Prefixes in Target State Participles

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1. Introduction

Target state participles vs. resultant state participles

Kratzer (2000) and German adjectival passives:

- Target states: reversible (1), compatible with still, derived by the stativizing operator (2).
  (1) Er ist (immer noch) versteckt.
      he is still hidden
  (2) \( \lambda R \exists s \exists e [R(s)(e)] \)

- Resultant states: hold forever (3), not compatible with still, derived by the operator in (4).
  (3) Es ist (*immer noch) bewiesen.
      it is still proven
  (4) \( \lambda P \lambda t \exists e [P(e) \& \tau(e) < t] \)

- I deal only with adjectival target states participles.

- Standardly, prefixes and the root are treated semantically as one item (Kratzer (2000), Paslawska & von Stechow (2003), Veselovská & Karlík (2004)).
  One of the main reasons: non-compositional prefixes:

  (5) a. na-foukaný
      on-blown
      ‘inflated’

- But: Prefixes are morphemes → they should have their own meaning.
  They show regular behaviour.
  Therefore: I completely decompose target state participles,
  and propose a particular semantics for both types of prefixes.
  (The analysis proposed here holds for lexical and at least some superlexical prefixes; for more on the differences, see Biskup (2010))
2. Data

There are two types of adjectival participles in Czech: -lý and -ný/-tý participles.¹

2.1 -ný/-tý participles

• Intransitives do not form –n/-t participles and the –n/-t passive; see Mluvnice češtiny 2 (1986), Karlík, Nekula & Rusínová (1995), Karlik (2004).
  Both unergatives (6a) and unaccusatives (6b).

• Consequently, intransitives do not derive -ný/-tý participles.
  Both unergatives (7a) and unaccusatives (7b).

(6) a. * je sněženo, jsem hučen, jsem hloubán
    is snowed am rumbled am pored.over
  b. * je tečen, je měknut, jsem blednut,
    is flowed is softened am paled

(7) a. * sněžený, hučený, hloubaný
    snowed rumbled pored.over
  b. * tečený, měknutý, blednutý,
    flowed softened paled

• An accusative object is a necessary condition for -ný/-tý participles.

  E.g. číst ‘read’ derives the –n/-t passive and -ný/-tý participles (8).

  The verbal (8a,c) and the adjectival participle (8b,d) can be pf. (prefixed) as well as impf. (unprefixed).

(8) 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’

• If the object bears a non-accusative case → the default agreement on -n/-t participles (9a).

(9) a. Bylo (po-)děkováno lingvistům.
    was (up-)thanked linguists
    ‘They were thanking linguists.’
  b. * (po-)děkování lingvisté
    (up-)thanked linguists
    ‘They thanked linguists.’

¹ 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 call ‘-l participles’ and ‘-n/-t participles’.

2
But the -ný/-tý participle is ungrammatical (9b).
No matter whether or not the participle is prefixed.

- The ungrammatical participles in (6) and (7) are unprefixed (impf.).
  When prefixed, at least some derive target state -ný/-tý participles because they are transitivized.
  The participles can be based on reflexives (10a), or non-reflexives (10b).

(10) a. za-hloubaný člověk
    behind-pored. over man
    ‘the man who is engrossed in sth’

b. za-snežená střecha
    behind-snowed roof
    ‘the snowy roof’

• When the verb is not transitivized by the prefix and there is no acc. object, the -ný/-tý participle is bad.
(11): the prefixed unergative forms the –l participle, but not the -ný/-tý participle.
(12): the prefixed unaccusative derives the –l participle but not the -ný/-tý participle.

      motor to-rumbled
      ‘The motor stopped purring.’

b. * do-hučený motor
   to-rumbled motor

(12) a. Prst o-tekl.
      finger about-flowed
      ‘The finger swollened.’

b. * o-tečený kost
   about-flowed finger

• An agentivity restriction on -ný/-tý and -n/-t participles (cf. Veselovská & Karlík 2004).
The transitive experiencer verb with the accusative object in (13) derives the -l participle,
but not -ný/-tý and -n/-t participles, regardless of prefixation.

(13) 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

➢ Only agentive transitives with an accusative object derive -ný/-tý participles.
2.2 -lý participles

- Impf. intransitives form -l participles (and past tense), both unergatives (14a) and unaccusatives (14b).

\[(14)\]

<table>
<thead>
<tr>
<th>Impf. intransitives form -l participate</th>
<th>(14a)</th>
<th>(14b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>snowed</td>
<td>sněžilo</td>
<td>jsem hučel, jsem hloubal</td>
</tr>
<tr>
<td>am rumbled</td>
<td>jsem hučel, jsem hloubal</td>
<td></td>
</tr>
<tr>
<td>am pored.over</td>
<td>'I was snowing'</td>
<td></td>
</tr>
<tr>
<td>'I was murmuring'</td>
<td>'I was poring over'</td>
<td></td>
</tr>
<tr>
<td>am pored.over</td>
<td>'I was poring over'</td>
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</tbody>
</table>

- Impf. intransitives do not derive -lý participles:

\[(15)\]

<table>
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<th>(15b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>snowed rumbled pored.over</td>
<td>* sněžilý, hučelý, hloubalý</td>
<td></td>
</tr>
<tr>
<td>flowed softened am paled</td>
<td>* teklý, měklý, bledlý</td>
<td></td>
</tr>
</tbody>
</table>

- The formation of -lý participles is sensitive to aspectual properties.

- Only unaccusatives, not unergatives, derive -lý participles; see (16).

\[(16)\]

<table>
<thead>
<tr>
<th>The formation of -lý participles is sensitive to aspectual properties</th>
<th>(16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>about-flowed from-softened up-paled</td>
<td>o-teklý, z-měklý, po-bledlý</td>
</tr>
<tr>
<td>'swollen' 'softened' 'paled a bit'</td>
<td>'swollen' 'softened' 'paled a bit'</td>
</tr>
</tbody>
</table>

- The formation of -lý participles is sensitive to (in)transitivity of the verb.

- Only pf. unaccusatives derive -lý participles.

In Modern Czech, transitives do not derive -lý participles (Lamprecht et al. 1986).

Transitives form -l participles but not -lý participles

\[(17)\]

<table>
<thead>
<tr>
<th>Transitives form -l participles but not -lý participate</th>
<th>(17a)</th>
<th>(17b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>behind-destroyed with-mixed from-kissed out-bathed</td>
<td>za-habil, s-míchal, z-líbal, vy-koupal</td>
<td></td>
</tr>
<tr>
<td>'he killed' 'he mixed' 'he kissed' 'he bathed'</td>
<td>'he killed' 'he mixed' 'he kissed' 'he bathed'</td>
<td></td>
</tr>
<tr>
<td>behind-destroyed with-mixed from-kissed out-bathed</td>
<td>* za-habilý, s-míchalý, z-líbalý, vy-koupal</td>
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</tbody>
</table>

- Only pf. unaccusatives derive -lý participles.
3. The analysis

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

- The past participle –l can attach to impf. verbs (14), hence the ungrammaticality of (15) is not based on requirements of –l.

- It also cannot be based on requirements of the agreement marker –ý; it can attach to impf. verbs (8b).

  ➢ **Proposal, part I:**
  
  There is a covert affix (head A) between –l and –ý working as a stativizing operator, following Kratzer (2000): λRλs∃e[R(s)(c)].

  **Support:**
  
  –lý participles (in contrast to –l participles) have the stative (resultative) interpretation (16). Similarly as -ný/-tý participles from pf. verbs (10), cf. Kopečný (1962).
  
  Thus, the proposal extended to pf. -ný/-tý participles.

- Kratzer (2000), Alexiadou, Rathert & von Stechow (2003): The target state operator can apply only to verbs with a ‘visible’ state. Since prefixes make verbs perfective and telic, and since stative adjectival participles are derived from pf. verbs,

  ➢ **Proposal, part II:**
  
  Prefixes introduce the state variable (in addition to the event variable). This way, they license the stativizing operator.

**Place of the stativizer**

- The stativizer cannot reside in the participial affixes –l and –n/-t.
  
  They can derive words without the stative meaning: čten in (8a) and tekl in (14b).

- Therefore, the stativizer also cannot be attached somewhere lower in the structure.

- Perfectivity itself is not enough for stativity (the stativizer is not in the prefix):

(18) za-sněžil
    behind-snowed
    ‘snowed’
• The stativizer cannot reside in the adjectival ending –ý.

   It can occur in words not bearing the stative meaning:

(19) 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’

• Therefore: stativizer in the covert head A, taking Part(icipial)P headed by affixes -l and -n/-t
   –ý is just an agreement marker expressing φ–features of A.
   (The same holds for short endings of verbal participles.)

• Unprefixed (impf.) -ný/-tý participles are not stative,
   hence 2 types of A: non-stativizer A
   stativizer A (selects only pf. -l and -n/-t participles (PartP))

Prediction

If the stativizer merged so high, target state participles can contain an agentive phrase.

Correct:

(20) Pavlem zašpiněný stůl
Pavelinst smeared table
   ‘the table smeared by Pavel’

And they can contain agent-oriented adverbs. Correct:

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

The head A

• -l participles derived from both impf. and pf. verbs.
  -lý participles derived only from pf. verbs.
  Hence, A deriving -lý participles bears the selection perfective-feature (22).

• -l participles derived from: transitives, unergatives and unaccusatives.
  -lý participles derived only from unaccusatives.
  Hence, the stativizing A selects a complement with the unaccusative v (22).
Structures for -lý and -l participles, with selection features of A:

(22) a. -lý:  \[
\text{[AP A}_{\text{stative}} \text{[pf, unacc]} \text{[PartP I [ ]]}]
\]

b. -l:  \[
\text{[AP A [PartP I [ ]]}]
\]

-\text{-n/-t} participles are derived only from transitives.  
And there is an agentivity restriction on the formation of -\text{-n/-t} participles.  
Therefore, Part: the selection transitive-feature and the agentive-feature (23).

-\text{-n/-t} participles have the default agreement with the non-accusative object.  
-\text{-ný/-tý} participles are ungrammatical with non-accusative objects.  
Hence, A_{\text{stative}} Selecting the -\text{-n/-t} PartP bears the accusative-feature (23a).  
This also holds for non-stativizing A in -\text{-ný/-tý} participles (23b).

(23) a. pf. -\text{-ný/-tý}:  \[
\text{[AP A}_{\text{stative}} \text{[pf, acc]} \text{[PartP n/t [trans, ag] [ ]]}]
\]

b. impf. -\text{-ný/-tý}:  \[
\text{[AP A [impf, acc] [PartP n/t [trans, ag] [ ]]}]
\]

c. -\text{-n/t}:  \[
\text{[AP A [PartP n/t [trans, ag] [ ]]}]
\]

d. -\text{-n/t}:  \[
\text{[AP A}_{\text{stative}} \text{[pf, acc]} \text{[PartP n/t [trans, ag] [ ]]}]
\]

(23c): the head A for -\text{-n/-t} participles, e.g. čten ‘read’ in (8a).  
This is identical to A in -l participles; see (22b).

Not only long participles are stative.  
There are stative n/-t participles in copular constructions,  
also derived only from pf. verbs.

(24) Ten toustovač je rozbit (už dva týdny).  
The toaster is broken (already two weeks)  
‘The toaster is broken (already two weeks).’

Stative -\text{-n/-t} participles are bad with non-accusative underlying objects:

(25) * Dítě je pomoženo.  
child is helped

Therefore, A_{\text{stative}} of -\text{-n/-t} participles bears the accusative-feature (23d).  
There is only one type of A_{\text{stative}} in -\text{-n/-t} and -\text{-ný/-tý} participles, cf. (23d) and (23a).
The secondary imperfective -va- is closer to the root than the participial –l and -n/-t:

(26) 

<table>
<thead>
<tr>
<th>a. při-děl-á-va-l</th>
<th>b. při-děl-á-vá-n</th>
</tr>
</thead>
<tbody>
<tr>
<td>at-make-TH-SI-part</td>
<td>at-make-TH-SI-part</td>
</tr>
<tr>
<td>‘he was fixing’</td>
<td>‘being fixed’</td>
</tr>
</tbody>
</table>

If -va- represents the head Asp \rightarrow PartP is higher than AspP in the participial structure.

(26): Thematic vowel between the root and -va-

Thematic vowels determine the syntactic (verbal) category \rightarrow they represent v

The structure of adjectival participles:

(27) \[ [AP A [PartP Part [AspP Asp [vP v [\sqrt{}]]]]]]

Another argument for the high position of the stativizer

Lexical prefixes (LP) make verbs perfective (28b).

The secondary imperfective suffix -va- scopes over LPs (28c).

SPs can scope over the secondary imperfective suffix, as the distributive po- in (28d).

The stativizing A (and Part) attach to the pf. superlexically prefixed verb (28e).

The stativizing A must be merged higher than SP since it selects only pf. complements.

(28) 

<table>
<thead>
<tr>
<th>a. krýtIMPF</th>
<th>b. od-krýtPF</th>
<th>c. od-krý-va-tIMPF</th>
<th>d. po-od-krý-va-tPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>cover</td>
<td>away-cover</td>
<td>away-cover-si-inf</td>
<td>up-away-cover-si-inf</td>
</tr>
<tr>
<td>e. po-od-krý-va-ná tajemství</td>
<td>up-away-cover-si-part-n.pl.nom mysteries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>‘mysteries uncovered one by one’</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2 Prefixes and the structure of -lý and -ný/-tý participles

Prefixes in -ný/-tý participles:

(29) 

<table>
<thead>
<tr>
<th>a. za-hloubaný člověk</th>
<th>b. na-foukané kolo</th>
</tr>
</thead>
<tbody>
<tr>
<td>behind-pored.n man</td>
<td>on-blown tyre</td>
</tr>
<tr>
<td>‘the man who is engrossed in sth’</td>
<td>‘the inflated tyre’</td>
</tr>
<tr>
<td>c. roz-foukané listí</td>
<td>d. při-dělaný háček</td>
</tr>
<tr>
<td>apart-blown leaves</td>
<td>at-made hook</td>
</tr>
<tr>
<td>‘scattered leaves’</td>
<td>‘the fixed hook’</td>
</tr>
</tbody>
</table>
• Prefixes in -lý participles:

(30) a. pro-padlá střecha b. za-padlé pero c. pře-padlé člověk
through-fell roof behind-fell pen over-fell man
‘the roof that caved in’ ‘the pen that fell behind sth’ ‘the man who fell over sth’
d. (na mrazáku) na-mrzlý led e. při-mrzlé led
on-freezer on-froze ice at-froze ice
‘the ice frozen onto the freezer’ ‘the ice that is frozen to sth’
f. po-rostlá zeď
up-grew wall
‘the wall overgrown with sth’

• Generalization wrt argument structure:

It depends on the verb (root) whether the prefixed verb derives a –lý or -ný/-tý participle.

(30): prefixes attached to unaccusatives: the verb remains unaccusative
derive –lý participles

(29a,b,c): prefixes attached to unergatives: the verb is transitivized
a -ný/-tý participle is derived

(29d): prefixes attached to transitives: the verb remains transitive
derive –ný/-tý participles

Support:
The consequent behaviour of the verb wrt different prefixes:
For -ný/-tý participles, see derived transitives in (29b,c).
For -lý participles, cf. derived unaccusative (30a,b,c).

• Generalization wrt perfectivity and telicity:

Prefixes make verbs perfective (29)-(30).

Prefixed –lý and -ný/-tý participles: resultative/change of state meaning (29)-(30).
Prefixation adds the state predicate and turn atelic eventualities into telic eventualities,
see e.g. (30d) with namrzlé ‘frozen on sth’ from atelic mrznout ‘to freeze’.

• This can be straightforwardly analysed if
prefixes are incorporated prepositions (Mulder (1992), Miller (1993), Romanova (2006),
Biskup (2007, 2009)),
and project the complement of the root; see (31).
And if perfectivity: perfective feature on the prefix
telicity: a lambda-bound state variable introduced in the meaning of the prefix
(Telicity is not equal to perfectivity, cf. Bertinetto (2001), Borik (2002) and Filip (2003)).

–lý participles
√ merged with the prefix (PP) and selected by the unacc. v.
PP is in complementary distribution with the nominal complement of √,
hence the argument structure is not augmented.
Part -n/-t selects agentive and transitive properties (23) → only a –lý participle can be derived.

-ný/-tý participles and base unergative verbs
√ selected by the agentive v and the prefix introduces an unselected argument(s),
hence augmentation of the argument structure.
Part -n/-t selects agentive and transitive properties (23) → -ný/-tý participle is derived.
Prefixation induces perfectivity and v assigns accusative,
hence selectional requirements of Astativizer satisfied.

-ný/-tý participles and base transitive verbs
The prefix (PP) replaces the nominal complement of √,
hence the prefixed verbs remain transitive.
Part -n/-t and Astativizer satisfied (23) → -ný/-tý participle is derived.

Interim summary
The stativizer is merged high (in A).
Prefixes can introduce an unselected argument.
They typically transitivize unergative verbs and then derive -ný/-tý participles.
They are incorporated Ps.
They induce perfectivity, so they help to derive -lý and stative -ný/-tý participles.
They can turn atelic eventualities into telic eventualities,
so they bring about a cause relation between subevents.
3.3 The semantic analysis

- Two derivations of target state participles.
- Prefixes can be compositional:
  namrzlý ‘frozen onto sth’ and zapadlý ‘fallen behind sth’
  as well as non-compositional:
  nafoukaný ‘inflated’ and namožený ‘pulled/strained’

Compositional prefixes

(32) (ten) led na-mrzlý na mrazáku
    (the) ice on-froze on freezer
    ‘the ice frozen onto the freezer’

- The syntactic structure of namrzlý with selection features of the $A_{\text{stativizer}}$:

(33) $[\text{AP } A_{\text{stativizer}} \{\text{pf, unacc}\} [\text{PartP } l [\text{Asp} \{\text{v}_{\text{unacc}} \{\text{as} \{\text{v}_{\text{unacc}} \{\text{v} \{\text{mrz} \{\text{PrefixP} \{\text{pp na mrazáku}\}\}\}\}\}\}\}\}\}]\]

- By means of head incorporation, we receive the complex head (34).
  The $v$ is unaccusative and $na$ bears the perfective-feature; selection of $A$ is satisfied.
  Head incorporation derives the right order of morphemes: $na$-$mrz$-$l$.
  The form of the ending (–y) determined by $\phi$-features of the modified argument $led$.

(34)

```
A
  Part A
  Asp Part l
  v_{unacc} Asp v_{unacc} v mrz
  Prefix
na Prefix
```

11
• The semantic derivation:

(35)  DP  
\( \lambda \text{Ptx[P(x)]} \)
\( \lambda x[x] \text{[led(x) & } \exists s \exists e[\tau(e) \subseteq t \& \tau(s) \subseteq t \& x \text{ is on } m(s) \& \text{mrz}(e) \& \text{Cause}(s)(e)]} \)

\( \lambda x[\text{led(x)}] \)
\( \lambda x[\exists s \exists e[\tau(e) \subseteq t \& \tau(s) \subseteq t \& x \text{ is on } m(s) \& \text{mrz}(e) \& \text{Cause}(s)(e)]} \)

\( \lambda x[\exists e[\tau(e) \subseteq t \& \tau(s) \subseteq t \& x \text{ is on } m(s) \& \text{mrz}(e) \& \text{Cause}(s)(e)]} \)

• The meaning of \( \lambda \text{P}s[P(s)] \):

The external argument is in the state of being \( \text{na} \) ‘on’ \( \text{mrazáku} \) ‘freezer’.

• The generalized meaning for compositional prefixes:

(36)  \( \lambda \text{P} \\sqrt{\lambda \text{s} \lambda e[P(s) \& \sqrt{e} \& \text{Cause}(s)(e)]} \)

1. conjunct:

The meaning of PP. This is the result state.

Thus, the prefix introduces the lambda-bound state variable, in addition to the event variable

This allows the application of the target state operator.
2. conjunct:
   allows PrefixP to combine with the root.
3. conjunct:
   The prefix brings about the causative relation between the result state and the other subevent.

- Prefix combines with PP via functional composition.
- PrefixP combines with the root:
  \( x \) is in the state of being on the freezer and this is caused by the event of freezing.
- \( \sqrt{v} \) is composed with the unaccusative \( v \), which works as an identity function.
- \( vP \) combines with Asp:
  Asp localizes the time of \( e \) and \( s \) within the reference time \( t \).
  Asp is modified:
  - the state variable is added.
  - the existential quantification of \( e \) changed to lambda binding.
  - it should be the TS operator that existentially binds the event variable (Kratzer 2000).
  \( t \) is a free variable (interpreted by the context).
- AspP combines with the meaningless Part.
- PartP combines with the stativizer (Kratzer’s (2000) meaning) \( \rightarrow \) stative interpretation.
  It existentially closes the event argument and externalizes the state variable.
- If there are no modifiers, the existential closure can apply.
- NP merged with AP via predicate modification.
- The definite \( D \) is applied to NP.
Non-compositional prefixes

(37) (to) Pavlem na-foukané kolo
(the) by.Pavel on-blown tyre
‘the tyre inflated by Pavel’

• The syntactic structure of *nafoukané* with selection features of the *A* _stivizer_ and Part:

(38) \[ AP A_{stivizer} [pf, acc] [PartP n [trans, ag]] [AspP Asp [VoiceP Voice [\(v_{agent}\) vP vP vP vP fouk [PrefixP na]]]]]]

\(v\) assigns accusative and *na* bears the perfective-feature,

- the selectional requirements of *A* satisfied.

\(v\) introduces the agent and \(\sqrt{}\) is merged with the PrefixP complement,

- the selectional requirements of Part satisfied.

• Head incorporation derives the complex head (39):

(39)

```
      A
     /\  \\
    Part Part
   /\   /\  \\
  Asp Part n
 /\   /\   /\  \\
Voice Asp Voice
 /\   /\   /\   /\  \\
v_{agent} v_{agent} v_{agent} a
 /\   /\   /\   /\   /\  \\
na Prefix \sqrt{} fouk
```
• The semantic derivation:

\[
\begin{align*}
(40) & \quad \text{DP} \\
& \quad t x [ k o l o ( x ) \& \exists s \exists e [ \tau ( e ) \subseteq t \& \tau ( s ) \subseteq t \& n a \text{fouk}(s) \& \text{fouk}(e) \& \text{Caus}(s)(e) \& \text{Ag}(P)(e) ] ] \\
& \quad \lambda P t x [ P(x) ] \\
& \quad \lambda x [ k o l o ( x ) ] \\
& \quad k o l o \quad \text{NP} \\
& \quad \lambda x [ k o l o ( x ) ] \\
& \quad \text{Ex.cl.} \\
& \quad \lambda P \exists s [ P(s) ] \\
& \quad \lambda x \lambda s \exists e [ \tau ( e ) \subseteq t \& \tau ( s ) \subseteq t \& n a \text{fouk}(s) \& \text{fouk}(e) \& \text{Caus}(s)(e) \& \text{Ag}(P)(e) ] \\
& \quad A \quad \text{PartP} \\
& \quad \lambda Q \lambda s \lambda e [ Q(s)(e) ] \\
& \quad \text{n} \quad \text{Part} \\
& \quad \lambda P \lambda s \lambda e [ \tau ( e ) \subseteq t \& \tau ( s ) \subseteq t \& n a \text{fouk}(s) \& \text{fouk}(e) \& \text{Caus}(s)(e) \& \text{Ag}(P)(e) ] \\
& \quad \text{Asp} \\
& \quad \lambda P \lambda s \lambda e [ \tau ( e ) \subseteq t \& \tau ( s ) \subseteq t \& P(s)(e) ] \\
& \quad \text{VoiceP} \\
& \quad \text{Pavlem} \quad \text{PP} \\
& \quad \lambda P \lambda y \lambda s \lambda e [ P(s)(e) ] \\
& \quad \text{na} \quad \text{Part} \\
& \quad \lambda P \lambda y \lambda s \lambda e [ P(s)(e) ] \\
& \quad \lambda x \lambda s \lambda e [ n a \text{fouk}(s) \& \text{Th}(x)(s) \& \text{fouk}(e) \& \text{Caus}(s)(e) \& \text{Ag}(P)(e) ] \\
& \quad \text{Voice} \\
& \quad \lambda R \lambda y \lambda x \lambda s \lambda e [ R(x)(y)(s)(e) ] \\
& \quad \text{a} \quad \text{Part} \\
& \quad \lambda P \lambda y \lambda s \lambda e [ P(s)(e) \& \text{Agent}(y)(e) ] \\
& \quad \text{fouk} \\
& \quad \lambda \sqrt{P} \\
& \quad \text{PrefixP} \quad \text{na} \\
& \quad \lambda \sqrt{\lambda x \lambda s \lambda e [ n a \sqrt{\text{s}} \& \text{Th}(x)(s) \& \sqrt{\text{e}} \& \text{Caus}(s)(e) ] }
\end{align*}
\]

**Challenge**

One would like to separate the prefix from the root and other morphemes.

But combination of the prefix and the root brings about an idiosyncratic meaning.

• The generalized meaning for non-compositional prefixes:

\[
(41) \quad \lambda \sqrt{\lambda x \lambda s \lambda e [ P.\sqrt{\text{s}} \& \text{Th}(x)(s) \& \sqrt{\text{e}} \& \text{Caus}(s)(e) ] }
\]
1. conjunct:
   The first conjunct expresses the result state.
   The dot stands for concatenation:
   a binary operation producing one word (string) at LF when both sides are specified.
   The first conjunct cannot be interpreted until the root is added.
   Then, the particular meaning of the whole string is used.

2. conjunct:
   says that \( x \) is the theme of the result state.
   This renders the transitive effect of prefixation.
   The prefix introduces the lambda-bound state variable and the event variable,
   which allows the application of the target state operator.

3. conjunct:
   allows PrefixP to combine with the root.

4. conjunct:
   The prefix brings about the causative relation between the result state and the other subevent.
   • PrefixP combines with the root:
     Now, the first conjunct can be interpreted:
     \( x \) is in the state of being inflated.
   • \( \sqrt{P} \) is composed with \( v \), which has the agentive semantics, via functional composition.
   • Voice switches the argument variables and introduces the instrumental agent.
   • The next steps parallel to compositional prefixes.

4. Conclusion

   –\( h \)-y and -\( ny/-ty \) participles are headed by A, which functions as a stativizing operator.
   They have the following structure:
   (42) \( \text{[AP A \text{[PartP Part \text{[AspP Asp (\text{[VoiceP Voice)} \text{[P v [\sqrt{P} \text{[PrefixP Prefix (PP)]}]}]}}]}}] \)
   Prefixes are incorporated Ps, projecting PrefixP in the complement of \( \sqrt{P} \).
   Prefixes can introduce an unselected argument and add a new subevent.
   Compositional prefixes: (36) \( \lambda P \lambda s \lambda e [P(s) \& \sqrt{e} \& \text{Cause}(s)(e)] \)
   Non-compositional prefixes: (41) \( \lambda \sqrt{\lambda s \lambda e [P \sqrt{s} \& \text{Theme}(x)(s) \& \sqrt{e} \& \text{Cause}(s)(e)]} \)
   Prefixes introduce the state variable and the event variable, which license the stativizer.
References


