then the verb remains unaccusative. This is obvious from the fact that only unaccusatives derive *-lý* participles. Examples (6c,d,f) show that if the prefixes are attached to an unergative verb, the verb is transitivized, as in the Russian examples above. That the verbs are indeed transitive is evidenced by the fact that they derive a *-ný*/*-tý* participle, which can be derived only from transitives. Finally, if the prefix is attached to a transitive verb, then the verb remains transitive, as shown in (6a,b,e).

These facts are true for both lexical prefixes, as in (5e,f) and (6b,f), and superlexical prefixes, as in (5a-d) and (6a,c-e). The consequent behaviour of the verbs with respect to different prefixes shows that the type of the prefix does not play a role in this respect. The

different prefixes can be represented by different lexical prefixes, as in (5e) and (5f), or by a superlexical and lexical prefix, as in (6a) and (6b), respectively. The data in (5) and (6) also tell against the usual claims that superlexical prefixes cannot form adjectival participles like the past passive participle and that they do not derive the secondary imperfective (for more on this topic, see section 5).

Turning back to the argument structure, the generalizations above suggest that the prefixes are merged in the complement position of the root. More specifically, prefixes are prepositions projecting a phrase competing for the complement position with the nominal complement of the non-prefixed verb. The preposition then incorporates into the root. The argument structure generalizations are explained in the following way. In the case of *-lý* participles in (5), the root - which is selected by the unaccusative *v* - is merged with the prefix (preposition), which introduces an argument and projects PP. Since the PP is in complementary distribution with the nominal complement of the root (base verb), the argument structure is not augmented and the verb remains unaccusative. In this way, we explain Schoorlemmer's (1997) observation that intransitive paired verbs are unaccusative.

As to *-ný*/*-tý* participles and base unergative verbs in (6c,d,f), the preposition introduces an unselected argument/arguments in PP. Since the root is selected by the agentive *v* introducing an agentive argument, we observe augmentation of the argument structure of the base verb. In the case of *-ný*/*-tý* participles and base transitive verbs in (6a,b,e), the PP replaces the nominal complement of the root, hence the prefixed verbs remain transitive. Given this analysis, the syntactic structure of the discussed prefixed adjectival participles looks like (7).

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

4. Identity between prefixes and prepositions

In the preceding section, we saw that the analysis according to which verbal prefixes are incorporated preposition can account for different argument structure effects of prefixation. In this section, I will present some other arguments supporting the proposed analysis.

It is known that prefixes and prepositions have a common ancestor and that most Slavic prefixes have a prepositional counterpart. For phonological identity of prefixes and prepositions, consider e.g. Matushansky (2002). It has also been argued that there are certain differences in phonological behaviour of prefixes and prepositions; see Gribanova (2009).

Note, however, that the fact that two elements behave differently in a certain aspect does not necessarily mean that they are not identical. Their different behaviour can be induced by the different (in our case, morphosyntactic) contexts in which the two elements occur and which define them. For instance, Biskup, Putnam & Smith (to appear) argue that the different phonological properties of German prefixes and particles/prepositions can be derived from the fact whether or not the appropriate preposition incorporates into the verb and occurs in the same phonological domain as the verbal stem. In a similar vein, Biskup and Putnam (to appear) argue that the German prefix *ent-* is an (incorporated) allomorph of the preposition *aus*. Moreover, note that not only prefixes but also prepositions can form one word with other elements, as shown by the Polish and Slovak examples below.

(8) a. do-ń (= do niego)
to-him
'to him'

b. za-ń (= za niego) (P)
behind-him
'behind him'

(9) a. do-ň (= do neho)
to-it
'to it'

b. za-ň (= za neho) (SK)
behind-it
'behind it'

If verbal prefixes are incorporated prepositions, i.e., the prefix and the preposition are just two copies of one element, then the prediction is that in cases where it is necessary, both copies are spelled out. Consider (10) and (11a).

(10) Basia ode-szła od stołu.[5] (P)
Basia away-went away table
'Basia left the table.'

(11) a. Pavel do-šel do Albert-a. (CZ)
Pavel to-went to Albert-GEN
'Pavel went in Albert supermarket.'

b. Pavel šel do Alberta.
Pavel went to Albert-GEN
'Pavel was going to Albert supermarket.'

5 The vocalization of *od* is triggered by the particular phonological properties of the verb *szła*.

c. Pavel do-šel Albert-a.
Pavel to-went Albert-ACC
'Pavel caught up Albert.'

The spell-out of the prefix copy is necessary because of the aspect. This is obvious from the comparison of the imperfective example (11b), whose interpretation is progressive, with the perfective (11a), which means that Pavel indeed reached the supermarket. The comparison of (11a) and the prepositionless example (11c) shows that the spell-out of the preposition copy is necessary because of the semantics of the preposition connected to the assigned case.

Since the incorporation analysis proposed here is of syntactic nature, it should be subject to movement constraints. This seems to be the case; consider the following example, which shows that in Russian, PP headed by a preposition that does not fit the prefix cannot intervene between the homophonous prefix and preposition. Examples (12a) and (12b) just control that *vletel* 'flew' can co-occur with *v*PP and *na*PP. The crucial data are in (12c) and (12d). Example (12c) demonstrates that *vletel* can co-occur with both PPs if *na*PP follows *v*PP. In contrast, (12d) is ungrammatical because *na* blocks the local relation between the copy of *v* in *vletel* and the copy of *v* in *v komnatu*. The same pattern can be found in Serbo-Croatian; according to Arsenijević (2006, chap. 5), the PP that fits the verbal prefix must precede the other PP.

(12) a. Popugaj v-letel v komnat-u. (R)
parrot in-flew in room-ACC
'The parrot flew into the room.'
b. Popugaj v-letel na stol.
parrot in-flew on table.ACC
'The parrot flew onto the table.'
c. Popugaj v-letel v komnat-u na stol.
parrot in-flew in room-ACC on table.ACC
'The parrot flew into the room, onto the table.'
d. * Popugaj v-letel na stol v komnat-u.
parrot in-flew on table.ACC in room-ACC (Inga Žirkova, p.c.)

If verbal prefixes are just another copy of a preposition, then one expects that all prefixes will have a prepositional counterpart. Looking e.g. at Russian and Czech, which have

approximately twenty verbal prefixes, there are only three prefixes in each language that do not have a corresponding preposition, namely, *raz*/*roz*-, *vy*- and *vz*-. This is the modern state of affairs; in Old Russian and Old Czech *vz* was used as a preposition. *Vz* can also be found in today's Serbo-Croatian (as *uz*/*uza*) and in Macedonian dialects (as *voz*); see Kopečný (1973). *Vz* and *vy* are related because they are probably derived from the Indo-European *uds* 'up, out' and *ud* 'up, out', respectively (Kopečný 1973, Vasmer 1976). As to *raz*/*roz*, it is derived from the Proto-Slavic *orz* and the preposition *raz* can be found e.g. in Slovenian (Kopečný 1973, Rejzek 2001). Thus, a possible analysis of e.g. *vz* is that the preposition must incorporate into the verb in modern Russian and Czech, whereas in Old Russian, Old Czech, Serbo-Croatian and Macedonian the preposition does not have to incorporate into the verb.

There are also other types of historical changes concerning preposition copying. In Old Church Slavonic, some locative meanings were expressed by prepositionless case in constructions with an overt prefix, e.g., the goal in *do-iti města* 'reach the town' was marked with prepositionless genitive. Later, however, prepositionless cases could not further fulfil their function; therefore the preposition was expressed overtly, too (Večerka 2006). For this reason, in Czech we find *do-jít do města*.

Concerning semantic properties of prefixes and prepositions, they are also very similar. As we will see in section 6, the core meaning of prefixes is based on the two-argumental meaning of prepositions. More concretely, I will show that the cumulative superlexical *na*- 'on' is a function that places the external argument *on* the internal argument. In addition to this, the meaning of the prefix contains the cause operator and a meaning component that allows it to merge with the root. As for the cumulative meaning itself, it is not placed in the prefix but in a higher syntactic position. The prefix just bears an uninterpretable feature that triggers the presence of the cumulative meaning by satisfying the corresponding interpretable feature of the cumulative head.

There are also more general semantic similarities between prepositions and prefixes, which support their uniform analysis. The first similarity concerns localization of arguments/times with respect to each other. The second similarity concerns definiteness of the reference time of prefixed predicates and definiteness of arguments with a prepositional marker; for details, see Biskup (2007, 2009). Having said this, we can now turn to the specific case of superlexical prefixes.

5. Arguments for the low merger of superlexical prefixes

Superlexical prefixes are usually argued to be merged in a position outside *v*P/VP and the differences between lexical and superlexical prefixes discussed in section 1 are argued to follow from their different syntactic positions. In contrast to this, I present several arguments in this section showing that (at least some) superlexicals can be analyzed in the same way as lexical prefixes, i.e., as incorporated prepositions projecting PP in the complement position of the root.

We saw in section 3 that superlexical prefixes, too, can affect the argument structure of the verb to which they attach. Concretely, (6c) shows that the excessive prefix *pře-* 'over' introduces an unselected argument (recall that past passive participles are derived only from transitive verbs) and the same holds for the inceptive *za-* 'behind' in (6d). Other examples can be found in (13). In (13a), the intransitive verb *cry* is transitivized by the Russian cumulative prefix *na-* 'on' and in (13b) by the Czech inceptive *roz-* 'apart'. In (13c) the Czech delimitative prefix *po-* 'along' introduces the unselected dative argument and in (13d) the Russian completive *do-* adds the accusative object to the verb *sleep*.

(13) a. na-plakat' vedr-o slëz
on-cry bucket-ACC tears.GEN
'to cry a lot'

b. roz-plakat šéf-a
apart-cry chief-ACC
'to make the chief cry'

c. po-spat si
along-sleep self.DAT
'to sleep for a short while'

d. do-spat' noč'
to-sleep night.ACC
lit. 'to sleep the night to the end'

Since argument structure is established in the *v*P/VP domain, these facts support the view that at least some superlexical prefixes can be analyzed on a par with lexical prefixes. The identical behaviour of lexical and superlexical prefixes with respect to the argument structure of different types of verbs, as discussed in section 3, also supports a unified analysis of these two types of prefixes.

Selectional restrictions imposed on verbal arguments by superlexical prefixes also argue for the proposed analysis. The following examples demonstrate that the relevant argument of the verb prefixed with the distributive and cumulative prefix must be a plural noun or a mass term.

(14) a. * Jablok-o po-padalo. (R)
apple-NOM.SG along-fell
b. Jablok-i po-padali.
apple-NOM.PL along-fell
'Apples fell down.' (Maria Yastrebova, p.c.)

(15) a. * Ivan na-kupil cvet. (R)
Ivan on-bought flower
b. Ivan na-kupil cvetov.
Ivan on-bought flowers
'Ivan bought a lot of flowers.'
c. Ivan na-kupil massu veščej.
Ivan on-bought amount things
'Ivan bought a lot of things.'

Since selectional relations must be local and arguments are introduced in the *v*P/VP domain, the data in (14) and (15) suggest that superlexical prefixes can be merged in *v*P/VP as well.

It is also known that superlexicals can affect case properties of the direct object. This is illustrated in (16) and (17), containing the cumulative prefix *na-*.

(16) a. Basia piekła bułk-i. (P)
Basia baked roll-ACC.PL
'Basia was baking rolls.'
b. Basia na-piekła bułek.
Basia on-baked roll.GEN.PL
'Basia baked a lot of rolls.'

(17) a. Maša rvala jagod-y. (R)
Maša picked strawberry-ACC.PL
'Maša was picking strawberries.'
b. Maša na-rvala jagod.
Maša on-picked strawberry.GEN.PL
'Maša picked a lot of strawberries.'

In the minimalist approach, accusative (objective) case is assigned by *v* (or V in the inheritance analysis, see Chomsky 2008). Given the correlation between the (non-)presence of

the cumulative prefix and the type of the objective case, the head *v* should know whether or not the prefix is present in the structure in the moment when it assigns case. In other words, the prefix should merge before the head *v*. It is, of course, possible to let the head *v* assign case and merge the prefix in the structure later. Such a derivation, however, could be computationally very inefficient because the whole computational effort would be lost when the derivation crashes at the interface because of the incompatibility of the prefix and the assigned case (accusative).

Another argument for the uniform analysis of lexical and superlexical prefixes is based on interpretational properties of prefixation. The following example demonstrates that in certain cases the interpretation of the prefix, i.e., whether it is interpreted lexically or superlexically, depends on properties of other elements present in the argument structure. This is unexpected if the interpretation of prefixes should be based on the height of their merger.[6]

(18) a. pere-čitat' knig-u
over-read book-ACC.SG
'to read the book'
'to reread the book'

b. pere-kričat' Maš-u (R)
over-shout Maša-ACC.SG
'to shout more loudly than Maša'

c. pere-čitat' knig-i
over-read book-ACC.PL
'to read the books (one after another)'

d. pere-letet' granic-u
over-fly border-ACC.SG
'to fly over the border'

For instance, it is not clear why the prefix *pere-* should be merged inside *v*P/VP (and be interpreted lexically) in the case of motion predicates like *letet'* 'to fly', as in (18d), and outside *v*P/VP (and be interpreted superlexically) in the case of predicates like *kričat'* 'to shout', as in (18b), and in both positions in the case of predicates like *čitat'* 'to read', as in (18a). It is also not clear why the height of the prefix merger should depend on the number of the direct object; compare the lexical and repetitive interpretation of (18a) with the distributive interpretation of (18c). How could such dependencies be modelled in the narrow syntax?

There are also arguments based on scope properties of superlexical prefixes that argue for their low merger. For instance, Žaucer (2011: 2) shows that the Slovenian attenuative prefix *pri-* 'at' takes narrow scope with respect to the restitutively interpreted adverb *spet* 'again';

consider (19). Since the restitutive reading of *again* is derived below VP, the prefix also must be merged below VP.

(19) Juš je klop spet pri-vz-dignil. (SI)
Juš is bench again at-up-lifted
'Juš restored the bench to a partly lifted state.'
(not: 'Juš was partly involved in lifting the bench.')

Many authors have argued that superlexically prefixed verbs mostly do not form secondary imperfectives and that there are only a few exceptions. In fact, looking at our examples, we find many superlexicals that derive the secondary imperfective. As already mentioned, all verbs underlying the Czech participles in (5) and (6) can derive the secondary imperfective. The examples contain the completive *do-* 'to' in (5a), (6a), the inceptive *za-* 'behind' in (5b), (6d), the inceptive *roz-* 'apart' in (5d), the excessive *pře-* 'over' in (6c) and the attenuative *při-* 'at' in (5c) and (6e). In section 1, we saw a Czech secondary imperfective with the attenuative *na-* 'on' in (3c), the Russian completive *do-* 'to' in (1c) and the Polish repetitive *prze-* 'over' in (2c). The Russian examples in the beginning of section 3 also show superlexicals deriving the secondary imperfective, namely, the distributive *pere-*, inceptive *za-* and cumulative *na-*.

However, the relation between prefixes and the secondary imperfective is far from clear. It seems that the availability of the secondary imperfective to certain extent depends on lexicosemantic properties of particular verbs. For instance, the Czech delimitative *po-* derives the secondary imperfective when it attaches to *zpívat* 'to sing' and *být* 'to be', see (20), but does not when it attaches e.g. to *lyžovat* 'to ski' and *číst* 'to read'. Similarly, the Russian delimitative *po-* forms the secondary imperfective when it attaches to *chlestat'* 'to whip' and *byt'* 'to be', see (21), but does not when it attaches e.g. to *temnet'* 'to darken' and *iskat'* 'to look for'. To sum up, the data suggest that the secondary imperfective cannot be used as a reliable diagnostic for the syntactic position of superlexical prefixes.

(20) a. pozpěvovat si
along-sing self.DAT
'to sing a little'

b. po-bývat (CZ)
along-be
'to live somewhere for a certain time'

6 Note that Germanic particles are standardly analyzed in a uniform way regardless of whether or not they bear a superlexical (aspectual/adverbial) meaning.

(21) a. po-chlestyvat’
along-whip
‘to whip a little’

b. po-byvat’ (R)
along-be
‘to live somewhere for a certain time’

If the different behaviour of lexical and superlexical prefixes were based on their different merge positions (i.e., inside versus outside *v*P/VP), then one would expect the particular prefixes to behave consistently with respect to the diagnostics used in the literature. However, this is not the case. Just taking into consideration the argument structure diagnostic and the secondary imperfective diagnostic, we receive all four combinations of the two diagnostics: In Czech, the inceptive prefix *za-* changes the argument structure of the verb *koktat* ‘stammer’ in (6d) and derives the secondary imperfective. In contrast, the completive *do-* in (5a) derives the secondary imperfective but does not change the argument structure of the verb hořet ‘to burn’. The delimitative *po-* affects the argument structure of *lyžovat* ‘to ski’ and *číst* ‘to read’ and does not derive the secondary imperfective, as mentioned above. In contrast, the delimitative *po-* attached to verbs like *vařit* ‘cook’ and *dusit* ‘steam’ does not derive the secondary imperfective, nor affects the argument structure.

It has also been argued in the literature with respect to participle formation in Russian and Czech that superlexical prefixes do not derive past active and past passive participles in contrast to lexical prefixes because they are merged in a high syntactic position. In contrast to such claims, we already saw some superlexical prefixes deriving adjectival participles. Consider the Russian completive prefix *do-* ‘to’ in (1e), the Polish repetitive *prze-* ‘over’ in (2d) and the Czech attenuative prefix *na-* ‘on’ in (3e). Other examples of superlexical prefixes forming the past passive and active participle can be found in examples (5) and (6). As to *–lý* participles, see the completive *do-* ‘to’ in (5a), the inceptive *za-* ‘behind’ and *roz-* ‘apart’ in (5b) and (5d) and the attenuative *při-* ‘at’ in (5c). Concerning *-ný*/*-tý* participles, consider the completive *do-* ‘to’ in (6a), the excessive *pře-* ‘over’ in (6c), the inceptive *za-* ‘behind’ in (6d) and the attenuative *při-* ‘at’ in (6e). For some Polish and Russian examples, see (22) and (23). Regarding Polish, we find the attenuative *przy-* in (22a), the cumulative *na-* in (22b), the excessive *prze-* in (22c) and the completive *do-* in (22d). Similarly, as shown in (23a-c), the Russian attenuative *pri-*, cumulative *na-* and the excessive *pere-* derive the past passive participle. Even a verb with two superlexicals can form the participle, as demonstrated by the distributive *po-* and cumulative *na-* in (23d).

(22) a. przy-palony
at-burned
'burned a little'

b. na-pieczony (P)
on-baked
'baked in large quantities'

c. prze-pełniony
over-filled
'overfilled'

d. do-grany
to-played
'finished (game)'

(23) a. pri-dušennyj
at-strangled
'strangled'

b. na-koplennyj (R)
on-piled
'piled'

c. pere-polnennyj
over-filled
'overfilled'

d. po-na-stroennyj
along-on-built
'built distributively in large quantities'

Superlexical prefixes can also affect lexical aspect properties of predicates to which they attach. More concretely, they can turn atelic eventualities into telic ones, as in (5) and (6), where, e.g., the completive *do-* add a new subevent to the atelic *hořet* 'to burn' in (5a) and the inceptive *za-* add a new subevent to the activity verb *koktat* 'to stammer' in (6d). For the same point, consider the verb *burn* prefixed with the attenuative *przy-* in the Polish example (22a) and also authors like Brecht (1985), Klein (1995) and Bertinetto (2001), who argue that not only lexical but also superlexical prefixes are resultative. If it is correct that lexical aspect properties are determined in the argument structure domain of the verbal projection, i.e. in *v*P, then the discussed data can be used as another argument for the claim that superlexical prefixes are merged in *v*P.

To sum up the discussion so far, superlexical prefixes – similarly to lexical prefixes - can introduce an unselected argument. We have seen that they typically transitivize unergative verbs; hence they make it possible for the verbs to derive the past passive participle.[7] Prefixes generally help verbs to derive adjectival participles because prefixation induces perfectivity, which is necessary for derivation of stative past passive participles and for derivation of past participles of the *-lý/ły* type. I have argued that verbal prefixes are incorporated prepositions and that at least some superlexical prefixes are merged in *v*P/VP. We have also seen that superlexical prefixes can add a new subevent and turn atelic eventualities into telic eventualities. For these reasons, I have proposed that superlexical prefixes can be analyzed on

a par with lexical prefixes: as prepositions projecting PP in the complement position of the root.

6. The derivation of adjectival participles with a superlexical prefix

In this section, I demonstrate how the derivation of a superlexically prefixed adjectival participle works. Adjectival participles are of two types: resultant state or target state (Kratzer 2000, see also Taraldsen & Medová 2007, Biskup to appear). Concretely, I will present a derivation of a target state participle containing the superlexical prefix *na-* 'on'; consider (24).

(24) (ty) židle na-házené na půdě (CZ)
the chair.NOM.PL on-thrown on attic.LOC
'(the) chairs thrown on the attic'

Example (25a) shows that the participle is of the target state type since it is compatible with *stále ještě* 'still'. (25b) demonstrates that the prefix *na-* has the cumulative meaning because it is not compatible with a singular argument, in contrast to the plural argument in (25a).

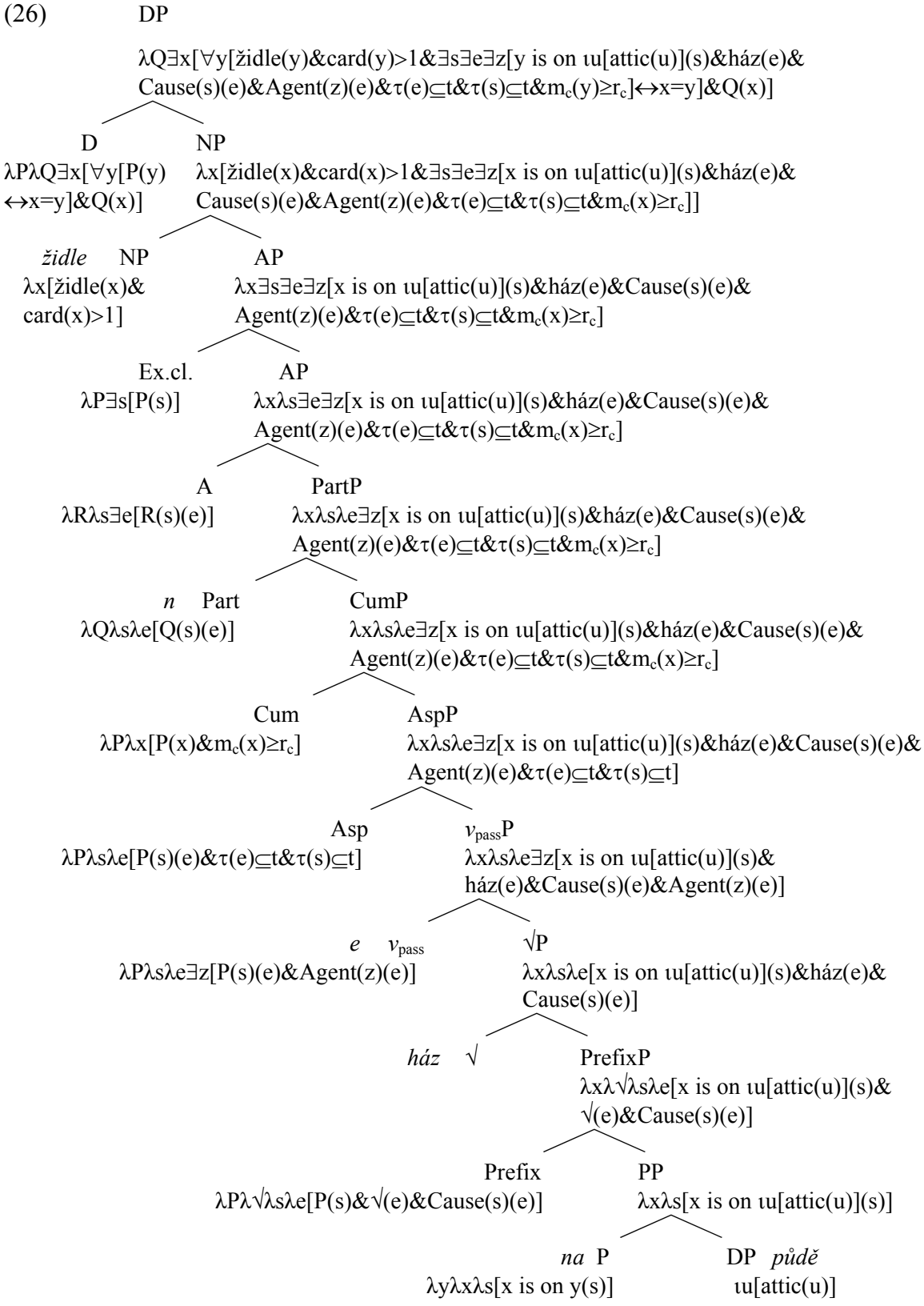
(25) a. Ty židle jsou (stáleještě) na-házené na půdě. (CZ)
the chair.NOM.PL are (still) on-thrown on attic.LOC
'The chairs are (still) thrown on the attic.'

b. * Ta židle je na-házená na půdě.
the chair.NOM.SG is on-thrown on attic.LOC

The derivation of (24) proceeds as follows (head movement is not shown):

7 Note that if we do not observe argument structure changes, it does not necessarily mean that no argument was added. The argument(s) in PP can also be covert or represented by a variable.

(26)



First, the preposition *na* ‘on’, which bears the usual locative meaning, is merged with the definite DP *půdě* ‘attic’ and via functional application, we receive PP with the meaning that the external argument *x* is in the state of being on the attic. The preposition assigns locative

case to *půdě*. I assume that *na* can optionally bear the cumulative-feature that is responsible for the cumulative interpretation through checking the interpretable feature on the cumulative head (Cum) via head incorporation. Only when the cumulative-feature is present in the structure, the cumulative meaning is licensed. In this way, the superlexical meaning is dissociated from the preposition (prefix) itself. It was mentioned in section 1 that superlexical prefixes are taken to have only a compositional/adverbial meaning. However, we see that the matter is somewhat more complex; the cumulative *na-* is (partially) responsible for the locative as well as the compositional, i.e. cumulative, meaning.

The presence of the cumulative-feature on *na* goes hand in hand with the particular selectional properties imposed on the prepositional external argument. Recall (15), showing that *na* selects a plural or mass term. Since in adjectival participles like (24) the external argument is merged in the structure later, the selectional properties must somehow wait for it. Therefore, I assume that the appropriate selectional restrictions are encoded in the variable (x), which means that they percolate (in λx) up the tree until they are satisfied.

The cumulative-feature on the preposition is also responsible for partitive genitive on the direct object in the Polish and Russian cumulative examples in (16) and (17). Specifically, when the preposition with the cumulative-feature incorporates into v, it changes the case assignment properties of v from accusative to partitive genitive (there is no accusative or partitive genitive in (24) because v is passive).

I propose that *na*PP is selected by the head Prefix, which makes a prefix from the preposition.[8] The head bears the generalized meaning of compositional prefixes: $\lambda P \lambda \surd \lambda s \lambda e[P(s) \& \surd(e) \& Cause(s)(e)]$. The first conjunct is the meaning of PP; this is the result state brought about by prefixation. The Prefix head introduces the lambda-bound state variable, in addition to the event variable, which licenses the application of the target state operator, as discussed below. The second conjunct allows PrefixP to combine with the root. A comparison of prefixed and unprefixed verbs 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 in the meaning of Prefix. Prefix combines with *na*PP via function composition; hence the external argument x is inherited.

Then PrefixP combines with the root *ház*, resulting in the meaning that x is in the state of being on the attic and this is caused by the event of throwing. I assume that past passive participles have v of the passive type, therefore in the next step, $\surd$P is composed with the

8 This means that the syntactic structure proposed in (7) is somewhat more articulated.

passive *v*, which determines the syntactic category of the root and adds the semantic agent. Since there is no overt agent in (24), I put the existential quantifier directly into the verb (see Bach 1980, Dowty 1982). As already mentioned, *v* does not assign case in (24) because it is passive. In the next step, v_{pass}P combines with the aspectual head, again via function composition. Since prefixation induces perfectivity, I assume that Prefix bears the perfective-feature, which checks the corresponding interpretable feature on Asp via head incorporation of the complex verbal head. The perfective aspectual head is standardly treated as a perfective operator, which localizes the event time within the reference time (*t*); see Paslawska & von Stechow's proposal (2003: 322): $\lambda P \lambda t \exists e.\tau(e) \subseteq t \ \& \ P(e)$. Here, I modify the meaning by adding the state variable and changing the existential quantification of the event variable to lambda binding because 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; it can e.g. be identified with the reference time of the main aspectual head in the sentence.

I place the cumulative head above AspP (cf. Ramchand 2004) and use Filip's proposal (2000: 62): $\lambda P \lambda x[P(x) \& m_c(x) \geq r_c]$ to derive the *a lot* meaning of the cumulative prefix (see also Součková 2004 and Filip 2005). M_c is a contextually dependent measure function, whose application to the entity *x* gives a value that is equal or greater than some contextually determined expectation value (r_c). In this way, *židle* 'chairs', instantiating *x*, will be cumulated.

From the semantic point of view, the cumulative meaning is brought about by Cum and the pluralisation by the preposition *na* (selecting a plural or mass external argument) is not necessary. However, if *na* did not bear the cumulative-feature and did not select a plural or mass argument, it could happen that the derivation crashes because Cum could also be merged with *na* selecting a singular external argument. Thus, I choose the more economic way and assume the presence of the cumulative-feature on *na* in cases like (24). Moreover, recall that the cumulative-feature on *na* can also derive partitive genitive on the direct object in (16) and (17). On the other side, the cumulative meaning of superlexically prefixed verbs cannot be reduced just to the pluralisation effect. What Cum adds to the verbal meaning is the vague measure meaning. This *a lot* meaning is based on the contextually determined expectation value r_c, which in many contexts has to be greater than just two (entities).

If my proposal is correct and the superlexical meaning of the cumulative prefix is in fact present in Cum, then the prediction is that prefixed words with a structure smaller than CumP cannot have a superlexical interpretation. This prediction is correct since e.g. in root nominals

with the long prefix - which are derived by attaching the nominal suffix directly to the prefixed root - the prefix can be interpreted only lexically, not superlexically; see Zíková (2011).

Turning back to the derivation, CumP is composed with the participial head *n* via function composition. In Biskup (2011, to appear), I argued that PartP of participles like (24) is selected by the adjectival head (A), which has the meaning of Kratzer's (2000) target state operator. This operator applies to verbs expressing a relation between an event and a state. It existentially closes the event argument and externalizes the state variable, which were introduced in PrefixP. This brings about the stative interpretation. Note that all adjectival participles in (5), (6), (22) and (23) have the stative (result) interpretation. Since there are no modifiers in (24), then the existential closure can close the state variable. After this, the adjectival participle is merged with the plural NP *židle* and via predicate modification, a modified NP is obtained. This NP is merged with the definite determiner and via functional application, we receive the meaning of the definite DP.

By means of head incorporation to the left, we receive the correct order of morphemes in the participle: *na-ház-e-n-é* and also the right word order of (24). The form of the participial ending (*-é*) is determined by φ-features of the modified NP *židle* through the agree operation. Regarding case properties of the DP, it will receive case in accordance with its position in the syntactic structure.

7. Conclusion

I have presented several arguments for the low merger of superlexical prefixes. For instance, superlexical prefixes can introduce unselected arguments, affect selectional and case properties of predicates and turn atelic eventualities into telic ones. Therefore, I have analyzed superlexical prefixes on a par with lexical prefixes, as prepositions projecting PP in the complement position of the root. We have seen that superlexical prefixes can fulfil both functions in adjectival participles, the lexical: they project PP and bring about the resultative interpretation, and the superlexical: their presence licenses the superlexical meaning/head. We have also seen that the proposal can successfully deal with the exceptional selectional and case properties of superlexically prefixed verbs. For adjectival participles with the cumulative *na-*, I have proposed the following structure:

$[_{AP}$ A $[_{PartP}$ Part $[_{CumP}$ Cum $[_{AspP}$ Asp $[_{vpassP}$ v_{pass} $[_{\sqrt{P}}$ $\sqrt{}$ $[_{PrefixP}$ Prefix $[_{PP}$ P]]]]]]]]

The head Prefix bears the generalized meaning of compositional prefixes λPλ√λsλe[P(s)&√(e)&Cause(s)(e)] and makes a prefix from the preposition. Since Prefix introduces the state and event variable, it licenses the application of the target state operator present in the head A.

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