Prepositions and Verbal Prefixes: The Case of Slavic

Petr Biskup
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| BG            | Bulgarian |
| CZ            | Czech |
| OCS           | Old Church Slavonic |
| P             | Polish |
| R             | Russian |
| SK            | Slovak |
| SL            | Slovenian |
| US            | Upper Sorbian |
Chapter 1

Introduction

This monograph is concerned with prepositional elements in Slavic languages, prepositions, verbal prefixes and functional elements of prepositional nature. It argues that verbal prefixes are incorporated prepositions projecting its argument structure in the complement position of the verbal root. The meaning of prefixes is based on the two-argument meaning of prepositions, which is enriched with the \textit{cause} operator, which conjoins the state denoted by the prepositional phrase and the event expressed by the verbal root. This proposal accounts for not only effects of prefixation like the telicising effect and the argument structure effects but also the fact that prefixes help unprefixed verbs to derive target state adjectival participles because the state variable introduced by the prefix/preposition licenses the presence of the stativising operator in the derivation.

This book investigates idiomaticity in the realm of prefixed verbs and proposes a novel analysis of non-compositional prefixed verbs. The non-compositional interpretation arises \textit{inter alia} because of the fact that either the meaning of the verbal part or the meaning of the prepositional part is shifted by means of Nunberg’s (1995) predicate transfer in the course of the derivation of the prefixed verb.

This study also offers a uniform analysis of cases; prepositional as well as non-prepositional cases are treated as a reflection of the operation Agree between Tense-features and $\varphi$-features. Focusing on Russian, Polish and Czech prepositions, I present a new model of prepositional case assignment, in which the type of prepositional case is determined by semantic properties of particular heads of the decomposed preposition. Furthermore, I investigate prepositional movement from synchronic as well as diachronic perspective. It will be shown that prepositions can be grammaticalised as a functional element of the higher clausal structure.

The theoretical framework of this book is the Minimalist approach (Chomsky 2000, 2001 \textit{et seq.}), specifically, its morphosyntactic variant, combined with the standard

The book is organised as follows. Chapter 2 provides the empirical and theoretical background for the following chapters. It discusses various types of Slavic prefixes and shows that verbal prefixation has various effects: it brings about perfectivity, telicity, definiteness and affects argument structure of the base verb, among other things. The chapter provides several arguments for the position that verbal prefixes are incorporated prepositions. To derive the prefixation effects, it is proposed that lexical prefixes and at least some superlexical prefixes project a prepositional phrase with its arguments in the complement position of the verbal root. This has the consequence that the prepositional arguments are in competition with arguments of the base verb. As to telicity and perfectivity, it is proposed that verbal prefixes introduce a causal relation between the state brought about by the prepositional phrase and the event denoted by the verbal root and that they have a perfective Tense-feature, which affects the aspectual head and indirectly also definiteness properties of the argument receiving objective case. The chapter analyses all cases as an unvalued Tense-feature and shows that the value of the Tense-feature plays an important role in case alternations and other syntactic processes.

Chapter 3 investigates prefixed verbs with respect to their (non-)compositional properties and argues that non-compositional prefixed verbs do not form a unified class. By means of a paraphrase diagnostic, non-compositional prefixed verbs are classified into three categories, depending on from where the idiosyncratic meaning arises. Given the morphosyntactic approach, non-compositional prefixed verbs are treated as idioms, which are either listed in the lexicon or derived by the operation of predicate transfer. The chapter shows how the particular classes of non-compositional verbs are syntactically and semantically derived, extending the analysis proposed in chapter 2.

Chapter 4 examines the role of lexical and superlexical prefixes in target state adjectival participles in Czech. Following the proposal of the preceding chapters that prefixes are incorporated prepositions that introduce a state variable, it is argued that the state variable licenses the presence of the stativiser in the adjectival head. Given that the stativising operator merges in such a high structural position, adjectival participles can contain both types of prefixes. It will be shown that both lexical and superlexical prefixes play an important role in the derivation of target state participles; they help verbs to derive adjectival participles because, in addition to introducing the state variable, they induce perfectivity and can add an unselected argument.
Chapter 5 focuses on the prefix *po-* ‘on’ and argues that in contrast to Russian and Polish, Czech has a genuine future *po-* , which introduces the future time reference when it is attached to a motion verb. It is shown that the future *po-* differs from other prefixes for instance in its inability to affect selectional, aspectual and argument structure properties of the host verb and in its inability to form verbal nouns, participles and certain verbal forms. The chapter provides a diachronic analysis, under which the particular properties of future *po-* are based on the fact that it is a prepositional element that became grammaticalised as a future marker. This analysis accounts for many of the differences between the future *po-* and other prefixes in terms of their different structural positions. It is argued that the grammaticalisation process took place in two reanalysis steps; while the first step is common to Russian, Polish and Czech, the second reanalysis step only happened in Czech.

Chapter 6 investigates Russian, Polish and Czech prepositions and provides an articulated analysis of their syntactic and semantic structure. It presents a new approach to prepositional cases, in which the type of prepositional case assigned is determined by semantic properties of heads of the decomposed prepositional structure. I assume that there is a correspondence between semantic properties of the particular heads and their syntactic features and propose that syntactic features of heads incorporated into the case-assigning tense head are copied on the prepositional complement by the operation Agree, in accordance with the proposal that prepositional cases are also a reflection of Agree between Tense-features and ϕ-features. At PF, the syntactic features are spelled out as a case by means of a specific vocabulary insertion rule. It will be shown that this approach can derive case properties of simple and complex prepositions as well as adverbial prepositions.

Conclusions will be drawn in chapter 7.

Some terminological remarks are in order. I am not concerned with multiple prefixation; hence I use the term *prefixation* in the sense of prefixation of simplex verbs, unless otherwise stated. In accordance with the recent literature, I use the terms *lexical prefixes* and *superlexical prefixes* but I do not follow the widely-held analysis based on two different syntactic positions of these two types of prefixes, as we shall see in the following chapters. Finally, the term *prepositional element* is meant to cover prepositions, prefixes and functional elements of the clausal structure that have prepositional nature, such as the future prefix discussed in chapter 5.
Chapter 2

Verbal Prefixes

2.1 Introduction

This chapter provides the empirical and theoretical background for the following chapters. It shows that verbal prefixation has various effects in Slavic languages. For instance, prefixation induces perfectivity and telicity, affects argument structure and case-assignment properties of the base predicate and can change the meaning of the base verb. For these phenomena I propose an analysis according to which verbal prefixes are incorporated prepositions projecting a phrase in the complement position of the verbal root that functions as a result state predicate. Verbal prefixes introduce a causal relation between the state brought about by the prepositional phrase and the event introduced by the verbal root and have a perfective property, which affects the aspectual head and so indirectly also definiteness properties of the argument receiving objective case. Since the prefix (preposition) projects its argument structure in the complement position of the verbal root, prepositional arguments are in competition with arguments of the base verb. It is also argued that prepositional and structural cases can be treated uniformly as an Agree relation between ϕ-features and Tense-features of the probe and the goal.

The chapter is organised as follows. Section 2.2 shows various types of Slavic verbal prefixes, which were postulated in the literature. It is mainly concerned with the difference between lexical and superlexical prefixes. Section 2.3 discusses the telicising and perfectivising effect of verbal prefixation and examines morphosyntactic structure of prefixed verbs. In section 2.4, I show that prefixes can affect case assignment properties of verbs to which they attach and in section 2.5, I demonstrate that verbal prefixes can manipulate argument structure of the base verb in various ways. In section 2.6, we will see that verbal prefixes are indirectly responsible for definiteness and quantisation of the direct object because they value the aspectual head as perfective, which in turn assigns the direct object the perfective structural accusative. In section 2.7, I argue that lexical prefixes and at least some
superlexical prefixes are incorporated prepositions that project a prepositional phrase with the figure argument (locatum) and the ground argument (relatum) in the complement position of the verbal root. Section 2.8.1 provides a detailed analysis of the syntactic derivation of a sentence with a prefixed verb and discusses how the particular effects of prefixation are derived. A complete semantic derivation of the sentence is presented in section 2.8.2. Conclusions are drawn in section 2.9.

### 2.2 Types of prefixes

The difference between lexical prefixes (also referred to as qualifying, resultative, internal) and superlexical prefixes (modifying, external) has been extensively discussed in the literature (see e.g. Isačenko 1962; Petr 1986a; Babko-Malaya 1999; Dickey 2000; Ramchand 2004; Romanova 2004, 2006; Svenonius 2004; Di Sciullo & Slabakova 2005; Arsenijević 2006; Biskup 2007, 2012; Richardson 2007; Szucsich 2007, 2014; Gehrke 2008; Tatevosov 2008; Lehmann 2009; Žaucer 2009, 2012; Markova 2011; Gvozdanović 2012; Wiland 2012; Biskup & Zybatow 2015).

Explicit formulation of this distinction with some criteria goes back at least to Isačenko (1962), who replaces the traditional distinction between lexical and grammatical/empty prefixes (e.g. Trávníček 1923, Vinogradov 1947, Boguslawski 1960) with the distinction between qualifying (lexical) and modifying (superlexical) prefixes. The existence of empty prefixes – pure perfectivising prefixes – is also assumed by Pauliny (1950), Boguslawski (1960, 1963), Tichonov (1964), Švedova (1980), Grzegorczykowa, Laskowski & Wróbel (1984), Petr (1986a), Śmiech (1986), Babko-Malaya (1999), Zaliznjak & Šmelëv (2000); consider, however, also Maslov (1958), Van Schooneveld (1959), Filip (1999), Endresen et al. (2012) and Janda & Lyashevskaya (2012) for the opposite point of view.

Let us now briefly overview the differences between lexical and superlexical prefixes that are often hypothesised in the literature. For instance, it has been argued that in contrast to lexical prefixes, superlexical prefixes do not affect the argument structure of the verb to which they attach (e.g. Di Sciullo & Slabakova 2005, Gehrke 2008) and that they do not change its lexical aspect (Di Sciullo & Slabakova 2005, Richardson 2007, but see Romanova 2006). Furthermore, superlexical prefixes mostly do not derive secondary imperfectives in contrast to lexical prefixes (Isačenko 1962, Svenonius 2004, Gehrke 2008).

According to the literature, lexical prefixes have a spatial or idiosyncratic meaning and superlexical prefixes have an adverbial or quantising meaning (Babko-Malaya 1999, Ramchand 2004, Svenonius 2004, Richardson 2007). Thus, lexically prefixed verbs have a
compositional (spatial) or non-compositional meaning, whereas superlexically prefixed verbs can only have a compositional meaning (e.g. Romanova 2006, Gehrke 2008).

As an illustration of superlexical prefixes, consider the Russian inceptive *za-* in (1), the Polish repetitive *prze-* in (2) and the cumulative/saturative *na-* in the Russian (3a), the Slovenian (3b) and the Czech (3c).

(1) a.  *za*-bolet’
    behind-be.ill
    ‘become ill’

    b.  *za*-begat’
    behind-run
    ‘start running’

(2) a.  *prze*-robić
    over-do
    ‘rework’

    b.  *prze*-pisać
    over-write
    ‘rewrite’

(3) a.  *na*-begat’sja
    on-run.self
    all mean: ‘come to have one’s fill of running’

    b.  *na*-laufati se
    on-run self

    c.  *na*-bēhat se
    on-run self

Compositional (spatial) lexically prefixed verbs are cases like the Serbo-Croatian *nabàcati* in (4a), the Old Church Slavonic *naiti* in (4b) and the Polish *namalować* in (4c). Consider also the Russian *vpisat’* in (5a), the Czech *vnést* in (5b) and the Slovak *vliat’* in (5c).

(4) a.  *na*-bàcati
    on-throw
    ‘throw sth. on sth.’

    b.  *na*-iti
    on-walk
    ‘walk on sth.’

    c.  *na*-malować
    on-paint
    ‘paint sth. on sth.’

    (‘find’)

(5) a.  *v*-pisat’
    in-write
    ‘write sth. in sth.’

    b.  *v*-nést
    in-carry
    ‘carry sth. in sth.’

    c.  *v*-liat’
    in-pour
    ‘pour sth. into sth.’

The examples show that the superlexical prefixes in (1)-(3) and lexical prefixes in (4) and (5) behave consistently and that the meaning of the prefixed verbs is composed of the meaning of the verb and the meaning of the prefix/preposition. In contrast, the changes induced by lexical
Prefixes in the non-compositional prefixed verbs in (6) are unpredictable; consider the Bulgarian *ugovorja* in (6a), the Slovak *užīť* in (6b) and the Russian *sžīť* in (6c) (more examples will be shown in chapter 3.1).

<table>
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<th>(6a)</th>
<th>(6b)</th>
<th>(6c)</th>
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<tr>
<td>u-govorja</td>
<td>u-žīť</td>
<td>s-žīť</td>
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<td>at-L.speak</td>
<td>at-live</td>
<td>from-live</td>
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<td>‘I arrange’</td>
<td>‘take’</td>
<td>‘hound sb. out of sth.’</td>
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<td></td>
<td></td>
<td>‘drive sb. to his death’</td>
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It has also been argued that superlexical prefixes can stack in contrast to lexical prefixes and that the superlexical prefix must precede the lexical prefix if they co-occur (e.g. Svenonius 2004 and Di Sciullo & Slabakova 2005). Furthermore, superlexical prefixes rarely form idioms (Svenonius 2004) and do not occur in adjectival participles; see Romanova (2006) for Russian past passive participles and Gehrke (2008) for Russian and Czech past active and past passive participles. According to the most popular view in the recent literature, these differences are based on different base positions of the two types of prefixes (Svenonius 2004, Ramchand 2004, Romanova 2006, Richardson 2007, Gehrke 2008). Typically, lexical prefixes are merged in a *vP/VP*-internal position, whereas superlexical prefixes are merged in a *vP/VP*-external position.

There are also approaches questioning this distinction or arguing that such a distinction is too rough and that a more fine-grained analysis is necessary; see Biskup (2007, 2012), Tatevosov (2008), Žaucer (2009, 2012), Markova (2011) and Wiland (2012). For instance, Žaucer (2009), concentrating on Slavic superlexical prefixes, argues that the Russian and Slovenian cumulative/saturative *na*–‘on’ and the Slovenian perdurative *pre*–‘through’ and its Russian counterpart *pro*–‘through’ behave like resultative prefixes, that is, like lexical prefixes. Tatevosov (2008) shows that the two-way distinction is not fine enough and that the Russian completive *do*–‘to’ and the repetitive *pere*–‘over’ belong to a third type, namely, to intermediate prefixes. Similarly, Markova (2011) distinguishes three types of prefixes in Bulgarian, lexical (idiosyncratic), inner (argument structure related) and outer (adverbial) and shows that they surface in a fixed order.

Wiland’s (2012) analysis of superlexical prefixes is even more fine-grained. Using a nanosyntactic approach, he shows why only certain instances of multiple prefixation are found in Polish. Biskup (2007, 2012) demonstrates that many of the differences between lexical and superlexical prefixes discussed above are rather a tendency than a clear-cut
distinction and that superlexical prefixes behave like lexical prefixes in many respects and that prefixes do not behave consistently with respect to the diagnostics proposed in the literature. In this book, too, we will see that superlexical prefixes affect argument structure, case assignment properties and selectional restrictions of verbs to which they attach; that they affect the lexical aspect of the base verb and that they form passive participles. In the following sections, I show that verbal prefixation induces various effects. They concern perfectivity, telicity, case assignment, argument structure and definiteness.

2.3 Perfectivity, telicity and morphosyntactic structure

In this section, I discuss the morphological and the lexical aspect of prefixed verbs and examine their morphosyntactic structure.

The stem of Slavic verbs consists of the root and the thematic suffix (e.g. Isačenko 1962, Rubach 1984, Komárek 2006). The thematic suffix provides information about the syntactic category and the conjugation class of the word; compare the thematic vowels in the infinitives in the Russian example (7a) and the Polish example (8a) with the nominalising suffixes in the corresponding nouns in examples (7b) and (8b). Consider also the Czech example in (9), showing that the thematic vowel -a- derives an inchoative verb of the fifth conjugation class and the thematic vowel -i- a causative verb of the fourth conjugation class. From this, I conclude that thematic suffixes represent the verbalising head v.

(7) a. nos-i-t’
   carry-TH-INF
   ‘carry’
   b. nos-k-a
   carry-NMLZ-NOM.SG.F
   ‘carrying’

(8) a. pis-a-ć
   write-TH-INF
   ‘write’
   b. pis-m-o
   write-NMLZ-NOM.SG.N
   ‘writing, magazine’

(9) a. běl-a-t
   white-TH-INF
   ‘become white’
   b. běl-i-t
   white-TH-INF
   ‘make white’

about perfectivity. The most common diagnostic for perfectivity is the test with the future form of the auxiliary ‘be’ (an analogous diagnostic uses phasal verbs like ‘begin’). Specifically, only imperfective verbs, but not perfective verbs, can combine with these forms. Given this, the contrast in the Russian example (10) shows that verbal prefixes indeed have a perfectivising effect.

(10) a. budet plyť
he/she/it.will swim
‘he/she/it will swim’

b.* budet v-plyť / vy-plyť / ot-plyť / do-plyť / pro-plyť / po-plyť
he/she/it.will in-swim out-swim away-swim to-swim for-swim on-swim

This hold for both lexical prefixes – v- ‘in’, vy- ‘out’, ot- ‘away’ and do- ‘to’ – and superlexical prefixes like the perdurative pro- ‘for, through’ and the ingressive po- ‘on’ in (10b). For discussion of other tests, see for instance Schoorlemmer (1995), Filip (1999), Borik (2002), Rozwadowska (2003), Gehrke (2008), De Swart (2012) and Zinova & Filip (2015). In chapter 5.3, I will discuss a diagnostic based on aspectual preferences of certain conjunctions and on aspectual-licensing properties of adverbial clauses with the Czech conjunction když ‘when, if’.

Prefix verbs can be imperfectivised by the secondary imperfective suffix; consider -va- in the following examples. Therefore, these forms are compatible with the future auxiliary (the ingressive po- does not derive the secondary imperfective form).

(11) budet v-ply-vať / vy-ply-vať / ot-ply-vať / do-ply-vať
he/she/it.will in-swim-SI-INF out-swim-SI-INF away-swim-SI-INF to-swim-SI-INF
pro-ply-vať
for-swim-SI-INF
‘he/she/it will swim in sth. / swim out of sth. / swim away from sth. / swim to sth. / swim by/through sth.’

1 There is a small set of prefixed verbs that are imperfective, see e.g. the Russian zaviset ‘depend’, the Polish zależeć ‘depend’ and the Czech záviset ‘depend’. They also behave exceptionally in other respects.
2 As mentioned in the preceding section, not all researchers treat the perdurative pro- as a superlexical prefix; see Žaucer (2009).
Because of this, it has been proposed that the secondary imperfective suffix represents the aspectual head; see Dimitrova-Vulchanova (1999), Pereltsvaig (2004), Ramchand (2004), Svenonius (2004), Gehrke (2008), Tatevosov (2008), among others. Given that the secondary imperfective morpheme is closer to the root √ than the tense/infinitival suffix, the tense projection is higher than the aspectual projection in the clausal structure.

As to the relation between the thematic vowel – that is, the verbalising head – and the secondary imperfective suffix, consider the Russian (12a), derived from zabolet ‘become ill’, the Polish (12b), derived from przerościć ‘alter, redo’, and the Czech (12c), derived from rozdělat ‘disassemble’.

(12) a. za-bol-e-va-t’  
   behind-pain-TH-SI-INF  ‘become ill’

   b. prze-rab-i-a-ć
   over-do-TH-SI-INF  ‘alter, redo’

   c. roz-děl-á-va-t
   apart-do-TH-SI-INF  ‘disassemble’

The examples show that the morpheme representing the verbalising head v is closer to the root than the secondary imperfective suffix. Given these facts, the morphosyntactic structure of Slavic verbs looks like (13), abstracting away from prefixes for a moment. This structure derives the correct order of morphemes if we use the standard head movement to the left.

(13) [TP T [AspP Asp [vP v [√P √]]]]

Verbs imperfectivised by the secondary imperfective suffix can be turned into perfective again by a superlexical prefix; consider the following examples, containing verbs from (12) prefixed with distributive po-. These verbs are not compatible with the future form of the auxiliary ‘be’.

(14) a. po-za-bol-e-va-t’
   on-behind-pain-TH-SI-INF  ‘become ill one after another’

   b. po-prze-rab-i-a-ć
   on-over-do-TH-SI-INF  ‘alter/redo one after another’

---

3 For West Slavic languages, which in contrast to Russian combine the past participle with an agreement suffix (like the Polish czytałem ‘I read’) or with the auxiliary ‘be’ (like the Czech četl jsem ‘I read’), a participial projection between TP and AspP can be assumed; see also chapter 4. The structure can be even more complex if we take into consideration conditional forms.

4 But see Gribanova (2013) for the claim that the Russian verb only moves to the aspectual head. Then, lowering of the head T at PF can be used.
The fact that superlexical prefixes have an adverbial meaning and can scope over the secondary imperfective suffix is the reason why some researchers propose that superlexical prefixes are generated in or above the aspectual phrase.\(^5\) Note, however, that superlexical prefixes could, in fact, also merge lower in the verbal structure – being an overt reflection of some higher operator – and later move.


Looking at the examples in the preceding section, it seems that prefixes indeed induce telicity. Concretely, the lexical prefix \(\nu\)- ‘in’ in (5) specifies the location of the internal argument in the result state of the compositional verbs \(vpišat\) ‘write sth. in sth.’ \(vňést\) ‘carry sth. in sth.’ and \(vliat\) ‘pour sth. into sth.’; the lexical prefix \(s\)- ‘from’ in the non-compositional \(sžít\) ‘hound sb. out of sth., drive sb. to his death’ in (6c) adds a result state to the atelic verb \(žít\) ‘live’; the saturative/cumulative \(na\)- ‘on’ adds a result state of saturation to the activity verbs \(begat, lautfati\) and \(běhat\), all meaning ‘run’, in (3); and the inceptive superlexical \(za\)- ‘behind’ in (1) contributes an initial boundary to the atelic predicates \(bolet\) ‘be ill’ and \(begat\) ‘run’ (see e.g. Rozwadowska 2003 and Nossalik 2007 on the telicising effect of inceptive prefixes).

The most reliable diagnostic of telicity is probably the adverbial test, using \(for\)-adverbials and \(in\)-adverbials (for other tests, see e.g. Verkuyl 1972, Dowty 1979, Rozwadowska 2003, Gehrke 2008, Filip 2012). As to lexical prefixes, consider the Polish

\[
\begin{align*}
\text{c. po-roz-děl-á-va-t} & \quad \text{po-apart-do-TH-SI-INF} & \text{‘disassemble one after another’} \\
\end{align*}
\]

\(^5\) Not all superlexicals scope over the secondary imperfective suffix; see the imperfective (ia) from Czech, in which the attenuative \(při\) does not induce perfectivity. Compare also Žaucer (2009) for the Slovenian \(pri\). (ia) can be derived either from the imperfective (ib) or from the perfective (ic). This two-derivational-histories behaviour is typical for the attenuative \(při\).
example (15), and with respect to superlexicals, consider the perdurative pro- ‘for, through’ in the Russian example (16) and the repetitive pře- ‘over’ in the Czech example in (17).6 The examples show that prefixes bring about telicity because the sentences with prefixed predicates are compatible with *in-adverbials and incompatible with for-adverbials, whereas the sentences with unprefixed predicates are compatible with for-adverbials and incompatible with *in-adverbials (with respect to measuring the time of the event).7

(15) a. Joanna pisała mail godzinę /*w godzinę.
    Joanna wrote email hour in hour
    ‘Joanna was writing an email for an hour / *in an hour.’

b. Joanna napisała mail *godzinę / w godzinę.
    Joanna on-wrote email hour in hour
    ‘Joanna wrote an email in an hour / *for an hour.’

(16) a. Artur čital gazetu pjať minut /* za pjať minut.
    Artur read newspaper five minutes behind five minutes
    ‘Artur was reading the newspaper five minutes / * in five minutes.’

b. Artur pro-čital gazetu * pjať minut / za pjať minut.
    Artur for-read newspaper five minutes behind five minutes
    ‘Artur read through the newspaper in five minutes / *for five minutes.’

(17) a. Formátoval to pět minut /* za pět minut.
    formatted.he it five minutes behind five minutes
    ‘He was formatting it five minutes / * in five minutes.’

b. Pře-formátoval to * pět minut / za pět minut.
    over-formatted.he it five minutes behind five minutes
    ‘He reformatted it in five minutes / * for five minutes.’

Anticipating somewhat, in chapter 4 we will see that Czech adjectival participles support the view that prefixes – lexical as well as superlexical – function as telicisers. It has been argued

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6 Some researchers would treat the na- in napisać as an empty prefix; see references in the preceding section.
7 In the case of inceptive superlexical prefixes, like in (1), the in-adverbial measures the time span between the speech time (or some reference time) and the boundary, i.e., the time of the initial point of the event.
that resultative (stative) adjectival participles are derived from telic predicates (see e.g. Kratzer 1994, 2000; Rapp 1996; Cednarowska 2000; Anagnostopoulou 2003 and Giger 2009). Specifically, in Czech, telicity is necessary for the formation of stative \( n^\text{ý/-tý} \)-participles and \( l^\text{ý} \)-participles. Thus, if prefixation induces telicity, then we should observe a difference between participles derived from prefixed predicates and participles derived from unprefixed (atelic) predicates. This is indeed the case, as demonstrated by the contrast between (18) and (19).

(18) a. *teklý      b. *kvetlý      c. *bledlý
    flowed        blossomed        paled

(19) a. o-teklý      b. roz-kvetlý      c. vy-bledlý
    about-flowed    apart-blossomed    out-paled
    ‘swollen’       ‘in blossom’       ‘pale’

As to \( n^\text{ý/-tý} \)-participles, consider the contrast between (20a) and (20b), containing the verb ‘remained’, which is compatible with stative predicates but is not compatible with eventive predicates. Since the unprefixed adjectival participles in (20a) have an eventive interpretation, they cannot combine with \( z^\text{ůstal} \). In contrast, the grammatical status of (20b) shows that prefixes introduce a state, that is, that they telicise the unprefixed predicates.

(20) a. *Zůstal čtený / hlášený / topený / česaný.
      remained being.read being.announced being.drowned being.combed

      remained unfinished.reading registered flooded combed
      ‘He/it remained unfinished / registered / flooded / combed.’

There is still an ongoing discussion on the telicising function of prefixes in the literature. On one hand, Filip (1999) claims that verbal prefixation induces lexical aspect shift and Arsenijević (2006) argues that all Slavic prefixes are predicates of the result subevent, that is, that they are telic (see also Arsenijević 2007). In the same vein, Piñón (1994) and Van Hout (2008) argue that Polish and Russian prefixes make verbs telic. On the other hand, Filip (2003), Romanova (2006) and Gehrke (2008) argue that prefixes do not function in all of their uses as telicity modifiers. In this respect, superlexical prefixes are more problematic than
lexical prefixes. Specifically, the problematic cases, which are almost always cited in the literature, are the delimitative prefix *po-* ‘on’ and the perdurative prefix *pro-* ‘for, through’. These prefixes make verbs perfective but their telicising status is unclear (for discussion of these prefixes, see Gvozdanović 1992, Schoorlemmer 1995, Borik 2002, Paslawka & von Stechow 2003, Nossalik 2007, Gehrke 2008, Ramchand 2008, Žaucer 2009, 2012 and Biskup & Zybatow 2015).

In what follows, I take the position that prefixes (possibly with the exception of the delimitative *po-* and the perdurative *pro-*) contribute telicity, in addition to perfectivity. I analyse the connection between telicity and perfectivity in the way that the prefix (an incorporated preposition) introduces a causal relation between the verbal part and the prepositional part of the prefixed predicate and in addition has a perfective property, which affects the aspectual head. Technically, I propose that prepositions mostly introduce a state and the verbal root another eventuality and that the prefixal head of the prepositional phrase introduces a *CAUSE* operator, which relates these two subevents. The incorporated preposition bears a Tense-feature with the value [perfective] and values the Tense-feature of the aspectual head, which results in the interpretation that the event time is included in the reference time.

2.4 Prefixation and case

Prefixes also affect case assignment properties of the base verb. Specifically, it has been observed for Slavic that there is a relation between the form of objective case and aspectual properties of the verb; consider, for instance, Jakobson (1936), Wierzbicka (1967), Paducheva (1998), Pereltsvaig (2000), Rozwadowska & Willim (2004), Borer (2005), Blaszcak (2007) and Richardson (2007). In Russian and Polish, the partitive genitive is restricted to the perfective aspect, as shown in (21), taken from Paducheva (1998, 80).

(21) a. *Ja pju vod-y.
   I drink.IMPF water-PRT

b. Ja vy-pil vod-y.
   I out-drank.PF water-PRT

‘I drank (some) water.’

While the unprefixed (imperfective) verb in (21a) cannot co-occur with the object marked with partitive, the prefixed verb in (21b) can. Partitive case – expressing the partitive meaning ‘part of, some’ – alternates with accusative, which expresses the total quantity of the referent
of the noun. To a lesser extent, this phenomenon can be found in Czech; consider (22), where the partitive genitive is licensed by the delimitative po-.

(22) a. * Pili vínk-a (a šli domů).
    they.drank.IMPF wine-GEN and they.went home
b. Po-pili vínk-a (a šli domů).
    on-they.drank.PF wine-GEN and they.went home
‘They drank (some) wine and went home.’

Another superlexical prefix affecting case assignment properties of the base verb is shown in the following example from Polish.

(23) a. Patrycja piekł-a bulk-i / * bulek.
    Patrycja baked.IMPF roll-ACC.PL roll.GEN.PL
    ‘Patrycja was baking rolls.’
b. Patrycja na-piekł bułek / * bulk-i.
    Patrycja on-baked.PF roll.GEN.PL roll-ACC.PL
    ‘Patrycja baked a lot of rolls.’

The unprefixed verb is only compatible with the direct object marked with accusative, as shown in (23a), whereas when the verb is prefixed with the cumulative na- ‘on’, the object must be marked with partitive genitive, as demonstrated in (23b) (for discussion of the cumulative na-, mainly from the syntactic point of view, see Pereltsvaig 2006, Romanova 2006, Žaucer 2009, and for the semantic point of view, see Piñón 1994, Filip 2000, 2005 and Tatevosov 2007).

Interestingly, in some languages, the relation between case and aspe ctable properties of the verb is encoded in the way that case markers also occur on the verb, functioning as aspe ctual markers; consider (24), from Kala Lagaw Ya, taken from Kennedy (1984, 159). The suffix -an functions as an accusative marker in the nominal domain and as a completive aspe ctual marker in the verbal domain.

(24) Nuy-dh n-an im-an.
    he-ERG she-ACC see/discover-COMP
    ‘He spotted her.’
Returning to Slavic, case effects induced by prefixation do not concern only partitive genitive; for instance, the following example from Czech shows that structural accusative also alternates with dative.

   our king is.slave crowds.DAT
   ‘Our king is a slave to crowds. / Our king is weak.’

c. Náš král z-otročil celou populaci.
   our king from-enslaved entire population.ACC
   ‘Our king enslaved the entire population.’

The unprefixed, imperfective verb *otročit* assigns dative to its object, whereas the prefixed *zotročit* assigns structural accusative. In chapter 4, we will see that the opposition between structural accusative and lexical case correlates with the possibility versus impossibility of the predicate to form adjectival participles.

Thus, prefixes play an important role in determining case assignment properties of the verb and there is an indirect relation between them and the form of objective case. It is the aspectual projection that mediates between the prefix and the direct object. For this and other reasons, I will propose in section 2.8.1 that objective case is assigned by the aspectual head.

### 2.5 Prefixation and argument structure

It is known that with perfective verbs, the presence of the direct object is obligatory under normal circumstances. The following example from Dimitrova-Vulchanova (2012, 944) shows that Bulgarian imperfective transitive verbs do not need to have an overtly realised direct object; compare (26a) with (26b). However, when a prefix is attached to the verb, the object must be present overtly and in addition, the definite article on the direct object cannot be omitted, as demonstrated in (26c). Dimitrova-Vulchanova (1999, 2012) analyses this fact in terms of a small clause relation between the prefix and the object.

(26) a. Ivan pi.
   Ivan drank
   ‘Ivan drank.’

b. Ivan pi vino.
   Ivan drank wine
   ‘Ivan drank/was drinking wine.’
c. Ivan izpi vino *(-to).
    Ivan drank wine -the
    ‘Ivan drank *(the) wine.’

Prefixation can also add a prepositional phrase to argument structure of the base predicate, as shown in the Russian example (27a), in which the subject is the figure argument of the preposition \(v\) and ajsberg the ground argument. (27b) contrasts with (27a) in the fact that the unprefixed predicate cannot combine with the prepositional phrase.

(27) a. On v-měřz *(v ajsberg).
    he in-froze in iceberg
    ‘He froze in an iceberg.’

b. On měřz (*v ajsberg).
    he froze in iceberg
    ‘He was cold *(in an iceberg).’

The argument structure augmentation is also possible with superlexical prefixes, as demonstrated by the Polish example below, with the excessive prefix pere- ‘over’. The loudness of the referent of the subject (of the figure argument, which is not shown in the example) is higher than the loudness of the music, that is, of the ground argument of the prefix/preposition prze(z) ‘over’.

(28) a. krzyczeć (*muzykę)
    shout music.ACC.SG
    ‘shout (*music)’

b. prze-krzyczęć *(muzykę)
    over-shout music.ACC.SG
    ‘shout more loudly than *(the music).’

Recall also from section 2.2, example (3) that cumulative/saturative na- ‘on’ introduces an unselected reflexive argument in the Russian nabegat’sja, in the Czech naběhat se, and in the Slovenian nalaufati se, all with the meaning ‘come to have one’s fill of running’ (for an overview of the literature on the transitivisation effect of Slavic prefixes, see Oertle 2016, 55-58).

In Czech, ný-/tý-participles can only be derived from transitive verbs. In chapter 4, we will see that lexical as well as superlexical prefixes help unergative base verbs to derive a ný-/tý-participle because they transitivise them. More concretely, in (29)-(31), the unprefixed predicates from examples (a) cannot derive a ný-/tý-participle, as shown in examples (b), but they form the participle when they are prefixed, as shown in examples (c).
Verbal prefixes also affect selectional properties of the predicate to which they attach. For instance, in the Polish example below, (32a) shows that the unprefixed verb can co-occur with the singular object. When the cumulative *na-* ‘na’ is attached to the verb, as in (32b), the sentence is ungrammatical since the cumulative prefix selects plural entities or a mass noun, as shown in (32c).

(32)  

a. Moja mama piekła bułkę.  
my mother baked roll.ACC.SG  
‘My mother was baking a roll.’

b. *Moja mama na-piekła bułkę.  
my mother on-baked roll.ACC.SG

c. Moja mama na-piekła bulek.  
my mother on-baked roll.GEN.PL

‘My mother baked a lot of rolls.’

In the same vein, the following Russian example demonstrates that the distributive prefix also cannot combine with a singular object.

(33)  

a. Gruša padala (na zemlju).  
pear.SG fell on ground

‘The pear was falling (to the ground).’

pear.SG on-fell
c. Gruši po-padali.
pear.PL on-fell
‘Pears fell down one after another.’

We have seen that prefixes can manipulate argument structure of the base predicate in various ways. Argument structure is standardly determined in the verbal domain and selectional requirements are saturated under mutual c-command. Thus, given the fact that prefixes can introduce unselected arguments and prepositional phrases and that the arguments belong to the prepositional phrases and given that the majority of prefixes is homophonous with a preposition and has a meaning identical or similar to the preposition, the most straightforward analysis is that prefixes project a prepositional phrase in the verbal domain that introduces the appropriate arguments (in section 2.7, I will discuss argument structure in more detail and will present more arguments for the analysis of prefixes as incorporated prepositions).

2.6 Definiteness effects

It has been argued that in Slavic languages, the morphological aspect properties of the verb affect the interpretation of the object; see, for instance, Wierzbicka (1967), Krifka (1989, 1992), Piñón (1995), Filip (1999), Verkuyl (1999) and Borer (2005), who claim that the perfective aspect makes the verbal object definite or quantised. As an illustration, consider the Polish example below, taken from Wierzbicka (1967, 2237), in which the direct object of the prefixed verb in (34b) has the quantised interpretation ‘all the porridge’. This means that in contrast to the imperfective verb in (34a), in (34b) there is some contextually identified quantity of porridge.

(34) a. On jadł kaszę.
he ate porridge.ACC
‘He was eating porridge.’

b. On z-jadł kaszę.
he from-ate porridge.ACC
‘He ate all the porridge.’

In Bulgarian, the presence of a prefix on a verb forces the presence of the definite article on nouns with the cumulative reference like mass nouns and plural expressions. Consider the example below, taken from Verkuyl (1999, 117), which shows that the unprefixed (imperfective) verb in (35a) can combine with an indefinite object. In contrast, when the verb is prefixed, hence perfective, the object must be marked with the definite article (for the same point, see also the Bulgarian example (26c), with the mass noun ‘wine’).
Another similar effect of verbal prefixation can be found in the realm of extraction. The following Czech example with the completive and the iterative superlexical prefix shows that the structural accusative object of the unprefixed verb behaves differently from the accusative object of the prefixed verb with respect to extraction.

(36) a. [O čem]

Jan psal [článek t1]?

about what Jan.NOM wrote article.ACC

‘About what was Jan writing a/the article?’

b. * [O čem]

Jan pře-/do-psal [článek t1]?

about what Jan.NOM over-/to-wrote article.ACC

c. Jan pře-/do-psal článek o opicích.

Jan.NOM over-/to-wrote article.ACC about monkeys

‘Jan rewrote/finished a/the article about monkeys.’

While extraction of the prepositional phrase o čem ‘about what’ out of the accusative direct object is grammatical when the verb is unprefixe, as shown in (36a), extraction of the phrase is strongly degraded when it happens from the object of a prefixed verb, as demonstrated in (36b). The control sentence in (36c) shows that the ungrammaticality is indeed due to movement. To exclude the possibility that o čem is an adjunct of the verb, one can use a verb like (z)recenzovat ‘review’, which cannot have o čem as an adjunct. Although the sentence with the unprefixed verb is slightly marked, there is clear contrast between (37a) and (37b).

(37) a. ? [O čem]

Jan recenzoval [článek t1]?

about what Jan.NOM reviewed article.ACC

‘About what was Jan reviewing a/the article?’

b. * [O čem]

Jan z-recenzoval [článek t1]?

about what Jan.NOM from-reviewed article.ACC
c. Jan z-recenzoval článek o opicích.

Jan.NOM from-reviewed article.ACC about monkeys

‘Jan reviewed a/the article about monkeys.’

These data show that the ‘perfective structural accusative’ differs from the ‘imperfective structural accusative’ and accord with the claim that definite or specific noun phrases block extraction more severely than indefinite noun phrases (e.g. Starke 2001). They also resemble the well-known Finnish accusative-partitive alternation, in which partitive case – in contrast to accusative – is assigned to quantitatively indeterminate noun phrases (Kiparsky 1998; cf. also Borer’s 2005, 175 proposal that in the case of Slavic perfective verbs, the object receives structural accusative in the specifier position of the aspectual projection, whereas with imperfective verbs it receives structural partitive in the functional projection FSP).

The East Slavic and West Slavic pattern can be taken to be parallel to the differential object marking in languages like Sakha. While in Sakha definiteness is marked by the presence of the case marker on the object, as shown by the contrast between the definite and the indefinite object in (38), in East Slavic and West Slavic definiteness/quantisation is marked by the presence of the prefix on the predicate, as in (34), which then assigns the perfective structural accusative (as to South Slavic, consider (35)).

(38) a. Masha salamaat-y türgennik sie-te.

Masha porridge-ACC quickly eat-PST.3SG.SBJ

‘Masha ate the porridge quickly.’

b. Masha türgennik salamaat sie-te.

Masha quickly porridge eat-PST.3SG.SBJ

‘Masha ate porridge quickly.’ (Baker 2015, 4-5)

Another example of prefixation affecting the interpretation of the accusative object can be found in the Across-the-Board example (39) from Czech. The sentence with the imperfective verb in the second conjunct in (39a) has the identity reading (with the same book for both conjuncts) as well as the non-identity reading (two different books). However, when the unprefixed verb recenzoval is replaced with the prefixed zrecenzoval, the identity reading becomes strongly preferred.

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8 But we can still modify the perfective accusative object by a modifier like nějaký ‘some’ in (36c) and (37c).

9 The accusative marker can be present on ‘porridge’ in (38b) if the element is contrastively focused.
(39) a. Jakou knížku Jana dokončila a Jirka recenzoval?
   what book.ACC Jana.NOM finished and Jirka.NOM reviewed
   ‘What book did Jana finish and Jirka reviewed?’
b. Jakou knížku Jana dokončila a Jirka z-recenzoval?
   what book.ACC Jana.NOM finished and Jirka.NOM from-reviewed
   ‘What book Marie finished and Jirka reviewed?’
   (Biskup 2016a, 4)

The conclusion that we can now draw is that there is an indirect relation between prefixation and definiteness/quantisation. Prefixes bring about perfectivity and perfective verbs make the direct object definite or quantised by assigning it perfective structural accusative. Thus, prefixes – being incorporated prepositions – are responsible for telicity (by introducing the causal relation between the verbal and the prepositional subevent) and perfectivity (by valuing the Tense-feature of the aspektual head as perfective), hence also indirectly for definiteness or quantisation of the direct object because it is the aspektual head that assigns the perfective structural accusative.

2.7 Verbal prefixes are incorporated prepositions

In this section, I present several arguments for the view that verbal prefixes are incorporated prepositions. The first argument is based on argument structure effects of verbal prefixation. Schoorlemmer (1997) argues with respect to compositional telicity that Russian perfective paired verbs, that is, prefixed verbs deriving the secondary imperfective like za-bolet’/za-bolevat’ ‘become ill’, pere-mérznut’/pere-merzat’ ‘die of frost’, pod-rasti/pod-rastat’ ‘grow up’ always have an internal argument. This means that intransitive paired verbs must be unaccusative. With respect to prefixed verbs derived from unergatives, Schoorlemmer argues that derivation of such paired verbs always involves transitivisation; consider the following predicates: raz-igrat’/raz-igryvat’ ‘raffle’, o-plakat’/o-plakivat’ ‘bewail’, na-guljat’/na-gulivat’ ‘walk a lot’. These facts can also be observed in Czech, as demonstrated by the following examples, which contain the perfective/secondary imperfective pairs.

(40) a. o-tekl / o-tékal      b. s-rostly / s-růstaly     c. roz-kvetl / roz-kvétal
   about-flowed           with-grew                  apart-blossomed
   ‘he/it swelled’        ‘they grew together’     ‘he/it came into blossom’
d. za-hloubal se / za-hloubával se behind-mused self
‘he mused on sth.’
e. vy-pracoval / vy-pracovával něco out-worked sth.
‘he worked out sth.’
f. pře-křičel / pře-křikoval někoho over-shouted somebody
‘he shouted more loudly than sb.’
g. při-dělal / při-dělával něco at-did something
‘he fixed sth.’
h. pode-psal / pode-pisoval něco under-wrote something
‘he signed sth.’
i. při-škrtel / při-škrcoval někoho at-choked somebody
‘choked sb. a little’

Given that the verbs téci ‘flow’, růst ‘grow’ and kvést ‘blossom’ are unaccusative, the examples in (40a-c) show that if a prefix is attached to an unaccusative verb, then the verb remains unaccusative.10 Further, since the verbs hloubat ‘muse on sth.’, pracovat ‘work’ and křičet ‘shout’ are unergative, the examples in (40d-f) show that if a prefix is attached to an unergative verb, the verb is transitivised (reflexivised). Finally, since the verbs dělat ‘do’, psát ‘write’ and škrtit ‘choke’ are transitive, the examples in (40g-i) demonstrate that if a prefix is attached to a transitive verb, then the verb remains transitive. This holds for lexical prefixes, as in (40a-b), (40d-e) and (40g-h), as well as superlexical prefixes, for the inceptive roz- ‘apart’ in (40c), excessive pře- ‘over’ in (40f) and the attenuative při- ‘at’ in (40i) (the prefix za- ‘behind’ in (40d) could possibly be treated as an inceptive superlexical prefix).11

More generally, the data show that prefixes can add an internal argument (given the transitivisation effect in the case of unergative base verbs) and that the added argument competes with the complement of unaccusative and transitive base verbs.

If prefixes are generated in the complement position of the root as a preposition that projects a phrase competing for the complement position with the complement of the unprefixed verb, we can straightforwardly explain the argument structure generalisations just discussed. Specifically, in the case of unaccusative verbs, as in (40a-c), the root is selected by the unaccusative v and is merged with a prepositional phrase introducing the argument (for more details on the prepositional structure, see section 2.8). Since the prepositional phrase is in complementary distribution with the complement of the root of the base verb, the argument structure is not augmented and the verb remains unaccusative (maximally, a prepositional

10 When the subject of the prefixed srůst/srůstat ‘grow together’ is singular, then, given the comitative meaning of the preposition s ‘with’, an s-PP is added; which is in line with the proposal below.
11 In chapter 4.5, we will see that adjectival participles behave identically and that the completive superlexical prefix do- ‘to’ does not affect argument structure.
phrase can be added, as in the case of \textit{srůst s něčím} ‘grow together with something’ in (40b), where the subject is the figure argument of the prepositional phrase and \textit{něčím} ‘something’ is the ground argument; see footnote 10).

In the case of unergative verbs, as in (40d-f), the prefix again introduces an argument or arguments in the projected prepositional phrase. However, since the root is selected by the verbal head introducing an agent in this case, we observe an augmentation of argument structure of the base verb. As to transitive base verbs, as in (40g-i), the prepositional phrase with its argument(s) occupies the same position as the complement of the root of the base verb. Given that the root is selected by the agentive \textit{v}, the base verb and the prefixed verb are transitive.

The data showing selectional properties of superlexical prefixes in section 2.5, in which the cumulative and the distributive prefix select a plural noun – see also the Russian (41) – fit into this picture. Recall that selectional relations are based on sisterhood. If the appropriate argument, like the ground \textit{gruši} ‘pears’ in (41c), merges in the prepositional phrase projected by the prefix, as proposed above, then such a close selectional relation exists, regardless of whether the argument occurs in the specifier or in the complement position.

\begin{enumerate}
\item a. Gruš-a padala (na zemlju).
  \text{pear-SG fell on ground}
  ‘The pear was falling to the ground.’
\item b. * Gruš-a na-padala.
  \text{pear-SG on-fell}
\item c. Gruš-i na-padali.
  \text{pear-PL on-fell}
  ‘Pears fell down in a certain quantity.’
\end{enumerate}

Third, Czech prefixed verbs like \textit{o-chromit} ‘paralyse’ and \textit{o-vdovět} ‘become a widow’ do not have an unprefixed verbal counterpart (from the descriptive grammar point of view they are derived from the adjective \textit{chromý} ‘lame’ and from the noun \textit{vdova} ‘widow’). From the morphosyntactic perspective, this means that a verb can be derived from the root only if a prefix is present in the derivation – given that look-ahead is not allowed and we do not assume special filtering mechanisms at the interfaces for such cases –, which in turn means that the prefix must merge before the verbalising head \textit{v} merges. Since \textit{v} selects the root, it follows that the prefix must be lower than the root. To put it simply, if the verbalised structure
always includes the prefix (the projected prepositional phrase) in the discussed cases, then it can never happen that we will derive a verb without the prefix, which is exactly what we need.

Fourth, if it is correct that prefixes are prepositions that incorporate into the verbal root, then we expect that this movement will be subject to movement constraints. Biskup (2012) demonstrates it with the following example from Russian (Inga Žirkova, p.c.), which shows that prepositional phrases projected by a preposition that does not fit the verbal prefix cannot intervene between the homophonous prefix and preposition.

(42) a. Popugaj v-letel v komnat-u.
    parrot.NOM in-flew in room-ACC
    ‘The parrot flew into the room.’

b. Popugaj v-letel na stol.
    parrot.NOM in-flew on table.ACC
    ‘The parrot flew onto the table.’

c. Popugaj v-letel v komnat-u na stol.
    parrot.NOM 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.NOM in-flew on table.ACC in room-ACC

Sentence (42a) demonstrates that the verb vletel can combine with the prepositional phrase headed by the preposition v ‘in’ and (42b) shows the same for the prepositional phrase projected by na ‘on’. Further, vletel can co-occur with both prepositional phrases if the prepositional phrase projected by na follows the prepositional phrase projectd by v; see (42c). In contrast, (42d) is ungrammatical because na intervenes between the incorporated preposition v in vletel and its copy in v komnatu.

This argument, however, is not conclusive because one can argue that the reason why (42d) is bad is that the prepositional phrase introducing a location that is part of the more general prepositional phrase precedes the more general prepositional phrase (cf. Arsenijević 2006 chap. 5 and Biskup 2011, chap. 5). In fact, Arsenijević argues that both factors are relevant: the prepositional phrase with the homophonous preposition must precede the prepositional phrase with a non-homophonous preposition and the prepositional phrase with
the homophonous preposition must be more general than (must include) the prepositional phrase with the non-homophonous preposition.

There is a stronger movement argument for the incorporation analysis. Van Riemsdijk & Huijbregts (2002) show that German prepositional phrases in which both a location and a direction are expressed obey locality with respect to incorporation; only the higher (directional) preposition can incorporate. Let us test the Russian complex preposition *iz-za* ‘from behind’. As we shall see in chapter 6, the left preposition, which encodes the direction, is the higher one. This predicts that incorporation of *iz* ‘from, out’ into the verb will be grammatical, whereas incorporation of *za* ‘behind’ will not. This prediction is borne out, as shown by the contrast between (43a) and (43b). The control example in (43c) demonstrates that the prefixed verb *zavlēk* ‘pull sb.’ is grammatical (Natalja Börner, p.c.).

(43) a. On iz-vlēk eē iz-za škafa.
   he out-pulled her out-behind wardrobe
   ‘He pulled her from behind the wardrobe.’

   he behind-pulled her out-behind wardrobe

c. On za-vlēk eē v besedku.
   he behind-pulled her in pavilion
   ‘He pulled her in a pavilion.’

The fifth argument for the proposal that verbal prefixes are incorporated prepositions is based on the parallelism between extraction from the direct object marked with the perfective structural accusative and extraction from prepositional phrases. In the preceding section, we saw that extraction out of the object marked with the perfective structural accusative assigned by the prefixed verb is strongly degraded in contrast to extraction from the object with the imperfective structural accusative, which was assigned by the unprefixed verb. Having this in mind, consider the following Russian example.

(44) a. Popugaj v-letel v komnat-u.
   parrot.NOM in-flew in room-ACC
   ‘The parrot flew into the room.’

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12 The fact that there are two copies of the incorporated preposition in the derivation will be discussed below in this section and in chapter 3.
b. *Čto₁ popugaj v-letel vo t₁?  
   what parrot.NOM in-flew in

c. Popugaj v-letel v komnat-u so stolom.  
   parrot.NOM in-flew in room-ACC with table
   ‘The parrot flew into the room with the table.’

d. *[S čem]₁ popugaj v-letel v komnat-u t₁?  
   with what parrot.NOM in-flew in room-ACC

Examples (44a) and (44c) do not contain wh-movement and are grammatical. In contrast, sentence (44b) shows that extraction of the prepositional complement is ungrammatical and example (44d) demonstrates the same for the prepositional subconstituent. The generalisation drawn from these examples is that prepositions block extraction. The comparison of these data with the extraction data from section 2.6 shows that verbal prefixes and prepositions behave in an analogous way with respect to extraction, which again supports the view that they are identical elements.

If verbal prefixes are just a certain copy of the incorporated preposition, then we expect all prefixes to have a prepositional counterpart. This is not problematic from the diachronic point of view because prefixes are historically derived from prepositions or both categories have a common ancestor (see Smyth 1920/1974, Nemec 1954, Kopečný 1973, Wunderlich 1987, Lehmann 1993, Stiebels 1996, Blake 2001, Van Gelderen 2011, among others). From the synchronic point of view, many authors investigating verbal prefixes (and particles) in various languages have argued that these elements belong to the category preposition; see Jackendoff (1973), Emonds (1976, 1985), Van Riemsdijk (1978), Den Dikken (1995), Zeller (2001a) and McIntyre (2007, 2015).

Consider for instance German prepositional elements. It has been argued that most German verbal prefixes are historically derived from prepositions and have cognates with particles contained in particle-verb constructions; see Wunderlich (1987), Stiebels & Wunderlich (1994) and Stiebels (1996, 1998), among others. Moreover, it has been argued that German particles and prepositions are derivationally related (Van Riemsdijk & Huijbrechts 2002; Asbury, Gehrke & Hegedüs 2007); that German prefixes and prepositions are derivationally related (McIntyre 2006a); and the same has been proposed for the relation between German prefixes, particles and prepositions (e.g. Biskup & Putnam 2012).

Now consider Russian and Czech; they have approximately twenty verbal prefixes and only three of them do not have a prepositional counterpart, the prefixes vez- ‘up’, vy- ‘out’ and
raz/roz- ‘apart’. This is the modern state of affairs; in Old Czech and Old Russian, vz was used as a preposition. Vz is also present in today’s Serbo-Croatian (as uz/uza) and in certain Macedonian dialects (as voz), as argued by Kopečný (1973). Vz and vy are related because they are derived from the Indo-European uds ‘up, out’ and ud ‘up, out’, respectively; see Kopečný (1973) and Vasmer (1976). As to raz/roz, it is derived from the Proto-Slavic form orz and the preposition raz can be found for instance in Slovenian (Kopečný 1973, Rejzek 2001).

A synchronic analysis of these phenomena can be based on the necessity of prepositional incorporation in particular cases. For instance, the preposition vz needs to incorporate into the verb in modern Russian and modern Czech, whereas in Old Russian, Old Czech, Serbo-Croatian and certain Macedonian dialects, the preposition did not have to incorporate. This proposal is supported by the fact that there are historical changes that concern copying of prepositional elements. Specifically, in Old Church Slavonic, certain spatial meanings were expressed by a case marked noun without preposition in connection with a verb prefixed with a spatial prefix, as shown in (45a), with the prefix do- ‘to’, which is homophonous with the preposition do ‘to’ assigning genitive. Later, such constructions lost the ability to further fulfil this function; hence an overt preposition appeared, as demonstrated by the example from Modern Czech in (45b) (see Večerka 2006, 47).

(45) a. do-iti měst-a
    to-walk town-GEN.SG
    ‘reach the town’

b. do-jit do měst-a
    to-walk to town-GEN.SG
    ‘reach the town’

Another possibility is to assume that the problematic prefixes have a non-homophonous prepositional counterpart; for instance, for vy- it could be the Russian preposition iz ‘out’ and the Czech z ‘out, from’, which typically co-occur with verbs prefixed with vy-. Note that copies do not have to be of the same form in derivations; see discussion of prepositional incorporation in Baker (1988) and the analysis of the German verbal prefix ent- ‘out’ in Biskup & Putnam (2012), who argue that the ent- is a spell-out of the incorporated preposition aus ‘out’.

If the incorporation analysis is correct and the verbal prefix is just another copy of the preposition, then, given economy considerations, the question arises whether both copies are licensed in derivations in which the preposition and the prefix are overt. This seems to be the case, as shown by the following example from Czech, taken from Biskup (2012, 276).
   Pavel to-went to Albert-GEN
   ‘Pavel went in the supermarket Albert.’

   b. Pavel šel do Alberta.
   Pavel went to Albert-GEN
   ‘Pavel was going to the supermarket Albert.’

   Pavel to-went Albert-ACC
   ‘Pavel caught up Albert.’

The prefix copy is necessary for marking the morphological aspect and functions connected to it, as discussed in the previous sections. This is obvious from the comparison of the imperfective example (46b), whose interpretation is progressive, with (46a), with the prefix copy on the verb, which has the interpretation that Pavel reached the supermarket. The comparison of (46a) and the prepositionless example (46c) then shows that the spell-out of the prepositional copy is necessary because of the semantics of the preposition connected to the assigned case (see Nunes 2004 for the claim that spell-out can render more than one copy of the chain overt). Consider also the following example from colloquial Russian, taken from Yadroff & Franks (2001, 73), which shows that even prepositions themselves can be multiplied.13

(47) Vo-šēl on v dom v tot v zakoldovannyj.
   in-walked he in house in that in haunted
   ‘He entered that haunted house.’

As to phonological properties of verbal prefixes and prepositions, Matushansky (2002) argues for Russian that prefixes and prepositions show identical phonological behaviour and that they belong to the prepositional category; compare also Caha & Ziková (2016) for Czech. It has been shown that there are also certain differences in phonological behaviour of prefixes and prepositions; see Gribanova (2009). The fact that two elements behave differently in a

13 In chapter 6, I will decompose prepositional phrases into more projections and will propose that prepositions themselves undergo head movement in the decomposed structure. From this perspective, cases like (47) are not problematic.
certain aspect, however, does not necessarily mean that they are not identical; their different
behaviour can be induced by the different morphosyntactic contexts in which the two
elements occur and which define them. For instance, Biskup, Putnam & Smith (2011) argue
that the different phonological properties of German verbal 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 (recall also from the
discussion above that the prefixal copy can even surface as a phonologically distinct element).
The identity between verbal prefixes and prepositions is also supported by the fact that
prepositions, too, can form one word with other elements; as demonstrated in the Polish
example below.

(48) a. dla-ń (= dla niego) b. ze-ń  (= z niego)
  for-him        from-him
  ‘for him’      ‘from him’
c. do-ń   (= do niego) d. za-ń  (= za niego)
  to-him        behind-him
  ‘to him’      ‘for him’

The final argument for treating verbal prefixes as incorporated prepositions is based on
semantic properties of these two elements. A comparison of the prefixed verbs with the
prepositional phrases in example (49) shows that the lexicosemantic import of prefixes and
prepositions is often identical. This is demonstrated by the Russian lexical prefix s- and the
preposition s in (49a-b), by the Polish lexical prefix do- and the preposition do in (49c-d), and
by the Czech lexical prefix na- and the preposition na in (49e-f).

(49) a. s-prygnut’ b. s kryši
  from-jump       from roof
  ‘jump down’     ‘from the roof’
c. do-jechać     d. do domu
  to-go           to house
  ‘arrive at’     ‘to the house’
e. na-lepit      f. na stůl
  on-glue         onto table
  ‘glue sth. on sth.’      ‘onto the table’
The examples show that the meaning of prefixes is based on the two-argument meaning of prepositions, in which the preposition localises the external argument (figure) with respect to the internal argument (ground). As we will see in section 2.8.2, I enrich this meaning with the state argument and the CAUSE operator, which derives the telicity effect of prefixation.

Moreover, I will show in chapter 3 that in many cases the prefixed verb can be paraphrased with the unprefixed verb and a prepositional phrase headed by the preposition homophonous to the prefix of the prefixed verb. In that chapter, I will also show how non-compositional prefixed verbs are derived.

The two-argument meaning is also visible in the case of superlexical prefixes, as demonstrated by the Polish example (50a), partially repeated from (28), in which the loudness of the referent of the subject is higher than the loudness of the referent of the object.

(50) a. prze-krzyczeć
   over-shout
   ‘shout more loudly than sb./sth.’

b. przez most
   over bridge
   ‘over the bridge’

In certain cases, the arguments (or one of them) are not visible and the superlexical prefix is a certain abstraction of the meaning of the preposition – and of the homophonous lexical prefix – as in the Slovak example in (51), in which the terminative meaning of the superlexical od-‘away’ is related to the spatial (and temporal) meaning of the preposition od ‘away’.

(51) a. od-drmoliť
   away-gabble
   ‘gabble sth. to the end’

b. od okna
   away window
   ‘away from the window’

To conclude this section, I have argued that lexical prefixes and at least some superlexical prefixes are incorporated prepositions that project a prepositional phrase with the figure and the ground argument in the complement position of the verbal root. This analysis is in accordance with head-movement approaches to Slavic prefixes like that of Fowler (1996), Babko-Malaya (2003), Svenonius (2004), Romanova (2006), Biskup (2007, 2009a), Biskup & Zybatow (2015), and with incorporation analyses of non-Slavic prefixes proposed, for instance, by Walinska De Hackbeil (1986, chap. 4), Mulder (1992, chap. 9), Miller (1993, chap. 5), Pitz (1994) and Biskup & Putnam (2012).
2.8 Deriving prefixed verbs

The previous sections provide data and background information for the main proposal, which I present in the rest of this chapter. We have seen that prefixes have various effects on the verb. Below, I provide a complete syntactic and semantic derivation of the Russian sentence (52), which contains the lexical prefix \( v \) ‘in’. In connection with this example, I will show how the various effects of prefixation are derived.

(52) Artur    \( v \)-nêš    čemodan    \( v \) komnat-u.
    Artur.NOM in-carried suitcase.ACC in room-ACC
    ‘Artur carried the suitcase in the room.’

Let us begin with the syntactic derivation; it proceeds as shown below in (53).

2.8.1 Verbal prefixes in the syntactic derivation

First, the preposition \( v \) ‘in’ merges with the ground argument \( komnatu \) ‘room’. I follow Biskup (2007, 2009a), who treats prepositional cases as an unvalued Tense-feature on the determiner head of the prepositional complement. Biskup extends Pesetsky & Torrego’s (2004, 2006) approach to structural cases and proposes that prepositions bear unvalued \( \phi \)-features and a valued Tense-feature. Determiner phrases have the opposite type of features; they have valued \( \phi \)-features because of their inherent properties and in addition, the unvalued Tense-feature.

This means that all cases are treated uniformly as a result of the operation Agree between \( \phi \)-features and Tense-features of the probe and the goal. In this respect, I depart from the traditional approach, which assumes that the prepositional case assignment differs from the structural case assignment and claims that prepositional cases are of semantic nature and that they are assigned in connection with \( \theta \)-roles. Note that structural cases also bring about semantic effects, as shown by the alternation between accusative and partitive genitive, discussed in section 2.4, and by the difference between the perfective and imperfective structural accusative in section 2.6. As to the problematic connection between prepositional cases and \( \theta \)-roles, consider for instance Chomsky’s proposal (2008) that the verbal head \( V \) inherits \( \phi \)-features of the little verbal head \( v \) and assigns structural accusative to its object. Since the head \( V \) usually also assigns a \( \theta \)-role to its object, in this case structural accusative is also licensed in connection with a \( \theta \)-role.
Continuing with the derivation of sentence (52), the unvalued $\phi$-features of the preposition $\nu$ are valued by the valued $\phi$-features of the noun *komnatu* ‘room’ and the unvalued Tense-feature of *komnatu* is valued by the valued Tense-feature of the preposition. This results in accusative case on the noun *komnatu* (in chapter 6, I will present a more elaborated analysis of prepositional cases, showing that they reflect semantic properties of heads of the complex prepositional structure). Although there is no visible agreement morphology on prepositions in Slavic languages, there are languages with overt prepositional agreement (see Asbury, Gehrke & Hegedűs 2007, Baker 2008, Brennan 2008, Hagège 2010) and with tensed prepositions (Hamel 1993, Bowern & Aygen-Tosun 2000, Harlow 2007). Agreement morphology on prepositions can be found, for instance, in Abaza, Abkhaz, Arabic, Finnish, Hungarian, Irish, Iwaidjan languages, Jacaltec, Tsakhur, Welsh and tensed prepositions can be found in Oceanic languages like Maori, Titan and Loniu (according to Baker 2008, 194, there are 108 languages that have some form of agreement on prepositions).14

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14 Between 20 and 30 of them show prepositional agreement only with pronouns, hence it has been proposed for some of them that the agreement marker is a pronoun cliticised to the preposition (see the discussion in Baker 2008, 194).
As an illustration of prepositional (adpositional) agreement, consider the Kiribati example in (54), taken from Hagège (2010, 139; originally Groves, Groves & Jacobs 1985, 65), and example (55), taken from Asbury, Gehrke & Hegedűs (2007, 7), which shows that in Hungarian postpositions can agree with the pronoun.

(54) nako-ia mooa  
to-3PL chickens  
‘to the chickens’

(55) a. (én) benn-em  
(1) INESS-1SG  
‘in me’

b. (én) mögött-em  
(1) behind-1SG  
‘behind me’

As to tensed prepositions, consider the following example from Bowern & Aygen-Tosun (2000, 39; with the original glosses), which shows that Titan manifests non-future tense concord on prepositions (see chapter 6.3.2 for some other examples of the discussed phenomena).

(56) a. i=tawi buangan i-ti Manus.  
3SG.NFUT=place yams NFUT-on Manus.  
‘He put yams on the island of Manus.’

b. Matamorai i=tawi Nauna pe ala lau i-ti wei.  
sun 3SG.NFUT=CREATE Nauna.Island and 3PL people NFUT-in INAN.3SG  
‘The sun created Nauna Island and the people on it.’

In the next step of our derivation in (53), P’ merges with the figure argument čemodan ‘suitcase’. Since čemodan is marked with structural accusative, it is obvious that its unvalued Tense-feature is not valued by the Tense-feature of the prepositional head P. I assume that case assignment (valuation of the Tense-feature of a determiner phrase) is dependent on φ-features Agree, which is in accord with the standard point of view that agreement and case are two sides of the same coin (e.g. Chomsky 2001). Specifically, since φ-features of the prepositional head P are already valued when the figure argument merges, it cannot agree with P in φ-features, which has the consequence that the unvalued Tense-feature of čemodan
cannot be valued by the Tense-feature of the head P. Therefore, čemodan must receive case somewhere higher in the derivation.

The prepositional phrase PP merges with the head p (see e.g. Van Riemsdijk 1990, Svenonius 2007) and the prepositional head v ‘in’ incorporates into it, analogously to the verbal V-to-v movement. Given that verbs generally can merge with a prepositional phrase whose head does not incorporate, I assume that there are two types of the head p, the prepositional p, which does not incorporate into the verbal root and does not have the CAUSE operator in its meaning, and the prefixal p, which incorporates into the root (because of a certain greedy feature) and has the telicising function. In our example the head p is of the prefixal type and the complex head p incorporates into the root, in accordance with the argumentation about prepositional incorporation in section 2.7. The head adjunction happens to the left, which derives the correct order of morphemes v-nēs ‘in-carried’.

In contrast to approaches like that of Svenonius (2003), Romanova (2006), Biskup & Putnam (2012), I do not place the figure argument in the specifier of p. As will be shown in the next section, the head p has a different meaning in my approach; it works as glue between the verbal event and the state expressed by the prepositional phrase and in the case of prefixed verbs, it relates these two parts by means of the CAUSE relation. Moreover, having the external argument in the specifier of p would not fit in the proposal about defectivity of prepositional phrases in chapter 3.

The presence of the prepositional phrase pP in the complement position of the root – in fact, the presence of the prepositional arguments – can bring about the argument structure augmentation, as discussed in sections 2.5 and 2.7. In the case of our sentence in (52), repeated as (57a), there is no effect visible because the unprefixed verb nēs ‘carried’ can also merge with the prepositional phrase, as shown in (57b). The difference between the two sentences is that in (57a) the preposition v incorporates into the verb; hence the result state is reached in contrast to (57b), which has the ongoing interpretation.

(57) a. Artur v-nēs čemodan v komnat-u.
    Artur.NOM in-carried suitcase.ACC in room-ACC
    ‘Artur carried the suitcase in the room.’

b. Artur nēs čemodan v komnat-u.
    Artur.NOM carried suitcase.ACC in room-ACC
    ‘Artur was carrying the suitcase in the room.’
The root phrase is selected by the verbal head \( v \), which has agentive properties and is phonologically empty in \( vněs \), and the complex head \( \sqrt{\cdot} \) incorporates into it. The determiner phrase \( Artur \) is merged in the specifier position of \( vP \), with the consequence that it is interpreted as the agent of the verb.

I make the standard assumption that CPs and \( vP \)s are phases, hence the figure argument \( ěmodan \), located in the phase complement, must move to the edge of \( vP \) to escape the consequences of the strict Phase Impenetrability Condition (Chomsky 2000). Recall that \( ěmodan \) still does not have case, which will lead to a derivational crash if \( ěmodan \) stays in the prepositional phrase. Thus, \( ěmodan \) moves to the outer specifier of \( vP \) because of an Edge-feature, observing the Extension Condition, as demonstrated in the tree in (53).

Since prefixation brings about perfectivity, as discussed in section 2.3, there must be a relation between verbal prefixes and the aspectual head. Recall that prefixes, that is, incorporated prepositions bear a valued Tense-feature. The aspectual head is usually taken to express a relation between the event time and the reference time (e.g. Klein 1994, Paslawska & von Stechow 2003). From this, one concludes that the relation between prefixes and the aspectual head can be based on the Tense-feature. This is the second function of the prepositional Tense-feature.

I assume that the aspectual head bears an unvalued Tense-feature and when it merges with the verbal phrase, its unvalued Tense-feature is valued by the valued Tense-feature of the preposition incorporated into the verbal head \( v \). According to Biskup (2009a), the Tense-feature on prepositions has the value \([\text{bounded}]\). However, as shown by Zwarts (2005), not every preposition is bounded; therefore, I take the value of the prepositional Tense-feature to be \([\text{perfective}]\) (in chapter 6 we will see that the prepositional Tense-feature has more values, which determine the assigned case).\(^{15}\) Given this \([\text{perfective}]\) value, the aspectual head of prefixed verbs like that one in (57a) is valued as perfective and receives the perfective aspectual interpretation. Since there is not a secondary imperfective suffix on the verb in (57a), the aspectual head is phonologically empty.

The perfectivising effect of movement of a prepositional element is not restricted to Slavic, as shown by the following Hungarian example, taken from Csirmaz (2006, 123). Analogously to Slavic prefixes, Hungarian particles have perfectivising and telicising effects. As to (im)perfectivity, when the particle moves to the preverbal position, as in (58a), the

\(^{15}\) The telic property of prepositions is not based on the \([\text{perfective}]\) value but rather on lexico-semantic properties of prepositions.
The predicate is perfective, whereas when it stays behind the verb, as in (58b), the event description is imperfective, having the ongoing interpretation.

(58) a. János le ment a lépcsön
János.NOM down went the stair.on
‘János went down the stairs.’
b. János ment le a lépcsön
János.NOM went down the stair.on
‘János was going down the stairs.’

The connection between prepositions and perfectivity is also known from aspect-split languages like Hindi, in which ergative – which can be treated as a preposition that, depending on the language, either incorporates or does not incorporate into a verbal element; see Mahajan (1997) – is restricted to the perfective aspect.

Germanic prepositional elements are known for their telicising function but they can affect the viewpoint aspect, as well. As discussed by Blake (2001, 180), the Old/Middle English preposition a occurring on the verb marks an ongoing activity; see (59).

(59) The times, they are a-changing.

In this case, the preposition marks the imperfective (progressive) aspect, in contrast to Slavic and similarly to other Germanic languages, like German and Dutch, which use certain prepositions for marking progressivity, as illustrated by the following German examples.

(60) Ich bin (gerade) beim / am Lesen.
I am just.now at.DEF on.DEF read
‘I am reading (just now).’

Concerning our derivation, in cases where the preposition does not incorporate into the verb, staying in the phase complement of the head $v$, as in (57b), its Tense-feature is not accessible for the aspectual head because of the Phase Impenetrability Condition. In this case, the aspectual head receives the imperfective interpretation. Since simplex verbs are imperfective in Slavic, I assume that verbal roots bear a Tense-feature with the value [imperfective] (with the exception of a few perfective simplex verbs, see e.g. Isačenko 1962, 352-353 for Russian,
that have the value [perfective]), which values the Tense-feature of the aspectual head in the case of unprefixed verbs. Given that [imperfective] is the default value in Slavic, when the aspectual head merges with vP containing a complex verbal head with an incorporated preposition with the [perfective] value, the Tense-feature of the aspectual head receives the marked value [perfective], as already discussed above.\(^{16}\) Having derived the perfectivising effect of prefixation, let us move to the relation between prefixation and case.

The aspectual head also has unvalued \(\phi\)-features, which are responsible – together with the Tense-feature – for assigning objective case. Given that cases are an unvalued Tense-feature and that the aspectual head expresses a relation between times, it is natural that it is the aspectual head that assigns objective case. In section 2.4 we saw that there is a relation between the form of objective case and aspectual properties of the verb; for instance, the Russian, Polish and Czech partitive genitive is restricted to the perfective aspect. Furthermore, in Russian and Polish, verbs with prefixes like the cumulative na- ‘on’ mark the direct object with genitive. Since we already know that there is a relation between prefixes and the aspectual head, this suggests that the aspectual head mediates between the prefix and the form of objective case.

Recall also the accusative-partitive alternation in Finnish, with respect to which Kiparsky (1998) draws a parallelism between perfectivity versus imperfectivity in Russian and accusative case versus partitive case in Finnish. We also saw in section 2.4 that in Kala Lagaw Ya, aspectual markers on verbs are related to case markers in the nominal domain. It is probably no chance that the completive aspectual marker on the verb is homophonous with accusative case, as shown in example (24), repeated below as (61).

\[(61) \text{Nuy-dh n-an \ im-an.} \]\n\[
\begin{array}{ll}
\text{he-ERG} & \text{she-ACC} \\
\text{see/discover-COMP}
\end{array}
\]
\[\text{‘He spotted her.’}\]

Going back to our derivation in (53), \(\phi\)-features on the aspectual head probe and find the figure \(\text{\d{c}emodan}\), which is closer to them than the agent Artur, occurring in the inner specifier of vP. Consequently, \(\phi\)-features of the aspectual head are valued by the valued \(\phi\)-features of \(\text{\d{c}emodan}\) and the unvalued Tense-feature on \(\text{\d{c}emodan}\) is valued by the valued Tense-feature of the aspectual head. This results in the perfective structural accusative on \(\text{\d{c}emodan}\).

\(^{16}\) The aspectual head cannot receive the default, i.e. imperfective, interpretation at the interface because the Tense-feature is relevant for assigning the imperfective structural accusative, as discussed below.
The $\varphi$-features probing of the aspectual head should happen after the valuation of its Tense-feature by the complex verbal head with the incorporated preposition. If heads project their features to the phrase and dominance is relevant to locality, then the valued Tense-feature on $vP$ is closer to the aspectual head than the valued $\varphi$-features on the specifier $\check{\text{cemodan}}$. The question is whether or not the valuation of the unvalued Tense-feature on $\check{\text{cemodan}}$ must happen immediately after the $\varphi$-features of the aspectual head are valued by $\check{\text{cemodan}}$ (or simultaneously with this valuation). If not, then the $\varphi$-features probing of the aspectual head could also take place before the valuation of its Tense-feature, with the following order of operations: valuation of $\varphi$-features of the aspectual head by $\check{\text{cemodan}}$, valuation of the Tense-feature of the aspectual head by the Tense-feature of the complex verbal head, and valuation of the Tense-feature of $\check{\text{cemodan}}$ by the aspectual head.

How does case assignment work with case alternations, for instance, in the case of the cumulative prefix $na$- ‘on’ or the delimitative prefix $po$- ‘on’, where the perfective aspectual head assigns partitive genitive, as discussed in section 2.4? If the partitive marker is specified as [perfective], then, given the Subset Principle, it can only be inserted into a feature context that contains such a value. Since prefixes value the Tense-feature of the aspectual head as [perfective] in contrast to unprefixed verbs and the aspectual head in turn values the Tense-feature of the appropriate argument as [perfective], we correctly derive the fact that partitive can only occur on objects of perfective (prefixed) verbs.

Case alternations are also found in cases where a prepositional phrase whose head $P$ assigns case to its complement alternates in the complement position with a prepositional phrase whose $P$ cannot assign case, as with the pair $\text{otro\v{c}it}$ ‘be slave’ - $\text{zotro\v{c}it}$ ‘enslave’, discussed in section 2.4. In the case of $\text{zotro\v{c}it}$, the prepositional head $P$ does not assign case because it is defective in certain respects (the topic of defectivity will be discussed in more detail in chapter 3.3.3) and the appropriate argument receives structural accusative from the aspectual head, whereas in the case of $\text{otro\v{c}it}$, the covert $P$ assigns dative in the way discussed above in this section. Such a covert preposition is typical for verbs that Richardson (2007, chap. 3) calls atelic two-place predicates assigning lexical case.

The fact that intransitive and passive verbs do not assign objective case is derived by selectional properties of the aspectual head. Since the aspectual head selects the verbal phrase projected by the complex verbal head $v$, the necessary information about the verbal argument structure is visible for it. Since every verb is either perfective or imperfective, every aspectual head has an unvalued Tense-feature. Further, since case assignment – the valuation of the Tense-feature on an argument – depends on $\varphi$-features Agree, the aspectual head that does not
assign objective case does not bear $\Phi$-features. Taken together, the aspectual head having only
the unvalued Tense-feature can only merge with intransitive or passive $v$Ps. Having shown
how case assignment by the aspectual head works, let us now turn to definiteness effects.

Recall from section 2.6 that structural accusative assigned by a perfective verb differs
from the structural accusative assigned by an imperfective verb with respect to the possibility
of extraction and with respect to the identity reading in Across-the-Board constructions, and
that in Bulgarian the presence of a prefix on the verb brings about the presence of the definite
suffix on the object.

Beginning with the Bulgarian definite suffix, it can be treated as a spell-out of the
perfective value of the Tense-feature of the object, which was valued by the perfective Tense-
feature of the aspectual head. This means that with respect to PF, the definite suffix behaves
like the partitive-case marker discussed above, however, with respect to the meaning, the
suffix (the perfective Tense-feature) brings about a quantised interpretation of the plural or
mass-noun object. Thus, the closest relative of the Bulgarian definite suffix is the Sakha case
marker, which also brings about the quantised interpretation of the mass-noun object and
which also works as a privative marker.

With respect to Across-the-Board constructions, we saw that the prefixed verb in the
second conjunct – in contrast to the unprefixed verb – strongly prefers the identity reading of
the moved object; consider (62), repeated from (39).

(62) a. Jakou knižku Jana dokončila a Jirka recenzoval?
     what book.ACC Jana.NOM finished and Jirka.NOM reviewed
     ‘What book did Jana finish and Jirka reviewed?’

     b. Jakou knižku Jana dokončila a Jirka z-recenzoval?
     what book.ACC Jana.NOM finished and Jirka from-reviewed
     ‘What book Marie finished and Jirka reviewed?’

If the analysis of Across-the-Board constructions by Biskup (2016a, to appear) is correct and
there are, in fact, two $wh$-movement chains in cases like (62), and the perfective type of
structural accusative brings about definiteness, then we can account for the contrast in (62) in
the following way. Since definiteness is also used for referring to backgrounded (known)
entities and the book from the first conjunct is introduced into the common ground before the
book from the second conjunct is interpreted, the book from the second conjunct wants to
refer to the same referent as the book in the first conjunct.
As to the question why the perfective structural accusative on the direct object of a prefixed verb blocks extraction in contrast to the imperfective structural accusative on the object of an unprefixed verb, Biskup & Zybatow (2015) propose an analysis based on Chomsky’s (1964) A-over-A principle applied to bounded Tense-features (in present terms, Tense-features with the value [perfective]). In (63a), repeated from (36a), the prepositional phrase o čem ‘about what’, which bears the perfective Tense-feature, is extracted from the more inclusive category článek ‘paper’, whose Tense-feature has the value [imperfective] because it was valued by the imperfective aspectual head. Therefore, the A-over-A principle is not violated and the extraction is licit.

(63) a. [O čem]₁ Jan psal [článek t₁]?
about what Jan.NOM wrote article.ACC
‘About what was Jan writing a/the article?’

b. * [O čem]₁ Jan pře-/do-psal [článek t₁]?
about what Jan.NOM over-/to-wrote article.ACC

In contrast, in example (63b), the prepositional phrase with the perfective Tense-feature is extracted from the object with the perfective Tense-feature, which was valued by the perfective aspectual head. This violates the A-over-A principle.

The fact that prepositional phrases are islands for extraction, as demonstrated in example (64), repeated from (44), can be analysed in a parallel fashion.

(64) a. Popugaj v-letel v komnat-u.
parrot.NOM in-flew in room-ACC
‘The parrot flew into the room.’

b. * Čto₁ popugaj v-letel vo t₁?
what parrot.NOM in-flew in

c. Popugaj v-letel v komnat-u so stolom.
parrot.NOM in-flew in room-ACC with table
‘The parrot flew into the room with the table.’

d. * [S čem]₁ popugaj v-letel v komnat-u t₁?
with what parrot.NOM in-flew in room-ACC
The Tense-feature of the prepositional complement komnatučto is valued by the perfective Tense-feature of the preposition v(o). For this reason, extraction of the complement from the dominating category with the perfective Tense-feature violates the A-over-A principle. The same also holds for extraction of the prepositional subconstituent from a prepositional phrase, as demonstrated in (64d) (in chapters 3 and 4, I will argue that defective prepositional phrases, whose prepositions do not assign case, i.e., do not value the Tense-feature of their complement, do not block extraction). For this analysis to work properly, however, one assumption is necessary. One needs to assume that projections in the clausal spine do not participate in blocking for some reason; otherwise we would expect that for instance the aspectual projection with the perfective Tense-feature blocks topicalisation movement of an embedded prepositional phrase. To conclude this discussion, Tense-features can be used not only for the uniform analysis of cases and deriving perfectivity but also for deriving various definiteness effects.\(^{17}\)

In the next step of our derivation, the aspectual phrase merges with the tense head and the complex aspectual head adjoins to it. The masculine form of the tense head is null (vněš) in contrast to the singular feminine vnesla, the singular neuter vneslo and the plural vnesli, all with the meaning ‘carried sth. in sth.’. The tense head has unvalued \(\varphi\)-features and the valued Tense-feature. The \(\varphi\)-features of the tense head probe and agree with \(\varphi\)-features of Artur and the valued Tense-feature of the tense head values the unvalued Tense-feature on Artur, which results in nominative. As to the question why the \(\varphi\)-features of the tense head are not valued by the aspectual phrase or by the object DP, I assume that the tense head must discharge its case, that is, that its Tense-feature must also participate in an Agree operation. This is not possible with the aspectual head or the object because they already have their Tense-feature valued.\(^{18}\)

To derive the word order of our sentence in (57a), the subject must move. This can be achieved in two ways. Either \(\varphi\)-features of the tense head are of EPP nature or the subject is displaced by topicalisation movement to the tense phrase or to the complementiser phrase. Given that subjects in Russian can also stay in situ, the second option is the preferred one.

\(^{17}\) The relation between prepositions and definiteness is well-attested; e.g. in Hebrew only definite direct objects are marked with the prepositional element et (Danon 2006).

\(^{18}\) Note also that if the tense head agreed with the aspectual phrase or the object, the Tense-feature of the subject would remain unvalued, which would lead to a derivational crash. Since I do not assume the Activation Condition (recall that the incorporated preposition with its valued features values the Tense-feature of the aspectual head), the condition cannot be used to block Agree between the probing tense head and the aspectual phrase or the object.
Finally, the tense phrase merges with the complementiser. Since it is of the declarative type, it has no overt syntactic effects on the derivation. The sentence shows two copies of the preposition *v* ‘in’. The upper copy is spelled out as the prefix in the complex tense head *vněs* and the lowest copy is spelled out as the preposition *v*, merged with the ground argument *komnatu* ‘room’. As discussed in section 2.7, the upper copy is necessary because of the morphological aspect and the lowest copy because of the semantics of the preposition and the assigned case.

### 2.8.2 Verbal prefixes in the semantic derivation

In this section, I present the semantic derivation of the sentence in (57a). It proceeds as shown in (65).\(^{19}\) The determiner phrase *komnatu* ‘room’ is a definite expression of the type <*e*> derived by the iota operator applied to the predicate noun phrase. The preposition has the usual spatial meaning and localises the external argument *x* with respect to the internal argument *y*. I assume that the preposition also introduces the state argument; this is important for deriving the telicity effect of prefixation and also for the derivation of stative adjectival participles, as we shall see in chapter 4. By means of functional application, we receive the meaning that the ground argument *x* is in the state of being in the room. This meaning applies to the definite expression *čemodan* ‘suitcase’ with the result that the suitcase is in the state of being in the room.

In the next step, the meaning of PP combines with the meaning of the little prepositional head *p*, which makes a prefix from the preposition. The first conjunct in the meaning of *p* stands for the meaning of the prepositional phrase PP, that is, for the result state brought about by prefixation. In this way, we derive the prepositional nature of prefixes. The second conjunct introduces an event with properties of the root. In other words, the head *p* conjoins the prepositional phrase with the verbal part of the prefixed verb. The third conjunct stands for the telic property of prefixes; recall from section 2.3 that prefixes bring about the causative relation between the result state and the other subevent. I assume that the variable *e* ranges over dynamic as well as stative eventualities; hence the meaning of *p* can express a change from a state to another state as well as a change from a process to a state.\(^{19}\)

\(^{19}\) For ease of exposition, I omit the world variable.
Although there are also prefixes with other meaning, the proposed meaning covers most prefixes; hence I will concentrate on this meaning in what follows. As discussed in the next chapter, this meaning is present in both compositional and non-compositional prefixed verbs. The difference between these two types of verbs is that with non-compositional prefixed verbs a meaning shift happens or a listed meaning is inserted into the verbal root.

20 There are e.g. verbs prefixed with u- ‘at’ in Czech, which express an ability of the subject to carry out the action described by the predicate, like *unést* ‘be able to carry’ and *uřídit* ‘be able to drive’. These verbs do not have any inherent boundary or a change into a state.
To anticipate somewhat, for the little prepositional head of the complement prepositional phrases whose preposition does not incorporate into the verb, I propose meaning (66) in chapter 6.3.3.

\[(66) \lambda P \lambda Q \lambda s \lambda e [P(s) & Q(e)]\]

This is the meaning of the little prepositional head shown above, just without the CaSE operator because when the preposition does not incorporate into the verb, it does not induce telicity, as we saw in section 2.3.

Unprefixed transitive verbs I analyse in the way that the theme object is introduced by a covert head with meaning (67); see for instance Borer (2005) for severing the internal argument from its verb.

\[(67) \lambda x \lambda e [\text{THEME}(e)(x)]\]

For the sake of consistency, I assume that the head is a prepositional head $P$. This prepositional head is defective in the sense of the classification proposed in chapter 3; it is covert, it does not assign case, its complement (theme) moves and receives structural accusative from the aspectual head. In this analysis, all ‘verbal’ arguments other than the agent (merged in the specifier of $vP$) are in fact arguments of a preposition, which allows a uniform treatment of selectional properties of $n$-/t-participles, which can only be derived from transitive verbs, as we will see in chapter 4. The head $p$ of the prepositional phrase introducing theme has the meaning shown in (68), without the CaSE operator and the state variable because it shall derive unprefixed, that is, atelic, predicates without any visible prepositional phrase. This head $p$ only glues the theme argument with the verbal root.

\[(68) \lambda P \lambda Q \lambda e [P(e) & Q(e)]\]

As to the difference between transitive and intransitive verbs, transitives always have the $pP$ complement, whereas intransitives do not have to, specifically, when the single argument is agent and merges directly in the specifier of $vP$. Such predicates are often unprefixed given that prefixes usually augment argument structure of the base verb.

As far as superlexical prefixes are concerned, I follow Biskup (2012, 2016b), who argues that at least some superlexical prefixes can be analysed in the same way as lexical
prefixes; recall also from the preceding sections that superlexical prefixes, too, perfectivise, telicise and bring about definiteness effects, that they also affect case properties of the base predicate and its argument structure. This means in the current approach that superlexical prefixes can also merge in the complement position of the root, project a prepositional phrase with the causal head $p$ there and then incorporate into the verb, as discussed with respect to the derivation of the lexically prefixed verb in (65). For instance, concerning the cumulative $na$- ‘on’ and the distributive $po$- ‘on’, discussed in section 2.5, the difference between these prefixes and lexical prefixes is that the superlexical prefixes have an uninterpretable feature that licenses the presence of a corresponding head with the interpretable feature and with the cumulative or distributive meaning in the clausal structure. In other words, the superlexical meaning can be dissociated from the base position of the prefix (preposition).

The particular argument structure effects and selectional properties imposed on the prepositional external argument by these prefixes can also be analysed by means of the optional Cumulative-feature or Distributive-feature. Specifically, the appropriate feature places additional selectional properties on the preposition so that, for instance, the cumulative $na$ ‘on’ requires its external argument to be a plural expression or a mass noun. Thus, the preposition brings about plurality or the mass property of the argument and the cumulative head then brings about the ‘a lot’ meaning; see for instance Ramchand (2004) for a presence of a cumulative phrase above the aspectual projection in Slavic.21

Besides this possibility and the option with the high Merger of the superlexical prefix (which I will use for the completive $do$- ‘to’ in chapter 4.5.2), one also has the option to analyse the adverbial meaning of superlexical prefixes like the cumulative $na$- as present directly in the preposition. For instance, Filip (2000, 2005) proposes to derive the cumulative meaning of the prefix $na$- by means of a vague measure function, which combines with the appropriate nominal argument.

Let us now return to the derivation in (65).22 Functional application replaces the predicate variable $P$ in $p$ with the meaning of the prepositional phrase $PP$, which brings about the identical lexicosemantic properties of prepositions and verbal prefixes, as discussed in the end of section 2.7. Then the meaning of $pP$ applies to the root $nës$, which results in the meaning that the suitcase is in the state of being in the room and this state is caused by the event of carrying. The root phrase combines with the verbal head $v$, which adds the agentive

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21 One might ask whether the Cumulative-feature on the preposition is necessary for the semantic effect. Strictly speaking, it is not but if $na$ did not have this feature and did not select a plural noun or a mass noun, the derivation could crash – and the derivational effort would be lost – because the cumulative head could also merge with a structure containing $na$ that takes a singular argument.

22 Non-compositional prefixed verbs will be discussed in the next chapter.
component to the meaning of the root phrase. The next functional application brings the result that the referent of Artur is the agent of the carrying event.

The meaning of the verbal phrase vP combines with the perfective meaning of the aspectual head because the Tense-feature of the aspectual head was valued as [perfective] by the Tense-feature of the incorporated preposition. As far as temporal entities are concerned, I use the standard three times, the event time, the reference time and the speech time, following Reichenbach (1947), Panevová, Benešová & Sgall (1971), Klein (1994, 1995), Demirdache & Uribe-Etxebarria (1997, 2000), Giorgi & Pianesi (1997), among others. The aspectual head relates the event time to the reference time and the tense head relates the reference time to the speech time. While in the case of the imperfective aspectual head the reference time is included in the event time, the perfective aspectual head is usually treated as an operator that localises the event time within the reference time; see for instance Klein (1994), Paslawska & von Stechow (2003). The reference time is represented by the variable \( t \) and the event time is obtained by means of the temporal trace function \( \tau \), which maps the event \( e \) to its running time. The meaning of the aspectual head is slightly modified in (65); I add the existentially bound state variable and the trace function mapping the state \( s \) to its time. This is necessary because of the state variable introduced by the prepositional phrase. As to the temporal relation between the two verbal subevents, the time of the event \( e \) abuts the time of the state \( s \).

The tense head has the standard past-tense semantics in our example; it existentially binds the reference time variable \( t \) and relates it to the speech time \( t^* \) by means of the ‘before’ relation. Applying the meaning of the tense head to the aspectual head, we receive the meaning that the suitcase is in the state of being in the room and this state is caused by the event of carrying, whose agent is Artur. The time of the event abuts the time of the state and is temporally included in the reference time (the time of the state cannot be included in the reference time because certain states can hold forever). The reference time in turn precedes the speech time.

In the final step, the meaning of the tense phrase combines with the complementiser head. Since the sentence under discussion has the declarative sentence mood, I assume that the complementiser head is represented by the declarative operator (see e.g. Zimmermann 2009).

2.9 Conclusion

In this chapter, I have argued that lexical prefixes and at least some superlexical prefixes are incorporated prepositions that project a prepositional phrase with the figure argument and the
ground argument in the complement position of the verbal root. It is the syntactic and semantic properties of the prepositional phrase whose head incorporates into the verb that are responsible for the various prefixation effects.

As to the telicising effect of prefixation, I have proposed that prepositions introduce a state – with the exception of the prepositional phrase introducing the theme argument of unprefixed verbs – and the verbal root another eventuality and that the prepositional head $p$ of the prefixal type contains the CAUSE operator, which relates these two subevents. As to the perfectivising function of prefixation, the prepositional head $P$ has a Tense-feature with the value [perfective], which values the unvalued Tense-feature of the aspectual head. This results in the interpretation that the event time is included in the reference time.

We have also seen that the Tense-feature plays an important role in case assignment; all cases have been treated as a result of the operation Agree between $\varphi$-features and Tense-features and certain case alternations are based on the difference between the perfective and the imperfective Tense-feature of the verbal object. Specifically, I have proposed that partitive genitive on the verbal object is a spell-out of the perfective Tense-feature assigned by the aspectual head.

The perfective Tense-feature on the verbal object (and in certain cases also on other elements) is responsible for various definiteness effects; in the syntactic component, it blocks extraction of an element with the identical Tense-feature; at LF it triggers the quantised interpretation and at PF it can be realised as a definite marker, as in Bulgarian.

Since most of the verbal prefixes are prepositions that project a phrase with two individual arguments in the complement position of the base verb, they bring about changes in the argument structure of the verb. Therefore, they can, for instance, add an unselected argument to unergative verbs.
Chapter 3

Prefixed verbs and compositionality

3.1 Introduction

This chapter investigates prefixed verbs with respect to their (non-)compositional properties. The difference between lexically and superlexically prefixed verbs has been extensively discussed in the literature (Isačenko 1962; Petr 1986a; Babko-Malaya 1999; Ramchand 2004; Romanova 2004, 2006; Svenonius 2004; Di Sciullo & Slabakova 2005; Arsenijević 2006; Biskup 2007, 2012; Szucsich 2007, 2014; Gehrke 2008; Tatevosov 2008; Lehmann 2009; Žaucer 2009, 2012; Markova 2011; Wiland 2012; Biskup & Zybatow 2015) but the difference between compositional and non-compositional prefixed verbs has so far received very little attention.

Using a paraphrase test, this chapter classifies prefixed verbs into four categories. In the course of this, it is shown that non-compositional prefixed verbs do not form a unified class. This chapter provides a syntactic and semantic analysis of their particular classes and argues that also prefixed verbs with an idiomatic meaning can receive a compositional analysis. Non-compositional prefixed verbs are incrementally derived but the meaning of their parts can be updated under appropriate circumstances.

As we already know from chapter 2, lexical prefixes have a spatial or idiosyncratic meaning, whereas superlexical prefixes have an adverbial meaning (Babko-Malaya 1999, Ramchand 2004, Svenonius 2004, Richardson 2007). It has also been argued that lexically prefixed verbs can have both a compositional and non-compositional meaning, whereas superlexically prefixed verbs can only have a compositional meaning (e.g. Romanova 2006, Gehrke 2008). As an illustration, consider examples of compositional lexically prefixed verbs in (1). It is obvious, for instance, that the meaning of \textit{vnesti} is composed of the meaning of \textit{nesti} and \textit{v-}, that the meaning of \textit{vpisat’} is composed of the meaning of \textit{pisat’} and \textit{v-} and that the meaning of \textit{oderwać} is composed of the meaning of \textit{rwać} and \textit{od-}.\footnote{Some verbs can have more meanings. In the translations I use only the meaning(s) relevant to our discussion.}
As to compositional superlexically prefixed verbs, consider the following examples. The meaning of *peregret* is composed of the meanings of its parts, that is, of the meaning of *gret* and the excessive meaning of *pere-*; the meaning of *naplakat’sja* is composed of the meaning of *plakat*’ and the cumulative/saturative meaning of *na-*; the meaning of *przepisać* is composed of the meaning of *pisać* and the iterative meaning of *prze-* etc.²

(2) a.  pere-gret’ (R)  b. na-plakat’sja (R)  c. prze-pisać (P)
    overheat  on-cry(self)  over-write
    ‘overheat’  ‘cry a lot’  ‘rewrite’
    d. za-paliti (OCS)  e. do-pracovat’ (SK)  f. po-lyžovat si (CZ)
    behind-burn  to-work  on-ski self
    ‘set sth. on fire’  ‘stop working’  ‘ski a little’

Non-compositional lexically prefixed verbs are shown in example (3). For instance, Tatevosov (2008) and Młynarczyk (2004) argue that the Russian *podpisat’* ‘sign’ and the Polish *podpisać* ‘sign’, respectively, are non-compositional and Kratzer (2000) proposes the same for the German *aufpumpen* ‘pump’.

(3) a. pod-pisat’ (R)  b. na-pompować (P)  c. za-vid’a (BG)
    under-write  on-pump  behind-I.see
    ‘sign’  ‘pump’  ‘I envy’
    d. od-dělat (CZ)  e. u-žíť (SK)  f. na-być (P)
    away-do  at-live  on-be
    ‘take away’  ‘take’  ‘buy, acquire’

² To see that the prefixes behave consistently, compare e.g. (2a) with the Russian *pereplati’t* ‘overpay’; (2b) with the Russian *nabegat’sja*, Slovenian *nalaufati se* and the Czech *naběhat se*, all meaning ‘come to have one’s fill of running’, from example (3) in chapter 2; (2c) with the Polish *przerobić* ‘rework’; and (2d) with the Russian *zabolet* ‘become ill’ and *zabegat* ‘start running’, from example (1) in chapter 2.
A closer look reveals that there are differences between the prefixed verbs in (3). For instance, the verbs *podpisać* ‘sign’ (and its Polish and Slovak counterparts *podpisať*, *podpísat‘*), *napompować* ‘pump’ (and the Czech *napumpovat*) and *zapít* ‘celebrate sth. by drinking, drown one’s sorrows’ seem to be more transparent than *nabyć* ‘buy, acquire’ and *užít* ‘take’. *Podpisać* (and *podpisać*, *podpísat‘*) also seems to be more transparent than the verb *zapít*. Furthermore, in *oddělat* ‘take away’, only the verb has an irregular meaning, whereas in *užít* both elements have an irregular meaning. This calls for a more detailed analysis of (non-)compositionality of prefixed verbs.

This chapter is organised as follows. The next section categorises compositional and non-compositional prefixed verbs by means of a paraphrase diagnostic. The core of my proposal is presented in sections 3.3-3.6, where the particular classes of prefixed verbs are syntactically and semantically analysed. Conclusions are drawn in section 3.7.

### 3.2 Four classes of prefixed verbs

Given the two elements – the verb and the prefix – and their regular/irregular meaning property, there are four possible combinations. The first possibility is represented by prefixed verbs composed of a prefix with a regular meaning and a verb with a regular meaning. This class contains compositional prefixed verbs. The other three classes contain non-compositional prefixed verbs. More concretely, the second class is represented by prefixed verbs with a prefix which has a regular meaning and a verb which has an irregular meaning. The third class contains verbs having a prefix with an irregular meaning and a verb with a regular meaning. The fourth class is represented by prefixed verbs in which both elements have an irregular meaning.

In what follows, I will diagnose the particular classes by paraphrases. According to Bergsma *et al.* (2010), prefix-verb compositionality is a semantic equivalence between a prefixed verb and a paraphrase involving the verb’s stem used as a verb. This relates to the first class in my categorisation. I modify and extend the proposal by Bergsma *et al.* to all four classes. With respect to prefixed verbs of class 1, I propose that a prefix and a verb have a regular meaning, that is, they produce a compositional meaning, if the prefixed verb can be
paraphrased with the unprefixed verb and the prefix/preposition. Since it is the unprefixed verb that is used, it is necessary to abstract away from perfectivity and telicity in the paraphrases.

Prefixes that do not have a prepositional counterpart, I will replace with the corresponding non-homophonous preposition in the paraphrase. Since in the case of superlexical prefixes it is not possible to use the prefix (preposition) itself in the paraphrase, it is allowed to use the meaning of the superlexical prefix instead. Since meanings of superlexical prefixes are mostly a certain abstraction of the meanings of their lexical counterparts and the meanings behave stably in various prefix-verb combinations (consider e.g. the superlexically prefixed \textit{peregret} ‘overheat’ and \textit{pereest} ‘overeat’ and the lexically prefixed \textit{perenesti} ‘carry sb./sth. over’ and also footnote 2), I take superlexical prefixes to have a regular meaning and to form compositional prefixed verbs, which is in accordance with the general praxis. Note also that in contrast to irregular meanings, superlexical meanings are often listed in dictionaries.

For instance, the Russian lexically prefixed verbs \textit{vnesti} ‘carry sth. in sth.’ and \textit{vpisat’} ‘write sth. in sth.’ belong to class 1 – have a compositional meaning – because they can be paraphrased with the unprefixed verb and the prefix, as demonstrated below.

\begin{equation}
\text{(4) a. } v\text{-nesti } \sim \text{ b. nesti vo (čto)}
\end{equation}
\text{in-carry} \quad \text{carry in something}
\text{‘carry sth. in sth.’}

\begin{equation}
\text{(5) a. } v\text{-pisat’ } \sim \text{ b. pisać vo (čto)}
\end{equation}
\text{in-write} \quad \text{write in something}
\text{‘write sth. in sth.’}

Concerning superlexical prefixes, consider examples (6) and (7), which show that the Polish prefixed verb \textit{przepisać} ‘rewrite’ and the Russian \textit{naplakat’} (sja) ‘cry a lot’ can be paraphrased with the unprefixed verb and the meaning of the prefix.

\begin{equation}
\text{(6) a. } \text{prze-pisać } \sim \text{ b. pisać znów/na nowo}
\end{equation}
\text{over-write} \quad \text{write again}
\text{‘rewrite’}
With regard to class 2, I assume that a prefix has a regular meaning and the verb an irregular meaning if only the prefix can be used in the paraphrase. The Russian example (8), with the lexical prefix s- ‘from’, shows that the verb žiť ‘live’ cannot be used in the paraphrase of sžiť ‘hound sb. out of sth., drive sb. to his death’. It is replaced with the verb sognat’.

Similarly, the Czech example in (9) shows that the verb dělat ‘do’ cannot be used in the paraphrase of the lexically prefixed verb oddělat ‘take sth. away from sth.’; it needs to be replaced with odstranit ‘remove’.

For a superlexical prefix, consider the Slovak prefixed verb prehnat’ ‘overdo’ in example (10), where the excessive pre- ‘over’ is paraphrased as nad určitú/únosnú mieru ‘more than a certain/acceptable rate’ and where hnat’ ‘drive’ must be replaced with the more general verb robit’ ‘do’.
As to prefixed verbs of class 3, the prefix has an irregular meaning and the verb a regular meaning if only the verb can be used in the paraphrase. Consider the following Czech examples, where in the paraphrase of *zapít* ‘celebrate sth. by drinking, drown one’s sorrows’ in (11), *za* ‘behind’ must be replaced with *na* ‘on’ and where in the paraphrase of *připít* (si) ‘toast sth./sb.’ in (12), *při* ‘at’, too, must be replaced with *na* ‘on’. This class does not contain verbs with a superlexical prefix since superlexical prefixes only have a regular meaning.

(11) a. za-pít ~ b. pít na (co)
behind-drink drink on something
‘celebrate sth. by drinking’ not: c. pít za (co/čím)
‘drown one’s sorrows’

(12) a. při-pít (si) ~ b. pít na (co)
at-drink self drink on something
‘toast sth./sb.’ not: c. pít při (čem)

In addition to this diagnostic, it is also necessary to control in this class whether the prefix with the appropriate meaning does not occur regularly in other verbs. It is possible that certain prepositional elements form compositional prefixed verbs but since they are restricted to certain contexts, they do not satisfy the discussed diagnostic (for more on this topic, see section 3.5).

Finally, as to class 4, both the verb and the prefix have an irregular meaning if there is no paraphrase that can use the prefix or the verb (or both). Some examples of such lexically prefixed verbs are shown in (13). Since superlexical prefixes always have a regular meaning in prefixed verbs, they do not occur in this class.

(13) a. u-govorit’ (R) b. na-być (P)
at-speak on-be
‘persuade’ ‘buy, acquire’
c. za-vid’a (BG) d. u-žít’ (SK)
behind-I.see at-live
‘I envy’ ‘take’
With respect to certain prefixed verbs, the proposed paraphrase test seems to be too restrictive because it classifies them as non-compositional although they can be paraphrased in a looser manner (cf. Sekaninová 1980, who substitutes prefixes with various adverbs and prepositional phrases in paraphrases of prefixed verbs). A disadvantage of more relaxed versions of the paraphrase test is that it is not clear where, and why exactly there, the boundary between licit and illicit paraphrases should be drawn. This problem does not arise in the paraphrase test proposed here because only meanings brought about by the prefix/preposition and the verb themselves are licit (with the exception of superlexical prefixes, as discussed above).

As already mentioned in the preceding chapter, according to some researchers, there are also pure perfectivising prefixes; see, for instance, Vinogradov (1947), Pauliny (1950), Kopečný (1962), Tichonov (1964), Skoumalová (1968), Švedova (1980), Grzegorczykowa, Laskowski & Wróbel (1984), Petr (1986a), Śmiech (1986), Babko-Malaya (1999) (but consider also Maslov 1958, Schooneveld 1959, Komárek 1984, Filip 1999, Endresen et al. 2012, who argue against empty prefixes). Since the issue of (non-)existence of empty prefixes is not immediately relevant to the questions addressed in this book, I will only add to the discussion that from the perspective of this chapter, with respect to the paraphrase test, pure perfectivising prefixes do not form a natural class. For instance, the Russian *napisať* ‘write’ and its Polish and Czech cognates *napisać/napsat* can be paraphrased as *pisać na/pisač na/psát na* ‘write on’ but the Russian *postroït* ‘build’ and the Czech *pochválit* ‘praise’ cannot be paraphrased as *stroït po* ‘build on’ and *chválit po* ‘praise on’ (or with other meaning of *po*), respectively.

3.3 Class 1: regular-meaning prefix and regular-meaning verb

3.3.1 Non-defective PP

Let us first look at prefixed verbs with the compositional meaning, concretely, at the lexically prefixed verb *nakleït* ‘stick’ in the Russian example (14). The paraphrase in (15) shows that the verb indeed belongs to class 1. Since we already saw a derivation of a compositional prefixed verb in the preceding chapter, I will here discuss only the relevant parts of the derivation. Prepositional phrases like the one in (14), I will call non-defective because both prepositional arguments can be syntactically present.

(14) Artur  na-kleil   marku na konvert.
    Artur  on-stuck  stamp on envelope
    ‘Artur stuck the stamp on the envelope.’
In the beginning of the derivation, the preposition na ‘on’ merges with the ground argument konvert ‘envelope’. Since I treat all cases as a result of the operation Agree between φ-features and Tense-features, the preposition has unvalued φ-features and a valued Tense-feature and the ground argument has the unvalued Tense-feature and valued φ-features, as demonstrated in (16). The operation Agree values the unvalued φ-features of na and the unvalued Tense-feature (i.e., case) of konvert.

(16)

After that P’ merges with the determiner phrase marku. Assuming that case assignment is dependent on the φ-features Agree, as discussed in chapter 2.8.1, the unvalued Tense-feature on marku cannot be valued by the prepositional head P. After movement to the edge of the vP phase, marku receives structural accusative via Agree with unvalued φ-features and the
valued Tense-feature of the aspectual head (see e.g. Jakobson 1936, Wierzbicka 1967, Paducheva 1998, Pereltsvaig 2000, Rozwadowska & Willim 2004, Borer 2005 and Richardson 2007 for the relation between case and aspectual properties of the predicate and recall from the preceding chapter that the aspectual head encodes the relation between the reference time and the event time).

The prepositional phrase PP is selected by the head \( p \) of the prefixal type and the preposition incorporates into it, analogously to V-to-v movement. Since I analyse verbal prefixes as incorporated prepositions, the complex head \( p \) incorporates into the root \( \sqrt{} \) and higher heads, valuing the Tense-feature of the aspectual head on the way, which gives rise to perfectivity and enables the aspectual head to value the Tense-feature of the object.

In what follows, I discuss the relevant parts of the semantic derivation of sentence (14). The preposition \( na \) ‘on’ has the usual locative meaning, where the referent of the external argument \( x \) is in the state of being located ‘on’ the referent of the internal argument \( y \), as demonstrated in (17). The meaning of \( na \) applies to the definite expression \( konvert \), derived by the iota operator, with the result that the referent of \( x \) is in the state of being on the envelope. The meaning of \( P' \) combines with the definite determiner phrase \( marku \) and via functional application we receive the meaning of PP. This combines with the meaning of the head \( p \), which makes a prefix from the preposition.

As we already know, the meaning of the prefixal \( p \) is composed of three conjuncts. The first conjunct in \( p \) stands for the meaning of PP, which represents the result state brought about by prefixation, that is, that the stamp is in the state of being on the envelope. This derives the prepositional nature of the prefix \( na- \). The second conjunct introduces an event that has properties of the root so that it allows \( pP \) to combine with the root. The third conjunct represents the telic property of prefixation, the fact that the prefix \( na- \) brings about the causative relation between the result state just discussed and the event denoted by the root.\(^3\)

The meaning of the \( na \ pP \) applies to the meaning of the root \( kle- \) with the result that the stamp is in the state of being on the envelope and this is caused by the event of sticking. After that, the agent is added and later also aspectual, temporal and sentence mood properties are added.

As mentioned in the beginning of this section, the derivation under discussion contains a non-defective PP because both arguments of the preposition (\( marku \) and \( konvert \)) are present in the syntactic derivation. In addition, the preposition is overtly realised and assigns prepositional case to its complement.

\(^3\) Recall that the variable \( e \) ranges over both processes and states.
We find two copies of the moved preposition \textit{na} in the sentence in (14). As discussed in the preceding chapter, it is usually assumed that more copies of one chain can be spelled out only if they bring about a new output. This is the case in our example since the prefixal \textit{na} licenses the perfective aspect (unprefixed \textit{kleil} ‘was sticking’ is imperfective) and the prepositional copy of \textit{na} licenses accusative case on the ground argument and brings about the prepositional semantics.
3.3.2 Non-defective PP with a covert argument

Arguments of the non-defective PP can also be covert, as illustrated in the Polish example (18a), where the ground argument is missing. Principally, however, both prepositional arguments can be overtly expressed, which makes this case different from the defective PP, in which both arguments cannot be overtly present. That both arguments can be overtly expressed is demonstrated by example (18b). Biskup (2015) analyses the prepositional phrase PP in napompować as defective but this is not a correct analysis if the defective status is characterised by lacking an argument and lacking the overt preposition.

(18) a. Jakub na-pompował koło.
    Jakub on-pumped tyre
    ‘Jakub pumped up the tyre.’

    Jakub on-pumped tyre on 2,2 bar / on soft / on hard / on stone
    ‘Jakub pumped up the tyre to 2,2 bar/soft/hard/to the full pressure.’

Kratzer (2000, 391) argues against syntactic decomposition of prefixed verbs like aufpumpen ‘pump up’. According to her, the eventive component can be expressed by the verb pumpen ‘pump’ but the stative component cannot be contributed by the prefix auf- ‘on’ because ‘In isolation, the prefix auf- doesn’t have a denotation at all, hence couldn’t possibly contribute a target state property.’ The state component, however, can be taken to be contributed by the PP headed by auf-, along the lines suggested above. The figure argument, the tyre (more specifically, the tyre pressure, given the totum pro parte relationship between the tyre and the contained air), is in the state of being on a certain level of inflation. If not explicitly stated, the ground argument is interpreted as a contextually determined level of inflation and the default interpretation is ‘fully pumped’. This seems to be a more general pattern of fill verbs with the preposition na; consider the following examples, which have the ‘full result state’.

(19) a. na-pelnieć (P) / na-plnit (CZ) / na-plnit’ (SK) / na-polniti (SL)
    on-fill on-fill on-fill on-fill
    ‘fill’ ‘fill’ ‘fill’ ‘fill’

    b. na-pchać (P) / na-cpat (CZ) / na-pchat’ (SK) / na-tlačiti (SL)
    on-stuff on-stuff on-stuff on-stuff
    ‘stuff’ ‘stuff’ ‘stuff’ ‘stuff’
The German *aufpumpen* and the Czech *napumpovat* show the same behaviour; see (20a) and (21a), with the covert ground argument, where the default interpretation is ‘fully pumped’ (when the context does not provide information on the level of inflation), and (20b) and (21b), where the overt *auf* PP and *na* PP, expressing the result state, specifies the level of inflation.

(20) a. Er hat die Reifen auf-gepumpt.
   he has the tyres on-pumped
   ‘He pumped up the tyres.’

   b. Er hat die Reifen auf 3 bar / Maximaldruck / Betriebsdruck auf-gepumpt.
   he has the tyres on 3 bar / maximum.pressure / operating.pressure on-pumped
   ‘He pumped up the tyres to 3 bar/ the maximum pressure/the operating pressure.’

(21) a. Pavel ty kola na-pumpoval.
   Pavel the tyres on-pumped
   ‘Pavel pumped up the tyres.’

   b. Pavel ty kola na-pumpoval na 3 bary / maximum / provozní tlak.
   Pavel the tyres on-pumped on 3 bar / maximum / operating pressure
   ‘Pavel pumped up the tyres to 3 bar/ the maximum pressure/the operating pressure.’
The fact that napompować and napumpovat can be paraphrased as pompować na ‘pump to’ (e.g. 2,2 bara ‘to 2,2 bar’) and pumpovat na (e.g. 3 bary ‘to 3 bar’) shows that the verbs belong to the compositional class 1.4

3.3.3 Defective PP

Let us move to defective prepositional phrases now. In defective PPs, the preposition lacks the second selectional feature. This corresponds to the lack of φ-features on the head P. Again, given the assumption that case assignment – here the valuation of the Tense-feature of the prepositional argument – is dependent on φ-features Agree (Chomsky 2001), the prepositional argument cannot receive its case from the head P. This relation between the missing argument and the missing case is in fact a prepositional type of Burzio’s generalisation (see e.g. Svenonius 2003, Biskup & Putnam 2012). In contrast to φ-features, the Tense-feature must be present on the preposition because the incorporated P always perfectivises the verb.

The syntactic defectivity correlates with the semantic and phonological defectivity. Semantically, the syntactically unrealised prepositional argument is a free variable, which receives an interpretation at the semantic interface. Since the head P does not assign case and I take case assignment to be a constitutive property of Ps, the prepositional copy is not spelled out; only the prefixal copy can be spelled out (see e.g. Emonds 1976, McCawley 1988 and Caponigro & Pearl 2008 for arguments for a silent preposition). Given that there are also covert prepositions assigning lexical case, as discussed in chapter 2.8.1, there is only a one-way implication; covertness does not mean defectivity.

As an illustration consider the Russian example (22), in which the figure argument is missing, so the PP is of unaccusative nature (in section 3.6 we will see that the ground argument can also be missing).

(22) Boris pod-pisal kontrakt.
Boris under-wrote contract
‘Boris signed the contract.’

As pointed out to me by Andrew McIntyre, the compositional status of the German aufpumpen ‘pump up’ is also supported by the fact that the prefix has the same meaning in verbs like aufblasen ‘inflate’, auffüllen ‘fill up’, aufschwellen ‘swell up’ etc.
As mentioned in section 3.1, it has been argued that the Russian \textit{podpisat’} ‘sign’ and the Polish \textit{podpisać} ‘sign’ are non-compositional verbs. In what follows, I show that a compositional analysis of these verbs is possible; consider the derivation in (23).\footnote{The proposed system differentiates between compositionality of derivations and compositionality of prefixed verbs, tested by paraphrases (only prefixed verbs of class 1 are compositional).}

\begin{equation}
(23)
\end{equation}

The preposition \textit{pod} is defective; it lacks φ-features and the second selectional feature (due to lack of space, selectional features are not shown in trees). Therefore, it cannot enter into Agree with the ground argument \textit{kontrakt} and \textit{kontrakt} receives structural accusative from the aspectual head after its movement to the outer specifier of vP. As argued in chapter 2.8.1, given that the Tense-feature of the prepositional complement is not valued, the movement does not violate the A-over-A principle. Since \textit{pod} cannot assign case, there is no lower copy of \textit{pod} in (22); only the prefixal copy on the verb \textit{pisal}. The figure argument is not syntactically present; semantically it is represented as the free variable \textit{x} in (23); and the variable is interpreted as a signature at the semantic interface. This is the reason why \textit{podpisat’} ‘sign’ and its equivalents are considered to be non-compositional in the literature (e.g. Młynarczyk 2004, Tatevosov 2008). Thus, the meaning of vP in (23) is that a signature is in the state of being under the contract, which is caused by the event of writing, and the agent of the writing event is Boris.
As expected, if the figure argument is syntactically present – that is, if the preposition *pod* is not defective –, the prepositional copy of P is also spelled out and case is assigned, as shown by examples in (24), with the reflexive figure and the instrumental ground.

(24) a. On pod-pisal-sja pod kontraktom. (R)  
   he under-wrote-self under contract
b. Pod-pisal się pod umową. (P)  
   under-wrote self under contract
c. Pode-psal se pod smlouvu. (CZ)  
   under-wrote self under contract
   literally ‘He signed himself under the contract.’

The figure is ‘his signature’, not ‘his name’ because it does not have to be a name, and the reflexive is interpreted as the possessive ‘his’, as supported by translations of the following examples from Russian (25a) and Czech (25b-c).6

(25) a. ob-delat’-sja b. po-dělat se c. vy-dělat se
   around-do-self on-do self out-do self
   ‘sh*t one’s pants’ ‘sh*t one’s pants’ ‘do one’s business’

If we allow the presence of the object in the paraphrase, as shown in the Russian example (26), then *podpisat* ‘sign’ and its equivalents like the Polish *podpisać* and the Czech *podepsat* will belong to class 1. If such a paraphrase is not allowed, the verb will belong to class 2, in which the meaning of verbs is irregular. In fact, it is not crucial which class the verb belongs to; what is important is that the approach can derive all of the attested possibilities.

(26) a. pod-pisat’ ~ b. pisat’ podpis’ pod (čto-to)
   under-write write signature under something
   ‘sign’

6 In reality, the signature can be false as shown in (i), with the instrumental adjunct (Yulia Sorokina, p.c.). In this case, (ib) is dispreferred given the presence of the reflexive figure -sja, which clashes with Maria’s name.

(i) a. Boris pod-pisal kontrakt imenem Marii.
   Boris,NOM under-wrote contract,ACC name,INST Marija,GEN
   ‘Boris signed the contract with Maria’s name.’
b. Boris pod-pisal-sja pod kontraktom imenem Marii.
   Boris,NOM under-wrote-self under contract,LOC name,INST Marija,GEN
   ‘Boris signed the contract with Maria’s name.’
The example under discussion also shows that defectivity is not an inherent property of particular prefixes/prepositions. One and the same prepositional element can be defective in certain prefixed verbs (like pod in podpisat’), whereas in other prefixed verbs it can be non-defective (like in podpisat’sja above).\footnote{It remains to be seen what factors determine the defective status of prepositions. For some generalisations, see e.g. Svenonius (2003) and Romanova (2006).}

The proposed analysis can be applied to *spray/load* alternations. The case with the accusative figure and the prepositional ground, like in the Russian (27a), represents the non-defective PP, whereas cases with the promoted accusative ground, instrumental adjunct expressing the figure and missing preposition, like in (27b), represent the defective PP.

\begin{exe}
\begin{exe}
a. Artur na-mazal marmelad na chleb.
\begin{exe}
\item Artur on-spread jam.ACC on bread.ACC
\end{exe}
\item Artur distributed jam over a slice of bread.’
\end{exe}
\begin{exe}
b. Artur na-mazal chleb marmeladom.
\begin{exe}
\item Artur on-spread bread.ACC jam.INST
\end{exe}
\item ‘Artur spread the bread with jam.’
\end{exe}
\end{exe}

As noted by Romanova (2006), cases like (27b) resemble passivisation of transitive verbs in that the lower argument is promoted and receives a structural case and the higher argument is optional and marked with instrumental (corresponding to the *by*-phrase).

\subsection*{3.4 Class 2: regular-meaning prefix and irregular-meaning verb}

I will now turn to class 2, which contains verbs with a regular-meaning prefix and an irregular-meaning verb, as illustrated in the Czech example in (28). This example contains a non-defective PP because both the figure and the ground are present, two copies of *od* are spelled out and the preposition assigns genitive.

\begin{exe}
\begin{exe}
Jirk-a od-dělal křesl-o od okn-a.
\begin{exe}
\item Jirk-NOM away-did chair-ACC away window-GEN
\end{exe}
\item ‘Jirka took the chair away from the window.’
\end{exe}
\end{exe}

The following example, repeated from section 3.2, shows that *oddělat* ‘take sth. away from sth.’ indeed belongs to class 2 because only the prefix can be used in the paraphrase.
(29) a. od-dělat ~ b. odstranit (co) od (čeho)
   away-do remove something away something
   ‘take sth. away from sth.’ not: c. dělat (co) od (čeho)
   do something away something

In a morphosyntactic approach, given their idiosyncratic meanings, non-compositional prefixed verbs can be treated as idioms (see e.g. Marantz 2001, 2007; Zeller 2001b). According to Nunberg, Sag & Wasow (1994), many idioms have meanings which are compositional in the sense that the semantic contribution of individual constituents within the idiom can be isolated. They argue that not every idiom must be listed in the lexicon as a complete constituent. In this chapter, I apply this approach to prefixed verbs.

I will also follow Nunberg’s (1995) predicate transfer analysis, which was used for metaphors, metonymies and similar phenomena. Nunberg assumes two conditions on the predicate transfer operation: salience and noteworthiness. With respect to salience, there must be a functional correspondence between the original and the derived predicate. According to noteworthiness, the transfer must be conversationally interesting or relevant. To be more concrete, consider the derivation of (28), as shown in (30).

(30)

The meaning of PP and ρP is derived as in the case of non-defective prepositional phrases above. Specifically, the chair is in the state of being away from the window and this state is caused by the event Q. What is important is that when the vP phase is interpreted, the meaning
of *dělat* ‘do’ is shifted to ‘remove’ in ∨P, as shown in boldface (the original meaning of ∨P is not shown there). This transfer is properly licensed because there is a salient relation between these predicates; functionally, ‘do’ is a superset of ‘remove’. The transfer is also noteworthy, that is, conversationally relevant, because the speaker does not want to or cannot use the more specific predicate.

A similar case is shown in the Czech example in (31), where the meaning of *dělat* ‘do’ is shifted to the more specific ‘defecate’. This type of transfer of the dummy ‘do’ is typical for taboo words. In contrast to (28), in *podělat* ‘shit on sth.’, PP is defective; the figure argument and the prepositional copy are missing.

(31) a. po-dělat       ~       b. kálet po (čem)
   on-do                defecate on something
   ‘shit on sth.’       not: c. dělat po (čem/co)
                       do on something

The meaning shift is also contextually restricted; it happens only in certain semantic contexts delivered by the sister constituent. In the derivation in (30) it is determined by the *od* PP. If there were, for instance, only the direct object *křeslo* ‘chair’ (more concretely, the prepositional phrase introducing the theme argument, as discussed in chapter 2.8.2) instead of the *od* PP, the meaning of the verb would never be shifted in this way and the interpretation would be ‘make a chair’. Since *dělat* itself does not have the meaning *remove*, the transfer must happen in the course of the derivation.

This holds generally. When prefixed verbs are morphosyntactically derived and their parts do not bear the irregular meaning from the beginning (which is a natural assumption in the case of non-compositional verbs; which is also supported by the particular dictionary entries), then their idiomatic meaning must arise in the derivation. The regular meaning(s) must be somehow updated. Verbs like the Czech *podělat* ‘shit on sth.’ in (31), the Russian *obdelat’sja* and *zadelat’* in (32a-b) and the Czech *sdělat* in (32c) support this view since the meaning of *dělat* is always shifted in accordance with the meaning of the prefix and the prepositional phrase present in the derivation.

(32) a. ob-delat’sja           b. za-delat’           c. s-dělat
      around-do-self     behind-do     from-do
      ‘shit in one’s pants’ ‘cover sth.’ ‘take sth. down from sth.’
There are also more complicated cases like the Russian smyт’sja ‘make off’ in (33) and the Czech zdrhnout ‘make off’ in (34). The paraphrase test suggests that these verbs belong to class 2. The expressiveness of smyт’sja and zdrhnout satisfies the noteworthiness condition but there seems to be no salient relation between myт’sja and uжti and between drhnout and prchnout.

(33) a. s-myt’-sja ~ b. uжti s чego
   from-wash-sja make.off from something
   ‘make off’ not: c. myт’-sja s чего
   wash from something

(34) a. z-drhnout ~ b. prchnout z чeho
   from-rub make.off from something
   ‘make off’ not: c. drhnout z чeho
   rub from something

If the restrictive analysis is preferred and noteworthiness and salience are maintained as general conditions on the meaning transfer, verbs like smyт’sja and zdrhnout will be derived as verbs of class 4, where a special listed meaning is used for the complex head √ (as discussed in section 3.6).8 The same applies to the Russian verb s-žи́tъ ‘hound sb. out of sth., drive sb. to his death’, in which žи́tъ ‘live’ was replaced with sogнátъ ‘drive’ in the paraphrase in (8) in section 3.2. Alternatively, since žи́tъ means ‘live’ and ‘reside’, s means ‘from’ and sžи́tъ has the meaning ‘drive sb. to his death’ and ‘hound sb. out of sth. (e.g. flat)’, one may propose that žи- is a complement of P that incorporates into it (and there is a null root merged with pP). The question, however, would arise why the order of s and the incorporated žи- is reversed in sžи́tъ.

3.5 Class 3: irregular-meaning prefix and regular-meaning verb

Class 3 is represented by prefixed verbs with an irregular-meaning prefix and a regular-meaning verb, as illustrated by the following Czech example with appropriate paraphrases. There is a defective PP, in which only the ground argument is syntactically present, receiving structural accusative from the aspectual head, and only one copy of za ‘behind’ is spelled out.

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8 Since smyт’sja also means ‘wash off’, which has the result that some entity is removed, an alternative analysis could be that the meaning ‘make off’ is metaphorically derived from the meaning ‘wash off’, i.e., from the whole prefixed predicate, not only from the verbal part.
Given the great variability of the lexicon, there are differences between particular Slavic languages; whereas Slovenian behaves like Czech and has *za-piti sina* and *piti na sina* with the meaning ‘celebrate son by drinking’ (and also has *za-literina* ‘celebrate son’), Russian behaves differently in that it allows cases like *pić za zdorov’e* ‘drink to the health’.


Jan.NOM  behind-drank  son-ACC  
‘Jan celebrated his son by drinking.’  

not: c. Jan  *pil*  *za*  syna.

Jan drank behind son

The relevant part of the derivation of example (35a) is shown below. The defective P *za* does not have φ-features and the figure argument is represented as the free variable *x*. When the vP phase is interpreted, the meaning of *za* ‘behind’ is shifted to *na* ‘on’ in the meaning of √P, which in the context of ‘drink’ expresses the reason for celebration (in accordance with (35b) and the Slovenian *piti na sina*); consider the boldfaced parts of the derivation in (36). The meaning of the root is not shifted, nor is there a special listed meaning for the complex head *za-pí* in the root, which could be used (as in the case of verbs of class 4, as we will see below), hence the regular meaning of *pí(t)* ‘drink’ is used.

(36)

If not specified otherwise, the free variable *x* is interpreted as alcoholic beverages at the semantic interface. The figure can also be overtly realised by an instrumental adjunct, as in

9 When *na* is directly merged with *syn* instead of *za*, then we obtain a non-defective PP with the argument *se*: *napiti se na syna* ‘celebrate son by drinking’.

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něčím zapít syna ‘celebrate son by drinking something’, therefore it occurs as ‘with x’ in the meaning of \( \forall P \) in (36). In this respect, it is similar to the defective case of spray/load alternations discussed in section 3.3 (with the difference that there is no non-defective alternative) and to other za-verbs in which the referent of the accusative ground is covered with the referent of the instrumental figure argument, like it is the case with the verbs in (37).

(37) a. zasypat’ (R) / zasypač (P) / zasypat (CZ) / zasípati (SL)  
‘fill in’

b. zalit’ (R) / zalać (P) / zalit (CZ) / zaliti (SL)  
‘pour sth. over sth.’

c. zasadit’ lesom (R) / zalesić (P) / zalesnit (CZ) / zasaditi z drevesi (SL)  
‘afforested’

Given the general spatiotemporal properties of prepositions, I assume that there is always a salient relation between them. And the reason for the celebration can be taken to be noteworthy in the conversation. Beside these two general conditions, the meaning transfer is again restricted by the semantic context. For instance, it does not happen in cases with consumable entities in PP like in za-pít pilulkú ‘wash down a pill’.

Let us now consider examples (38) and (39). With respect to paraphrases, the Russian dokupit’ and the Czech dokoupit behave like verbs of class 3. They can be paraphrased as shown in examples (b) but not like examples (c).

(38) a. do-kupit’ ~ b. kupit’ k (čemu)
‘to-buy’ ‘buy towards something’
‘buy in addition/some more’ not: c. kupit’ do (čego)

(39) a. do-koupit ~ b. koupit k (čemu)
‘to-buy’ ‘buy towards something’
‘buy in addition/some more’ not: c. koupit do (čeho)
Despite this fact, these verbs are compositional because the prefix *do-* with the same meaning – adding something to something – also occurs in other verbs, as shown by the Russian example (40a) and the Czech example (40b).10

   necessary to-write line-ACC
   ‘It is necessary to add the/a line.’

b. Je třeba do-psat řádk-u.
   is necessary to-write line-ACC
   ‘It is necessary to add the/a line.’

Because of this, such *do-*verbs belong to class 1.

3.6 Class 4: irregular-meaning prefix and irregular-meaning verb

The fourth class, which contains prefixed verbs whose meanings are related neither to those of the prefixes nor of the verbs, is the largest category. As to the test, there are no paraphrases that can use the prefix or the verb or both of them. In contrast to class 2 and 3, verbs of this class are not derived by predicate transfer; hence salience and noteworthiness play no role here. Instead, the meaning of the whole prefixed root is listed in the lexicon. Thus, prefixed verbs of this class are derived like ‘true’ idioms. Let us now demonstrate how the derivation of the Slovak example (41) works.

(41) Janko u-žil liek.
   Janko at-lived medicine
   ‘Janko took medicine.’

There is only one copy of the prepositional element *u*, no prepositional case and only the figure argument (*liek* ‘medicine’) is syntactically present in (41). This means that the preposition is defective, as demonstrated in (42). Crucially, when the vP phase is interpreted, the listed meaning ‘take’ is used for the complex root *uži* (the incorporation of *u* is not shown in the tree). The listed meaning occurs directly in the head *v* in (42), which means that there is no shift from an original meaning to a shifted one, which we saw in the case of class 2.

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10 The prefix can also have the completive superlexical meaning, in which case the sentences are interpreted as ‘It is necessary to finish the/a line.’
In class 4, the idiosyncratic meaning is always used from the beginning. Since the listed meaning is used for the whole prefixed root, the meaning must also be used accordingly for the result subevent, as shown in the meaning of $\sqrt{P}$. This derives the fact that both elements of the prefixed verb have an irregular meaning.

Interestingly, some meanings of prefixed verbs can be derived in two steps. Consider, for instance, the Czech verbs *oddělat*, which is polysemous between ‘take sth. away from sth.’ and ‘hit’ in the sense of ‘kill’, and *podělat*, which is polysemous between ‘shit on sth.’ and ‘fuck up’. We already know that the first meanings of these verbs are derived by the shift of the verb, which is characteristic for class 2; consider the paraphrases in (43) and (44), repeated from section 3.4.

(43) a. od-dělat ~ b. odstranit (co) od (čeho)  
away-do remove something away something  
‘take sth. away from sth.’ not: c. dělat (co) od (čeho)  
do something away something

(44) a. po-dělat ~ b. kálet po (čem)  
on-do defecate on something  
‘shit on sth.’ not: c. dělat po (čem/co)  
do on something

With respect to the second meanings, they are metaphorically derived from the first meanings and belong to class 4 because there are no appropriate paraphrases for them that could use the
verb or the prefix. One might propose that the ‘fuck up’ meaning of *podělat* is derived as in the case of verbs of class 3, where the meaning of the prefix is shifted, that is, as ‘do something badly’. This analysis probably is not on the right track because there is an analogous polysemous verb *posrat* with the meanings ‘shit on sth.’ and ‘fuck up’, which is derived from the verb *srát* ‘shit’ (cf. also the Slovenian *posrati*, which has the meanings ‘shit on sth.’ and ‘fuck up’, as well).

3.7 Conclusion

In this chapter, I have classified compositional and non-compositional prefixed verbs by means of paraphrases and provided a syntactic and semantic analysis of their various types. We have seen that prefixed verbs can be treated as idioms and can receive a compositional analysis even if they have an idiosyncratic meaning. Non-compositional prefixed verbs are derived in the standard bottom-up fashion but the meaning of derivational steps can be updated in the course of the derivation. Class 1 contains compositional verbs. Non-compositional prefixed verbs are of three types. Verbs of class 2 and 3 are non-compositional in the sense that their meaning is not composed of the original meanings of their parts but they can be derived compositionally with the help of Nunberg’s (1995) predicate transfer. In contrast, prefixed verbs of class 4 are derived like ‘true’ idioms, that is, by the insertion of a listed meaning.

While lexical prefixes derive verbs of all four classes, superlexical prefixes only derive verbs of class 1 and 2. In this respect, the proposed classification is different from the most widely accepted lexical-superlexical approach to prefixed verbs, which groups together spatially prefixed verbs and idiosyncratically prefixed verbs in opposition to superlexically prefixed verbs. My approach classifies spatially prefixed verbs (with the regular meaning of the prefix) and superlexically prefixed verbs together and separates them from idiosyncratically prefixed verbs.
Chapter 4

Prefixes in target state participles

4.1 Introduction

This chapter investigates the role of verbal prefixes in target state adjectival participles in Czech. It is argued that prefixed adjectival participles are headed by an adjectival head that works as a stativising operator. Building on the analysis in the preceding chapters, it is proposed that the state variable introduced by the prefix – that is, by the incorporated preposition – licenses the presence of the stativising operator in the derivation. Since the stativiser merges in a high syntactic position, adjectival participles can contain lexical as well as superlexical prefixes. Both types of prefixes play an important role in the derivation of adjectival participles; they help verbs to derive target state participles because they induce perfectivity and telicity and can add an unselected argument.

As discussed in chapter 2, according to the most widely adopted syntactic approach, Slavic prefixes are divided into two types, superlexical (external) and lexical (internal), which differ with respect to their base position; see, for instance, Babko-Malaya (1999), Ramchand (2004), Svenonius (2004), Di Sciullo & Slabakova (2005), Romanova (2006), Richardson (2007) and Gehrke (2008).

Lexical prefixes are usually analysed as merged in vP/VP. For instance, according to Gehrke (2008), Russian and Czech lexical prefixes are resultativity markers that head a predicational phrase, which is selected by the verbal head V. Romanova (2006) proposes that lexical prefixes project a prepositional phrase embedded under the result head, which in turn is selected by the verbal head V, or that lexical prefixes merge directly as the result head. According to Richardson (2007), lexical prefixes are merged below the verbal projection vP, where they can affect the lexical aspect of the verb.

On the other hand, superlexical prefixes are usually analysed as merged in a position above the verbal projection vP. More concretely, according to Svenonius (2004), the majority of Slavic superlexical prefixes merges higher than the aspecltual head, whereas all lexical prefixes merge lower than the aspectual head. Gehrke (2008) argues that Czech superlexical
prefixes behave like adverbial modifiers and that they adjoin to the verbal phrase VP. According to Ramchand (2004), superlexical prefixes merge either directly in the aspectual phrase, where they assert a definite time point, or in a higher functional projection like the cumulative phrase.

Concerning adjectival participles, it has been shown that they exhibit different syntactic and semantic properties in different languages (they 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 (2000), following Parsons (1990), distinguishes between two types of participles (state passives), target state participles and resultant state participles. In contrast to resultant state passives, which denote states that hold forever – like the German *es ist bewiesen* ‘it is proven’ –, target state passives describe states that are reversible, like *er ist versteckt* ‘he is hidden’. The meaning of target state passives is derived by means of the stativising operator $\lambda R \exists e[R(s)(e)]$, which existentially binds the event variable $e$ and projects the state variable $s$. Thus, target state participles are derived from telic verbs, which have an eventive and a stative component (see e.g. Nedjalkov & Jachontov 1988; Kratzer 1994, 2000; Rapp 1996; Giger 2009).

Target states participles can also be found in Slavic, as shown by the Russian example in (1a), the Polish example in (1b) and the Czech example in (1c). The presence of the adverb ‘still’ ensures that the examples contain a target state participle, not a resultant state participle; see Nedjalkov & Jachontov (1988), Kratzer (2000), Taraldsen & Medová (2007).

   she still opened   is still hidden   is still swollen
   ‘It is still open.’   ‘He is still hidden.’   ‘It is still swollen.’

Kratzer (1994) argues that in certain German adjectival passives (*Zustandspassiv*), the participial affix – representing the adjectival head – attaches to the verbal phrase VP, which can be modified by an adverb, thus showing that the participle is phrasal and not lexical. In verbal passives (*Vorgangspassiv*), which contain an agent, the participial affix attaches to the voice phrase, dominating the verbal phrase, because this is the projection where the agent is merged.

According to Paslawska & von Stechow (2003), in Russian target state participles like *zakryto* ‘closed’, the participial affix (*-t-*) represents the participial head and embeds the voice phrase, which dominates the root phrase.
Anagnostopoulou (2003), building on Kratzer (2000), argues that there are two different stativising operators in German and Greek. The first one derives target states and attaches to the root phrase in both languages and the second one derives resultant states and attaches to the verbal phrase vP in German and to the voice phrase in Greek.

Alexiadou & Anagnostopoulou (2008) propose that in Greek adjectival participles the participial morpheme – which syntactically represents the aspectual head and semantically the stativising operator – can attach to three different categories, in accordance with the eventive and agentive properties of the particular participle. It can attach to the verbal projection vP, to the voice phrase or directly to the root.

Given these proposals, one expects that there will be a certain interaction between the two discussed phenomena. If the lexical-superlexical approach with two different base positions for prefixes is correct, then it predicts that a superlexical prefix which attaches high in the syntactic structure cannot be contained in an adjectival participle that is closed by a participial morpheme merged in a position lower than the appropriate superlexical prefix. On the contrary, one expects that lexical prefixes can always be present in adjectival participles.

The following sections offer a detailed investigation of this matter. The chapter is organised as follows. In section 4.2, I will provide background on adjectival participles briefly comparing participial systems of Russian, Polish and Czech. Then I will discuss target state participles in Czech in more detail; I will investigate how the presence of a prefix affects the derivation of ľý-participles and ný-/ňý-participles. The main proposal – that incorporated prepositions (prefixes) license the presence of the target state operator – is found in section 4.3. In Section 4.4, I examine the morphosyntactic structure of adjectival participles and discuss the positioning of the stativiser in the participial structure. In section 4.5, I investigate which types of prefixes can appear in which adjectival participles and explore how the prefixes interact with the stativising head. Section 4.6 shows step by step how the derivation of adjectival participles works. Section 4.7 summarises the chapter’s main findings.

4.2 Prefixes and adjectival participles

In this section, I first provide background on adjectival participles in Czech, comparing them briefly with adjectival participles in Russian and Polish. Then, I will investigate target state participles in Czech in more detail, focusing on adjectival ľý-participles and ný-/ňý-participles.
4.2.1 Participles in Russian, Polish and Czech

In Russian, there are four types of adjectival participles, which can be cross-classified by two oppositions, active/passive and present/past (see, e.g., Isačenko 1962; Švedova 1970, 1980; Schoorlemmer 1995; Borik 2002); consider the following table with participles derived from the verb risovat‘ ‘draw’.1

Table 1

<table>
<thead>
<tr>
<th>Active</th>
<th>Passive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present</td>
<td>Passive</td>
</tr>
<tr>
<td>risujuščij</td>
<td>risuemyj</td>
</tr>
<tr>
<td>‘drawing’</td>
<td>‘being drawned’</td>
</tr>
<tr>
<td>Past</td>
<td></td>
</tr>
<tr>
<td>(na)risovavšij</td>
<td>narisovannyj</td>
</tr>
<tr>
<td>‘having drawned’</td>
<td>‘drawned’</td>
</tr>
</tbody>
</table>

The table demonstrates that present participles are derived from imperfective (unprefixed) verbs, whereas past active participles can be derived from perfective as well as imperfective verbs. As shown by the prefix na ‘on’, past passive participles are derived only from perfective verbs (but see Schoorlemmer 1995, chap. 4 for some exceptions). In addition, passive participles are only derived from transitive verbs.

Polish also has four types of participles, two adjectival participles – active qcy-participles and passive ny-/ty-participles – and two adverbial participles, anterior wszylszy-participles and simultaneous qc-participles (e.g. Damborský 1967a,b; Weiβ 1977; Grzegorczykowa, Laskowski & Wróbel 1984; Cetnarowska 2000, 2001; Tokarski 2001). The distinction between anterior and simultaneous participles corresponds to the opposition past/present in table 1 and to the aspectual opposition perfective/imperfective (in fact, the distinction is based on relative tenses (i.e. (im)perfectivity), not absolute tenses, because the time reference is construed relative to a time point different from the speech time).

From the simultaneous adverbial participles in -qc, like czytając ‘(while) reading’, which refer to an event that happens simultaneously to another event, adjectival present active participles are derived; consider table 2, with participial forms derived from the verb czytać ‘read’. Present active participles – just like the simultaneous participles – are only derived from imperfective verbs; hence they refer to an ongoing event.

1 In the typological literature, active participles are called agent-oriented and passive participles patient-oriented; see, e.g. Lehmann (1984, 152) and Haspelmath (1994, 153).
In contrast to Russian, Polish does not have adjectival past active participles; the past active function is fulfilled by the anterior adverbial participles in -wszy/-łszy, as shown in the table. These participles are derived only from perfective verbs; hence they refer to an event that was completed before another event.

Adjectival passive participles in -ny/-ty are derived from perfective and imperfective transitive verbs. For the present passive function, for which Russian uses the myj-participle, Polish employs the imperfective (unprefixed) ny/-ty-participle and for the past passive function, it uses the perfective (prefixed) ny/-ty-participle, a cognate of the Russian past passive participle.

Polish also has adjectival l-participles like zwiędy ‘withered’, which are derived from perfective intransitive verbs and can be analysed as adjectivised verbal l-participles (e.g. Bartnicka 1970 and Cetnarowska 2000). Since the sole argument is an underlying object, these participles are an intransitive counterpart of the transitive past passive participles and can be placed in the same slot in table 2.

The Czech participial system – as the Russian system – has four types of adjectival participles, which can also be cross-classified by the oppositions active/passive and present/past (Petr 1986b; Karlik, Nekula & Rusinová 1995, Čechová et al. 2000). The present/past distinction again correlates with the aspectual opposition imperfective/perfective, that is, with the absence/presence of a prefix (abstracting away from secondary imperfectives), as shown in table 3, with participial forms derived from the verb něst ‘carry’.
Present active participles are related to an ongoing event and are derived by means of the adjectival suffix \(-i\) from the feminine/neuter singular form of present (simultaneous) adverbial participles. In contrast to Polish, Czech also has adjectival past active participles, which are very bookish (they were borrowed from Russian in 19th century) and which are formed by adding the adjectival suffix \(-i\) to the feminine/neuter singular form of past (antior) adverbial participles.

As to passive participles, they are only derived from transitive verbs, as in Russian and Polish. Formally, they are very similar to Polish passive participles; present passive participles, derived from imperfective verbs, end in \(-n\-t\-\) and past passive participles, derived from perfective verbs, end in \(-n\-t\-\) or \(-l\-\). As in Polish, Czech \(l\-\)-participle are formed from the verbal \(l\)-participle of unaccusative verbs (these facts give support to the claim by McIntyre 2013 that the derivation of participles from unaccusative and transitive verbs in English – which uses the same suffixes for them – must include two distinct formation processes; see also Embick 2004 and Bruening 2014 and Meltzer-Asscher 2011 for Hebrew).2

Given this discussion, it is obvious that with respect to prefixation, the most interesting participles occur in the past passive slot; hence, in what follows, I will focus on target state \(l\-\)-participle and \(n\-t\-\)-participle.

### 4.2.2 Properties of \(n\-t\-\)-participle

It is known that intransitive verbs do not form the verbal \(n\-l\)-participle and the verbal \(n\-l\)-passive; see Petr (1986b), Karlík, Nekula & Rusínová (1995) and Karlík (2004) (without going into unnecessary details, the choice between \(-n\) and \(-l\) depends on the conjugation

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2 The \(l\)-participle is also called active participle or past participle.
paradigm of the appropriate verb). This holds for both unergative verbs, as in (2), and unaccusative verbs, as shown in (3).

(2) a. * je pracován  b. * je hučen  c. * je hloubán  
    is worked  is rumbled/murmured  is mused

(3) a. * je tečen  b. * je kveten  c. * je blednut  
    is flowed  is blossomed  is paled

Given that adjectival ný-/tý-participles formally include the verbal n-/t-participles, it can be argued that ný-/tý-participles are derived from n-/t-participles; consider also the following arguments, which show that the two types of participles behave alike. In (4) the ný-/tý- and n-/t-participles shorten the root vowel in contrast to the infinitive in (4a) and they do not contain the suffix -j- in contrast to the present tense form in (4b). The participles also show the same root-consonant allomorphy, as demonstrated in (5). Moreover, both types of participles can drop the -nu-/nou- suffix in contrast to the infinitive and the present tense form, as shown in (6).

(4) a. ušít  b. ušije  c. ušit  d. ušitý  
    sew  sews  sewn  sewn

(5) a. prosit  b. prosí  c. prošen  d. prošený  
    ask  asks  asked  asked

(6) a. zatnout  b. zatne  c. zaťal (zatnul)  d. zaťatý (zatnutý)  
    clench  clenches  clenched  clenched

Because of the fact that ný-/tý-participles are based on n-/t-participles, we expect that ný-/tý-participles – just as n-/t-participles – cannot be derived from intransitive predicates. This is correct, as shown by (7) for unergative predicates and (8) for unaccusatives.

3 Besides the verbal passive, n-/t-participles also occur in the possessive resultative construction (also called perfect) like mám uvařeno ‘I have cooked’ and the get passive, like dostat vyhubováno ‘get scolded’. In bookish Czech, n-/t-participles can also occur in the predicative position, as we will see in section 4.4.

4 I mostly use the masculine ending in examples but both verbal and adjectival participles inflect for number, gender and case (case properties of verbal participles are reduced to structural cases though).
Most of the known diagnostics for unergativity/unaccusativity cannot be applied to Czech. However, building on the agentive (causative) properties of unergative verbs, at least two tests can be used here. The contrast between the grammatical examples in (9), with the agent-oriented adverb *úmyslně* ‘intentionally’, and the ungrammatical examples in (10) shows that the predicates in (2) are unergative and the ones in (3) unaccusative.

(9) a. Úmyslně pracoval. b. Úmyslně hučel. c. Úmyslně hloubal.
    intentionally worked intentionally murmured/rumbled
    ‘He was intentionally working.’ ‘He was intentionally murmuring.’
    intentionally mused
    ‘He was intentionally musing.’

    intentionally flowed intentionally blossomed intentionally paled

The following suffix diagnostic, which has a restricted use, works like the well-known diagnostic with the suffix -er in English. The suffix -tel attaches only to agentive verbs, hence it can derive *hloubatel*, as shown in (11a). The other two verbs *pracovat* and *hučet* can also derive nouns with agentive properties but they use other suffixes; see (11b) and (11c). As shown in (12), the three verbs from (3) cannot derive agentive nouns combining with -tel or the suffixes -ák and -ník (which is composed of -n- and -ík).

(11) a. hlouba-tel b. huč-ák c. pracov-ník
    muse-tel  rumble-ák  work-ník
    ‘somebody who muses’ ‘the thing that rumbles’ ‘worker’

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5 *Hloubatel* is not as frequent as *hloubavec* ‘somebody who muses’.
6 The suffix -tel can combine with the prefixed verb zpracovat ‘process’, deriving zpracovatel ‘processor, author’.
The next argument is based on the behaviour of resultative predicates. According to Levin & Rappaport Hovav (1995), resultative constructions are possible with unaccusative verbs, not with unergatives, but resultative predicates can be licensed with unergatives by a fake reflexive. This diagnostic confirms the previous result; consider the unaccusatives with resultative predicates in (13) and the unergatives with the fake reflexive se ‘self’ in (14).  

   water on-flowed inside apart-blossomed to beauty
   ‘Water flowed in.’  ‘It blossomed into a beauty.’
   c. Z-bledl k nepoznání.
   from-paled to non.recognition
   ‘He paled beyond recognition.’

(14) U-pracoval / u-hučel / u-hloubal *(se) k smrti.
   at-worked at-rumbled at-mused self to death
   ‘He worked/rumbled/mused himself to death.’

Finally, the formation of *ly-participles can also be used as a test for unaccusativity or unergativity since only unaccusative predicates derive ly-participles; see Medová (2012) for Czech, Cetnarowska (2000) for Polish ly-participles and Kosta & Frasek (2004) for both languages. Since perfectivity is necessary for the formation of ly-participles, the tested predicates below are prefixed (with the exception of otekly ‘swollen’, they are prefixed with superlexical prefixes, which only add phasal and intensity properties to the lexical meaning of the base verb). The ungrammatical status of (15) shows that the predicates are unergative. In contrast, the predicates in (16) are unaccusative according to the diagnostic. The control example (17) demonstrates that the prefixed unergatives from (15) can form l-participles.

    do-worked behind-rumbled/murmured to-mused

7 The verbs in examples are prefixed to ensure that the result state is reached.
Having established that the predicates *pracovat*, *hučet* and *hloubat* are unergative and the predicates *téci*, *kvést* and *blednout* unaccusative, let us now look at other properties of *ný*-/*tý*-participles.

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 (18). The example also shows that the verbal participles, as in (18a) and (18c), and the adjectival participles, as in (18b) and (18d), can be perfective (prefixed) as well as imperfective (unprefixed).

(18) 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 roze-čten.
the novel was apart-read
d. roze-čtený román
apart-read novel
‘The novel was started.’
‘the novel that has not been finished’

If the verbal object is not accusative, as in (19a), then the default agreement appears on the auxiliary and the *n*-/*t*-participle in the corresponding passive sentence, as shown in (19b). The passive with nominative cannot be derived, see (19c), and the related *ný*-/*tý*-participle is ungrammatical, too, as demonstrated in (19d), in contrast to the participles in (18b) and (18d). This holds true independently of whether or not the predicate is prefixed.

(19) a. (Po-)děkovali lingvistům.
on-thanked linguists.DAT
‘They were thanking linguists.’
c.* Lingvisté byli (po-)děkováni.
linguists.NOM were (on-)thanked
‘They thanked linguists.’
b. Bylo (po-)děkováno lingvistům.  d.* (po-)děkovaní lingvisté
was (on-)thanked linguists.DAT  (on-)thanked linguists
‘They were thanking linguists.’
‘They thanked linguists.’

An interesting effect of prefixation can be found in the following example, partially repeated from chapter 2.4. The verb *otročit* selects a dative argument, hence the default agreement occurs on the verbal passive in (20a) and the *ný*-*/tý*-participle is ungrammatical, as demonstrated in (20b). In contrast, the prefixed verb *zotročit* assigns structural accusative, therefore the full agreement occurs on the passive in (20c) and the *ný*-*/tý*-participle is grammatical, as shown in (20d).

(20) a. Pravidlům nemá být otročen-o.  b. * otročená pravidla
rules.DAT not.should be slaved-N.SG slaved rules
‘Man should not be a slave to rules.’

c. Celá populace byl-a z-otročen-a.  d. z-otročená populace
entire population.NOM was-F.SG from-slaved-F.SG from-slaved population
‘They enslaved the entire population.’ ‘an enslaved population’

We saw in examples (7) and (8), repeated for convenience as (21) and (22), that the unprefixed *ný*-*/tý*-participles are ungrammatical.

worked rumbled/murmured mused

(22) a. * tečený  b. * kvetený  c. * blednutý
flowed blossomed paled

However, when a prefix is attached to the predicates, grammatical judgements change. As shown below, at least some of the verbs can derive *ný*-*/tý*-participles because they are transitivised (reflexivised) by the prefix. The participles can be based on a reflexive verb, as in (23) and (24), or on a non-reflexive verb, as in (25).
When the base verb is not transitivised by the added prefix, the $ný$-/tý-participle is ungrammatical, as demonstrated by the examples below. Examples (26)-(28) show that although the prefixed unaccusative verbs form an $l$-participle, they do not derive the $ný$-/tý-participle. With respect to parallel behaviour of prefixed unergative verbs, consider example (29), in which the prefix does not transitivise.

(26) a. Prst o-tekl.
      finger about-flowed
      ‘The finger swollen.’

b. * o-tečený prst
      about-flowed finger

(27) a. Strom roz-kvetl.
      tree apart-blossomed
      ‘The tree blossomed.’

b. * roz-kvetený strom
      apart-blossomed tree

(28) a. Pavel z-bledl.
      Pavel from-paled
      ‘Pavel paled.’

b. * z-blednutý Pavel
      from-paled Pavel

      device to-rumbled
      ‘The device stopped rumbling.’

b. * do-hučený přístroj
      to-rumbled device
When a predicate is transitivised by the prefix but the object is not marked with accusative, then the ný-/tý-participle is ungrammatical, as demonstrated by example (30), containing the dative reflexive si. This again shows that the presence of an accusative object is necessary for the formation of ný-/tý-participles.

(30) a. po-pracovat si on-work self.DAT
    b. * po-pracovaný on-worked
   ‘work for a while’

It is known that English stative verbs like have, resemble, cost, albeit transitive, cannot occur in the passive. Similar facts can be observed in Czech; ný-/tý- and n-/t-participles cannot be derived from non-agentive (non-causative) verbs. Example (31), with the accusative experiencer, shows that even if a verb is transitive and has an accusative argument, ný-/tý- and n-/t-participles can be ungrammatical (see also Veselovská & Karlík 2004).

(31) a. Pavla gól (za-)mrzel.
    Pavel.ACC goal.NOM (behind-)regreted
   ‘Pavel was sorry about the goal.’
    b. * Pavel/gól byl (za-)mrzen.
        Pavel.NOM/goal.NOM was (behind-)regreted
    c. * (za-)mrzený Pavel/gól
        (behind-)regreted Pavel.NOM/goal.NOM

Specifically, (31a) demonstrates that the verb derives the l-participle and the past tense and (31b) shows that the sentence cannot be passivised, independently of whether it is the experiencer or the theme that appears in the subject position. Example (31c) then shows that

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8 Some transitive verbs with the accusative reflexive se can derive both lý- and ný-/tý-participles, e.g., opít se ‘get drunk’: opilý/opitý student ‘drunk student’ and vyspat se ‘get a good sleep’: vyspalý/vyspaný student ‘well-slept student’. However, there is a semantic difference: Opilý ‘drunk’ denotes a result state without specifying whether the student got drunk by himself or was made drunk by someone else, whereas opitý ‘drunk’ can only mean that the student was made drunk by someone else. As to the contrast between vyspalý and vyspaný, if the predicate is not reflexive, then only the ný-/tý-participle is possible, as shown in (i).

(i) a. Student se vyspal.
    student self vyspaný student
    ⇒ vyspalý / vyspaný student
    well-slept well-slept student
    b. Student vyspal opici.
    student vyspaná / * vyspalá opice
    ⇒ slept.off slept.off hangover
    well-slept well-slept hangover

There are also some unaccusative verbs that derive the ný-/tý-participle, e.g. zhnisný ‘festering’. Such cases, however, are more often in dialects and colloquial Czech than in standard Czech.
the ný-/tý-participle is ungrammatical regardless of which of the arguments is modified. It is also irrelevant whether or not the predicate is prefixed.

To conclude this section, in the vast majority of cases, ný-/tý-participles are derived from agentive (causative) transitive predicates with an accusative object. Czech differs from Russian, in which nnyj-/tyj-participles are mostly formed from perfective transitives and which uses the myj-participle for the present passive function, and patterns with Polish, in which ny-/ty-participles are also regularly derived from imperfective transitives. We have also seen that prefixes help predicates to derive ný-/tý-participles because they can transitivise unergative predicates.

4.2.3 Properties of lý-participles

In this section, I discuss relevant properties of lý-participles. The following examples demonstrate that imperfective intransitives can form l-participles and the past tense. This holds for both unergatives, as in (32), and unaccusatives, as in (33).

(32) a. pracoval (jsem) b. hučel (jsem) c. hloubal (jsem)
    worked am rumbled/murmured am mused am
    ‘(I) was working’ ‘(I) was rumbling/murmuring’ ‘(I) was musing’

(33) a. tekł (jsem) b. kvetl (jsem) c. bledl (jsem)
    flowed am blossomed am paled am
    ‘(I) was flowing’ ‘(I) was blossoming’ ‘(I) was paling’

However, neither the unergative verbs from (32) nor the unaccusative verbs from (33) derive lý-participles, as illustrated by the examples below.

(34) a. *pracovalý b. *hučelý c. *hloubalý
    worked rumbled/murmured mused

9 Besides past tenses, the l-participle also occurs in modal constructions like přišel by ‘he would come’, but it cannot occur in the future tense, in contrast to Polish.

10 There are some apparent counterexamples to this generalisation, e.g. plynulý ‘fluent’, lesklý ‘shiny’, bdělý ‘vigilant’. According to Petr (1986a), however, words like these are true adjectives. They are often gradable and often undergo meaning shift (for similar facts see Bartnicka 1970, who deals with adjectivised past participles in Polish).
At first sight, it is surprising because -ły-participles are based on -l-participles. Cetnarowska (2000) argues that the Polish suffix -l in verbal -l-participles is identical with the -l- in adjectival -ły-participles because the two participles show formal identity and also identical morphological alternations. The same also holds for Czech participles; the verbal -l-participle and the adjectival -ły-participle can, for instance, drop the -nu/-nou- suffix in contrast to the infinitive and the present tense form, as shown in (36). Example (37) then demonstrates that the two participles have the same thematic vowel and in this respect differ from the infinitive and the present form and example (38) shows that the participles also pattern together in the root allomorphy.

(36) a. vypnout     b. vypne       c. vypl (vypnul)   d. vyplý (vypnutý)
     turn.off        turns.off     turned.off       turned.off

(37) a. probdít      b. probdí       c. probděl    d. probdělý
     be.awake       is.awake      was.awake       sleepless

(38) a. spéct (se)   b. speče (se)    c. spekl (se)   d. speklý
     fuse self      fuses self     fused self      fused

The data in (39) and (40), repeated from (16), show that the formation of -ły-participles is sensitive to aspectual properties. When the verbs under discussion are prefixed, some of them derive -ły-participles since verbal prefixes have a perfectivising and telicising effect, as we saw in chapter 2; compare (34) and (35) with (39) and (40); see also Weiss (1977) and Cetnarowska (2000) for the claim that Polish -ły-participles can be derived only from perfective verbs and Kopečný (1959), Maslov (1988) and Giger (2003), who argue that resultatives are only derived from perfective verbs, and Giger (2009), who claims that target state participles are derived from telic verbs. In the same vein, Cetnarowska (2000) argues that Polish resultative -ły-adjectives are derived from telic predicates. As to non-Slavic languages, see, for instance, Kratzer (1994, 2000) and Rapp (1996), who argue that adjectival participles in German are derived from telic verbs, which have an eventive and a stative component. For similar suggestions with respect to Greek participles, see Anagnostopoulou.
(2003) and Alexiadou & Anagnostopoulou (2008), who argue that participles derived from activities are marginal and participles derived from statives ungrammatical.

out-worked        to-rumbled/murmured        behind-mused

(40) a. o-teklý            b. roz-kvetlý            c. po-bledlý
about-flowed        apart-blossomed        on-paled
‘swollen’            ‘in blossom’            ‘a little pale’

In addition, it is only unaccusative perfective, telic verbs that can derive lý-participles, as shown by the contrast between the ungrammatical unergatives in (39) and the grammatical unaccusatives in (40) (see also (15) for more examples with unergatives). For this reason, the formation of lý-participles has been used as a diagnostic for unaccusativity, as already discussed in the previous section. In this respect, Czech behaves as many other languages; consider, for instance, the English and German examples in (41) and (42), which show that the unergative participle is ungrammatical in contrast to the unaccusative one.

(41) a. *worked man            b. frozen man
(42) a. *gearbeiteter Mensch            b. gefrorener Mensch
       worked man            frozen man

The formation of lý-participles is also sensitive to the (in)transitivity status of the appropriate predicate. As argued by Lamprecht, Šlosar & Bauer (1986), Karlík, Nekula & Rusinová (1995) and Nübler (2004), transitive predicates do not derive lý-participles in Modern Czech. This is illustrated below. Although transitive verbs form l-participles, as in (43), they do not derive lý-participles, as shown in (44). Thus, of the two types of adjectival participles in the passive slots, lý-participles are restricted to unaccusative predicates and ný-/ňý-participles are built from transitives, as already mentioned in section 4.2.1.

(43) a. za-kryl            b. po-sunul            c. od-lepil
       behind-covered        on-pushed        away-pasted
       ‘(he) covered’        ‘(he) pushed’        ‘(he) unstuck’
Transitive predicates with the suffix -nou/-nu- behave exceptionally since they can often form both participles, the ný-/tý-participle with -nu- and the lý-participle without -nu-, for example, *odemknout ‘unlock’ derives *odemknutý and *odemklý and *zapnout ‘fasten, turn on’ derives *zapnutý and *zaplý. Note that verbs with -nou/-nu- already had a special status in Old Church Slavonic because the suffix -ฝาก- was omitted in preterite active participles, perfect active participles and the asigmatic aorist.

In certain cases, there is a semantic difference between the two participles; consider (45) with participles derived from the verb *přepadnout ‘fall over’. The ný-/tý-participle expresses the transitive meaning of the verb and the lý-participle the unaccusative meaning, which is in accordance with the generalisation above.\(^{12}\)

(45) a. přepadný člověk fallen.over man  b. (přes zábradlí) přepadlý člověk over railing fallen.over man

‘a man that was mugged’  ‘a man that fell over a railing’

In this section, we have seen that with the exception of verbs with the suffix -nou/-nu-, only perfective/telic, unaccusative predicates derive lý-particiles.\(^{13}\) Prefixes again play an important role in this process because they perfectivise the base verb and turn atelic eventualities into telic ones. For a predicate to be able to derive a resultative (target state) adjectival participle, like the lý-participle, it must be telic, that is, must have the potential to include a result state, and it must be perfective, that is, the result state must be reached.

4.3 The stativiser

In what follows, I investigate the morphosyntactic structure of adjectival participles and discuss the positioning of the stativising operator in the participial structure. Consider the contrast between the unprefixed, that is, imperfective, l-participles in (32) and (33), repeated

\(^{11}\) The adjectives are resultant state participles, not target state participles.

\(^{12}\) There are also some transitives without -nou/-nu- that derive lý-particiles, like zdědilý ‘inherited’, rožlý ‘switched on’, but these cases are very often archaic or dialectal; see Kopečný (1962).

\(^{13}\) As to the difference between unaccusative and transitive predicates, consider also the often-made claim in the literature on English (Bruening 2014 and references therein) that unaccusatives derive the adjectival passive but do not the verbal passive.
as (46) and (47), and the ungrammatical řý-participles in (34) and (35), repeated below as (48) and (49).

(46) a. pracoval (jsem)    b. hučel (jsem)    c. hloubal (jsem)
    worked am        rumbled/murmured am        mused am
    ‘(I) was working’ ‘(I) was rumbling/murmuring’ ‘(I) was musing’

(47) a. tekl (jsem)    b. kvetl (jsem)    c. bledl (jsem)
    flowed am        blossomed am        paled am
    ‘(I) was flowing’ ‘(I) was blossoming’ ‘(I) was paling’

    worked        rumbled/murmured        mused

(49) a. * teklý    b. * kvetlý    c. * bledlý
    flowed        blossomed        paled

The verbal participles in (46) and (47) show that the participial morpheme -l can attach to imperfective verbs. This means that the ungrammatical status of the adjectival řý-participles in (48) and (49) is not due to aspectual selectional requirements of the morpheme -l, as the comparison of (49) with the prefixed (50), repeated from (40), might suggest.

(50) a. o-teklý    b. roz-kvetlý    c. po-bledlý
    about-flowed        apart-blossomed        on-paled
    ‘swollen’        ‘in blossom’        ‘a little pale’

The ungrammaticality of the adjectival řý-participles in (48) and (49) also cannot be based on aspectual selectional requirements of the agreement marker -ý because it can attach to imperfective verbs, too, as shown by forms like čtený ‘being read’ in (18b). The reason must be found somewhere else.

Since the perfective řý-participles in (50) have a stative (resultative) interpretation, I will follow the proposal by Biskup (2010, 2016b), who, building on Kratzer (2000), assumes that there is a covert affix between the participial -l and the ending -ý that represents an adjectival head and functions as a target state operator. The stative property is confirmed by example
(51), with the predicate zůstat ‘remain’, which can co-occur with a stative complement but cannot with an eventive complement (for other verb tests, which cannot be applied to Czech, see Anagnostopoulou 2003 and references therein).

(51) a. Zůstal klidný / nemocný / zdravý / slabý.
remained calm ill healthy weak
‘He remained calm/ill/healthy/weak.’

b. * Zůstal plavat / jet / padat / bodat.
remained swim go fall stab

c. Zůstal oteklý / rozkvetlý / pobledlý.
remained swollen in.blossom paled
‘He/it remained swollen/in blossom/pale.’

Example (51a) demonstrates that zůstat is compatible with adjectives; (51b) shows that zůstat is not compatible with eventive predicates; and crucially, (51c) demonstrates that it is compatible with the lý-participles from (50).

Ný-/tý-participles derived from perfective predicates also have a stative interpretation (cf. Kopečný 1962); therefore, they can co-occur with zůstat, as shown in (52a).14 In contrast, the eventive, unprefixed participles čtený, hlášený, topený, česaný are ungrammatical; see (52b). The unprefixed hloubaný and pracovaný are ungrammatical because of their intransitivity, independently of zůstat.

(52) a. Zůstal rozečtený / přihlášený / zatopený /
remained unfinished.reading registered flooded
učesaný / zahloubaný / vypracovaný,
combed mused worked-out
‘He/it remained unfinished/registered/flooded/combed/mused/working-out.’

remained read announced drowned combed

14 Since zůstat selects temporary properties, the combination of zůstat and the resultant state dočtený ‘read to the end’ (or přečtený ‘read to the end’) is ungrammatical.
For this reason, I also assume the stativiser in the adjectival head of perfective \(n\)ý-/\(l\)ý- participles. Recall that prefixes almost always turn atelic eventualities into telic ones and that they – the incorporated prepositions – introduce a state variable into the derivation, as proposed in chapter 2. This fits in with the idea that the target state operator can apply only to predicates that have a visible state (e.g. Kratzer 2000 and Alexiadou, Rathert & von Stechow 2003). Given this proposal, the reason why the -\(l\)ý participles in (49) are ungrammatical in contrast to the participles in (50) is that they do not have a prefix, which would introduce a state variable that could license the application of the stativiser.

In the same vein, in the case of \(n\)ý-/\(l\)ý-participles derived from eventive predicates, only the prefixed participles, like in (52a), which have the state variable added by the prefix, can have a stative interpretation.\(^{15}\)

### 4.4 The stativiser and the structure of \(l\)ý- and \(n\)ý-/\(l\)ý-participles

The stativising operator cannot be realised by the participial affixes \(-l\) or \(-n/-t\) because these affixes also derive words which do not have a stative meaning, as shown, for instance, by the \(n\)-participle čten ‘being read’ in (18a) and the \(l\)-participle pracoval ‘was working’ in (32a). For the same reason, the stativiser also cannot be attached somewhere 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 neutralised by some assumption). The stativising operator also cannot be represented by the prefix itself since prefixed words do not have to be stative, as demonstrated by eventive \(l\)-participles like odlepił ‘unstuck’ in (43c).

The stativising operator also cannot be spelled out by the adjectival ending \(-\)ý because the suffix can occur in words without a stative meaning, as demonstrated below. The translations show that in (53a) the interpretation is progressive and in (53b) numeral.

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\(^{15}\) With the exception of a few simplex verbs that are perfective/telic without a prefix and cases like (i). With respect to unprefixed case like (i), which - given the long ending - can only have the stative reading in standard Czech, there are at least two possibilities. Lepená can either be analysed as a true adjective (see Petr 1986a, Štícha 1986) or as a participle with the perfective interpretation, i.e., with the telic meaning. Note also that it has been proposed for perfective unprefixed predicates that they contain a covert prefix (Fowler 1996). Cases like čtený autor ‘a popular author’ can only be analysed as adjectives. This is supported by the meaning shift of čtený and the fact that čtený is gradable, as shown in (ii).

(i) Ta knížka je lepená.
the book is glued
‘The book is glued.’

(ii) Hemingway je čtenější než Tolstoj.
Hemingway is more.widely.read than Tolstoj
‘Hemingway is more popular than Tolstoj.’
(53) 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 that the stativiser must be higher than the participial affixes -l and -n/-t and cannot be realised by the adjectival ending, I assume that there is a covert head that embeds the participial projection PartP headed by one of the participial affixes. This head contains the stativising operator and is of adjectival nature since lý-participles and ný-/tý-participles inflect as adjectives. The adjectival ending -ý/-á/-é itself is an agreement marker expressing φ-features of the adjectival head a; historically, these suffixes are composed of a nominal ending and a personal pronoun. In contrast to these long endings, verbal participles have short endings -ø/-a/-o, which are reduced to structural cases and are of nominal nature historically.

As we already know, verbal participles occur in analytical verb forms, l-participles in past tenses and modal constructions and n-/t-participles in the verbal passive, in the perfect and the get passive. In contrast, adjectival participles occur in the attributive position, as in zahloubaný student ‘a student lost in thought’ from (23b), and in the predicative position; consider the target state participles in (54) (recall that target states differ from resultant states in that they can be modified by still).16

(54) Jirka je stále ještě za-hloubaný / po-bledlý.
    Jirka is still behind-mused on-paled
    ‘Jirka is still lost in thought/somewhat pale.’

The generalisation drawn from the data is that long endings are related to stativity and short forms to eventivity (cf. Petr 1986b, Veselovská & Karlík 2004, Taraldsen & Medová 2007 and Caha 2009, chap. 5; and also Geist 2010 and Borík 2013 for the difference between Russian short-form and long-form participles and adjectives). Given this, it is reasonable to propose that the adjectival head a is present only in long forms, that is, in adjectival participles, and that the stativiser occurs in this head. Verbal participles then project only the

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16 In colloquial Czech, in certain Bohemian dialects, the adjectival (long) participles can also occur in the verbal passive. For the verbal (short) n-/t-participles in the predicative position see below.
participial phrase, hence the extended verbal projection cannot be stativised, and short endings are markers realizing φ-features of the participial head.

There are two problematic cases. First, n-/t-participles can also occur in the predicative position. However, such cases with the stative reading are bookish or archaic. Consider the following example, which is ambiguous between the eventive (verbal passive) reading and the stative (adjectival passive) reading.

(55) Ten toustovač byl rozbit už před dvěma týdny.
    the toaster was broken already before two weeks
    ‘The toaster was broken already two weeks ago.’

According to the proposal above, the short form rozbit should project only the participial phrase, hence the interpretation should only be eventive, contrary to the facts. Or, considering the stative interpretation, the adjectival head should project; but then the participle should have the long form rozbitý.

To account for these facts, I assume that the adjectival head with the stativiser indeed projects and that at PF the short vocabulary item -ø is inserted instead of the long ending -ý. Such a wrong choice needs to be penalised. This is the reason why n-/t-participles with the stative interpretation in the predicative position are judged as bookish or archaic.

Second, it seems that not all adjectival participles in the attributive position – which have the long ending – have a stative interpretation. The prefixed attributive participles in (23)-(25), repeated below in more complex examples, have a stative reading: a student is in the state of being lost in thought, a doctor is in the state of being overworked and some muscles are in the worked-out state (see also the diagnostic in (52)).

(56) a. Ten za-hloubaný student sedí támhle.
    the behind-mused student sits there
    ‘The student lost in his thought is sitting over there.’

b. Ten pře-pracovaný lékař je na dovolené.
    the over-worked doctor is on holiday
    ‘The overworked doctor is on holiday.’

c. Jeho vy-pracované svaly mu nepomohly.
    his out-worked muscles him not.helped
    ‘His worked-out muscles did not help him.’
As to unprefixed participles, they have an eventive reading; see (57) (cf. also (52b)), where the participles do not express a state but a process. Specifically, the news is being reported; a boy is being drowned and a girl is being combed.

(57) a. Ta zpráva (zrovna teď) hlášená v místním rozhlasu nebude nikoho zajímat.
   the news (right now) reported in local radio will not anybody interest
   ‘The news reported in the public address system (right now) will not interest anybody.’

   b. Tomu topenému chlapci se to vůbec nelíbí.
   the drowned boy self it at all not likes
   ‘The drowned boy does not like it at all.’

   c. Té česané holčičce dávají bonbón.
   the combed girl give bonbon
   ‘They are giving the combed girl a bonbon.’

Thus, only the prefixed attributive participles have a stative interpretation. This is in accordance with the proposal above. Since prefixes introduce a state variable, the participles in (56) can have a stativiser in their structure, in contrast to the participles in (57).

This pattern is parallel to the behaviour of German prenominal past participles. The following example shows that atelic predicates like the one in (58a), taken from Rapp (1997, 242), originally from Paul & Stolte (1962, 311), have an ongoing interpretation in the prenominal position and telic predicates like the one in (58b) have a stative (resultative) interpretation.

(58) a. ein von vier Pferden gezogener Wagen
   a by four horses pulled cart

   b. ein von vier Pferden in den Hof gezogener Wagen
   a by four horses in the courtyard pulled cart

The directional adverbial has the same telicising effect as the prefixes discussed above. In contrast to standard German, however, Slavic languages have the morphological aspect, which is relevant to the derivation of resultative participles, too. Specifically, although the
prefixes in the following examples introduce the state, the participles are not stative. Since
they contain the secondary imperfective suffix -va-, they have the ongoing interpretation.

(59) vypracovávaný / přepracovávaný úkol
worked.out     reworked     assignment
‘an assignment that is being worked out/reworked’

To conclude this discussion, the adjectival head does not necessarily have the stativising
semantics in ný-/ťý-participles. This, however, only holds for the attributive position; in the
predicative position, only prefixed ný-/ťý-participles can occur (except the cases discussed in
footnote 15), given the presence of the copula být ‘be’. Consider the ungrammatical examples
below, having the participles from (57) in the predicative position.

(60) a. * Ta zpráva je hlášená (v místním rozhlase).
     the news      is reported (in local      radio)
 b. * Ten chlapec je topený.
     the boy     is drowned
 c. * Ta holčička je česaná.
     the girl    is combed

In contrast, the prefixed participles from (56) can occur in the adjectival passive, as illustrated
by the following examples.

(61) a. Ten student je za-hloubaný.
     the student is behind-mused
     ‘The student is lost in his thought.’
 b. Ten lékař je pře-pracovaný.
     the doctor is over-worked
     ‘The doctor is overworked.’
 c. Jeho svaly jsou vy-pracované.
     his muscles are out-worked
     ‘His muscles are worked-out.’
Since in contrast to the copula *být* ‘be’ in the adjectival passive, the homophonous auxiliary *být* ‘be’ in the verbal passive can embed unprefixed (imperfective) participles – as in *Ten román byl čten* ‘The novel was being read’ from (18a) –, I consider these two verbs to be different elements (contrary to Veselovská & Karlík 2004). This is supported by the fact that the verbs have different distributional properties (see Krchňavá 2010). The following example, taken from Krchňavá (2010, 78), demonstrates that the raising verb *zdát se* ‘seem’ selects only *být* with the stative (adjectival) participle, as in (62a), not *být* with the eventive (verbal) participle, as in (62b). The control examples in (62c) and (62d) show that both participles with *být* are grammatical if they are not embedded under *zdát se*.

(62) a. Pokoj se zdá být uklizený.
   room self seems be cleaned
   ‘The room seems to be cleaned.’

b. *Pokoj se zdá být uklizen.*
   room self seems be cleaned

c. Pokoj je uklizený.
   room is cleaned
   ‘The room is cleaned.’

d. Pokoj je uklizen.
   room is cleaned
   ‘The room is being cleaned.’

Another distributional argument is presented in (63), with the perfective semelfactive *kopnout* ‘kick’. Semelfactive verbs are instantaneous events consisting of a single point that do not contain a change of state (see e.g. Smith 1991). Therefore, if the copula *být* selects a complement with a stative component, then when combined with a semelfactive verb like *kopnout*, it should produce an ungrammatical sentence. This is indeed the case, as shown in example (63a), with the adjectival participle *kopnutý*.

(63) a. *Pavel byl kopnutý.*
   Pavel was kicked

b. Pavel byl kopnut.
   Pavel was kicked
   ‘Pavel was kicked.’
The second relevant point with respect to (63) is that if the verb *být* occurring in verbal passives were identical to the copula *být*, then it would not be clear why the *být* in (63b) can freely combine with the semelfactive verbal participle *kopnut*.

The proposal that the copula *být* selects only a complement with a stative component is also supported by the fact that it cannot embed adjectival present participles, which are derived only from imperfective verbs and have an ongoing interpretation; consider (64).

(64) * Jirka je dělající / česající / čtoucí.  
    Jirka is working combing reading

The final argument for the different status of the two verbs *být* is of comparative nature. There are many languages that use different verbs in the verbal and adjectival passive; consider, for instance, the following German example (see also Rapp 1997, Kratzer 2000 for arguments that adjectival passives are not perfect verbal passives with the auxiliary *worden* ‘become’ deleted).

(65) a. Das Haus ist verkauft.  
     the house is sold  
     ‘The house is sold.’

b. Das Haus wird verkauft.  
     the house becomes sold  
     ‘The house is being sold.’

As to Slavic languages, consider example (66), coming from Polish, which differentiates between auxiliaries in the verbal and the adjectival passive in the case of perfective main verbs.

(66) a. To dziecko zostało umyte.  
     the child became washed  
     ‘The child was washed.’

b. To dziecko bylo umyte.  
     the child was washed  
     ‘The child was washed.’
There are some cases with unprefixed \(n^{-1}/t^{-1}\)-participles in the predicative position; see (67). However, as already mentioned in footnote 15, such cases receive a different analysis; the \(n^{-1}/t^{-1}\)-forms are standardly analysed as adjectivised participles denoting a property of the entity over which they predicate (Trávníček 1923; Petr 1986a,b; Štícha 1986; Giger 2003; see also Horecký et al. 1989 for Slovak and Isachenko 1962, Kalakuckaja 1971 for Russian). Thus, \(vařené\) denotes a true adjective that denotes a gastronomic kind of potatoes and can be contrasted, for instance, with baked potatoes.\(^{17}\)

\[(67)\] Ty brambory jsou vařené.
    the potatoes are cooked
    ‘The potatoes are cooked.’

As to \(n^{-1}/t^{-1}\)-participles in the perfective use and perfect constructions like in (68a) and (68b), respectively, they are imperfective but denote a telic event (see e.g. Hausenblas 1963). Hence, independently of how such cases are analysed (there could e.g. be a covert prefix adding a state variable), they do not pose a challenge to the claim that in the predicative position only participles with a stative component occur (cf. Kratzer 2000, Meltzer-Asscher 2011 for the claim that adjectival passives are derived only from verbs that have states as part of their meaning).

\[(68)\] a. To pivo je placené.
    the beer is paid
    ‘The beer has been paid.’

    b. To pivo mám placené.
    the beer I have paid
    ‘I have paid for my beer.’

    ‘Somebody has paid for my beer.’

Since \(-l\)-participles can be derived from all types of verbs, \(-l\) realises any participial head, as schematised in (69a). In contrast, the suffix \(-n/-t\) is more specific; it spells out a participial head that has selectional features \([\text{agent(ive)}, p]\) since \(n/-t\)-participles can only be derived from agentive transitive verbs; consider (69b).\(^{18}\) The feature \([p]\) stands for transitivity because all verbal arguments that do not merge in the specifier of \(vP\) – including the direct object – merge in a prepositional phrase \(pP\) selected by the root, as discussed in chapter 2.8.2.

\(^{17}\) \(L^{-1}\)-participles are well-behaved since they must always be perfective, as we saw in section 4.2.3.

\(^{18}\) Let us assume that the vocabulary item \(-n/-t\) has features \([\text{agent(ive)}, p]\), in contrast to \(-l\).
Since I assume the copy theory of movement and the incorporation analysis of head movement, the agentive $v$ and the selectional feature $[p]$ of the verbal root are visible for the participial head. More generally, given the head movement analysis of Slavic verbs proposed in the preceding chapters, the information about the object will always be accessible, independently of whether or not the preposition introducing it incorporates into the root.

Recall that the adjectival head $\alpha$ is present only in long forms, that is, in adjectival participles. In contrast to $l$-particyles, which can be derived from all types of verbs, $lý$-particyles are only formed from unaccusative verbs, as discussed in section 4.2.3. For this reason, I assume that the stativising head $\alpha$ selects a complement with the unaccusative $v$, which does not introduce an external argument, in contrast to the active and passive $v$ (which can introduce the instrumental agent), as shown in (70).

The fact that $lý$-particyles are only formed from telic (prefixed) predicates will be derived by the semantic (in)compatibility of the stativiser with the meaning of its sister. Specifically, the (in)compatibility depends on whether or not the sister contains a state variable, which is introduced by prefixes, as we already know. As discussed in section 4.1, the target state operator needs a predicate with an event argument and a state argument; hence, when it combines with an unprefixed predicate, which does not have the state argument, the derivation results in semantic mismatch.

The question arises why $lý$-particyles like rozkvétalý (based on the grammatical imperfective verb rozkvétat ‘be coming into blossom’), which contain a prefix – that is, the state component –, are ungrammatical. The fact that the perfective form without the secondary imperfective suffix rozkvetlý (based on rozkvést ‘come into blossom’) is grammatical shows that it is the morphological aspect that is relevant here. In chapter 2, we saw that in the case of the imperfective aspect, the reference time is included in the event time. Given this inner perspective on the event, imperfective predicates do not express that a result state is or will be
reached. For this reason, it does not make any sense to predicate a result state over an entity in the actual world.¹⁹

Let us turn to ný-/tý-participles now. Given that ný-/tý-participles are derived from transitive verbs, the stativising adjectival head of these participles does not have the unaccusative selectional feature in contrast to the adjectival head present in lý-participles.

The fact that static ný-/tý-participles are formed from telic verbs will be analysed as in the case of lý-participles. Recall that unprefixed ný-/tý-participles in the attributive position have an eventive interpretation, like čtená kniha ‘a book that is being read’. Combining the stativising adjectival head with this type of participles will again result in a semantic mismatch since unprefixed ný-/tý-participles do not contain a state component (with the exception of a few perfective, telic simplex verbs). Hence, the static interpretation results from combining the target state operator of $a_{\text{stat}}$ with prefixed ný-/tý-participles and unprefixed participles like čtená kniha are derived by a non-stativising adjectival head.

On the other hand, combining the non-stativising adjectival head with a prefixed participle will not derive the static meaning, as with prefixed secondary imperfectives like vypracovávaný ‘being worked out’. In this respect, ný-/tý-participles participles differ from lý-participles, which only have the stativising adjectival head and do not derive grammatical secondary imperfectives (as shown by the ungrammatical rozkvětalý above).

Taken together, the higher structure of ný-/tý-participles looks like (71). The difference between the two types of ný-/tý-participles is that the adjectival head in the eventive attributive ný-/tý-participles does not have the target state operator, hence it does not stativise the extended verbal projection.

(71) a. $[aP \ a_{\text{stat}} \ PartP \ [\text{Part} [\text{agent}, p] \ n/t \ [\ ]]]$

b. $[aP \ a \ [\text{PartP} \ [\text{Part} [\text{agent}, p] \ n/t \ [\ ]]]$

With respect to the question why the stativiser is always present in the adjectival head of lý-participles, in contrast to ný-/tý-participles, one possibility is that the eventive interpretation of lý-participles is blocked by the existence of ci-participles, which also derive the eventive interpretation from unaccusative verbs; consider (72a) for unaccusatives, (72b) for

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¹⁹ One could also propose that the ungrammatical status results from semantic mismatch between the target state operator – which existentially binds the event argument and projects the state argument – and the meaning of its sister containing the imperfective aspectual head existentially quantifying over the eventuality arguments $s$ and $e$. In contrast, if the perfective head can – in addition to the meaning discussed in chapter 2.8.2 – also have the meaning without existential quantifiers (as proposed in 4.6): $\lambda R \lambda \delta \lambda e[R(s)(e) \land \tau(e) \subseteq t \land \tau(e) \sqsubseteq \tau(s)]$, there will be no mismatch. The question, however, is whether such a difference is defensible.
unergatives and (72c) for transitives. The eventive interpretation of ný-/tý-participles is not blocked since these participles are derived from transitives and či-participles cannot modify the accusative object, as shown in (72d).

(72) a. hořící dům b. štěkající pes c. čtoucí student d.* čtoucí kniha
   burning house barking dog reading student reading book

In this respect, I follow the proposal by McIntyre (2013), who argues that the ongoing interpretation of English unaccusative participles such as *fallen leaves is blocked by the existence of ing-participles like falling leaves.

As discussed in section 4.2.2, while n-/t-participles receive the default agreement when the verbal object is marked with case other than structural accusative, ný-/tý-participles are ungrammatical in such a case; consider (73), repeated from (19).

(73) a. Bylo děkováno lingvistům.          b. * děkování lingvisté
   was thanked linguists.DAT thanked linguists
   ‘They were thanking linguists.’

Thus, there are two important factors in this matter, the type of the participle – verbal versus adjectival – and case properties of the internal argument, structural accusative versus other cases.

It has been argued that the object over which the adjectival participle predicates does not originate in the verbal domain but is merged outside the participle (Belletti & Rizzi 1981, Levin & Rappaport 1986, McIntyre 2013, Bruening 2014). Following Bruening (2014), I assume that in the adjectival participle, there is a null operator representing the internal verbal argument (in my analysis generated in the prepositional phrase), which is attracted by the adjectival head, which wants to have a nominal element in its specifier, as schematised in (74). This movement forms a predicate of individuals from the proposition; hence the adjectival phrase can combine with the noun, either via functional application or via predicate modification (as we will see in the semantic derivation in section 4.6).

(74) [DP D [NP N [aP Op1 [a_v [ ... [aP t ]]]]]]
Recall from chapter 3 that in the case of defective prepositional phrases, the head P does not have \( \varphi \)-features and does not assign case – hence the prepositional complement receives structural accusative from the aspectual head after its movement to the outer specifier of vP – and the preposition can only occur as a prefix on the verb. In contrast, in non-defective prepositional phrases, the prepositional complement receives prepositional case from the head P and must not move because the movement would violate the A-over-A principle applied to the perfective Tense-feature, as discussed in chapter 2.8.1.\(^{20}\) Consider the following example with a non-defective prepositional phrase, from which the prepositional complement cannot move.

\[(75)\]  
a. Pavel (na-)sypal koření na stůl.  
Pavel on-poured spice on table  
‘Pavel poured/was pouring spice on the table.’  
b. Na stůl Pavel (na-)sypal koření.  
on table Pavel on-poured spice  
‘On the table, Pavel poured/was pouring spice.’  
c. * Stůl Pavel (na-)sypal koření na.  
table Pavel on-poured spice on

Given the impossibility of preposition stranding and the assumption that non-structural cases like the dative in (73a) are assigned by a covert non-defective preposition (the object cannot be marked with structural accusative), the null operator generated as the complement of the non-defective P in adjectival participles cannot move to the specifier position of a and cannot abstract over the structure.\(^{21}\) Consequently, the appropriate type \(<e, t>\) is not derived, the participle remains a proposition and cannot combine with the to-be-modified noun (which standardly is of the type \(<e, t>\)); as shown by the ungrammatical status of (73b).

In contrast, in cases like (76a), the null operator can move out of the prepositional phrase (via the vP edge) since the preposition is defective, as demonstrated by example (76b), in which the preposition does not assign case and is spelled out only as a verbal prefix.\(^{22}\) Note that \(z\) only assigns genitive and that the object corresponding to the operator is marked with structural accusative in (76b).

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\(^{20}\) It remains to be seen whether the proposal holds universally, i.e., whether preposition stranding is restricted to languages that do not have the morphological aspect.

\(^{21}\) As we already know from the preceding chapters, the covert nature of the preposition does not necessarily mean that the head P is defective.

\(^{22}\) The defective status is supported by the semantic emptiness of the prefix.
(76) a. z-otročená populace
   from-slaved population
   ‘an enslaved population’

b. Z-otročili celou populaci.
   from-slaved entire population
   ‘They enslaved the entire population.’

Concerning $n$-/t- (verbal) participles, like in (73a), they do not contain the adjectival projection; thus, there is no probe that could move the prepositional complement. $N$-/t-participles also do not contain a null operator; the appropriate object merges directly in the prepositional phrase.

However, the dative object can move, as shown in (77). This type of movement is optional and can be treated as scrambling or topicalisation of the entire prepositional phrase; compare the grammatical topicalisation example in (75b). Note that if the covert preposition were stranded, we would expect (77) to be ungrammatical given the violation of the A-over-A principle, as discussed in 2.8.1. Since the object participated in the Agree relation with the head $P$, the $n$-/t-participle and the auxiliary in the passive must receive the default agreement, as demonstrated below.

(77) Lingvistům₁ bylo děkováno t₁.
    linguists.DAT was.N.SG thanked.N.SG
    ‘They were thanking linguists.’

The movement of the whole prepositional phrase might be used to avoid preposition stranding in the case of $n$ý-/tý-participles, however, given that the adjectival head needs to move the operator alone, such a derivation would exhibit a Freezing effect (cf. Ross 1967, Wexler & Culicover 1980, Müller 1998, Boeckx 2008).

Let us now move down in the participial structure. Example (78) demonstrates that the secondary imperfective suffix -$v$á/-vá/-$a$- is closer to the root than the participial morphemes -$l$ and -$n$-/t. Given that the participial morphemes represent the participial head and the secondary imperfective suffix spells out the aspectual head, the participial projection must be higher than the aspectual projection in the participial structure.

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23 The secondary imperfective (and iterative) suffix -$v$á- is historically identical with the Proto Slavic suffix -$a$-present in the imperfect (Němec 1956).
Examples (78a) and (78b) also show that there is a thematic vowel between the root and the secondary imperfective suffix. Since thematic suffixes determine the syntactic category and the conjugation class in Slavic, they represent the verbalizing head  in as we already know; consider the contrast between the infinitives with the thematic suffix -a- in (79a) and (79c) and the nouns with the nominalising suffixes in (79b) and (79d).

Since thematic suffixes are closer to the root than the secondary imperfective suffix, we receive the following structure for adjectival participles.

Given this structure and the proposal that the agent argument is introduced by the head  one expects an agentive phrase in -participles but does not expect it in -participles because -participles contain the unaccusative . Example (81a) shows that the target state -participle 'swollen' can occur in the adjectival passive and (81b) demonstrates that the -participle indeed cannot co-occur with an agent or causer.

24 -participles can contain an agent since they are not restricted to unaccusative verbs.
At first sight, it seems that ný-/tý-participles also cannot co-occur with an agentive phrase; consider the following example.

(82) a. Ten koberec je (štále ještě) srolovaný.
    the carpet is still rolled up
    ‘The carpet is (still) rolled up.’

b. ?* Ten koberec je srolovaný Pavlem.
    the carpet is rolled up by Pavel

However, Rapp (1996) argues that participles in the adjectival passive must not contain information that is not characteristic for the appropriate result state. This correctly excludes cases like (82b) and correctly includes adjectival passives like the German (83) and its Czech equivalent (84).25

(83) Der Brief ist von einem Experten geschrieben.
    the letter is by a expert written          (Rapp 1996, 257)

(84) Ten dopis je napsaný nějakým expertem.
    the letter is written by some expert
    ‘The letter is written by an expert.’

Similarly, Meltzer-Asscher (2011) proposes that modifiers are licensed with adjectival passives only if they can modify the state denoted by the participle. This also holds for other phrases detecting the agent argument, like instrumental phrases. Consider the following Hebrew example, taken from Meltzer-Asscher (2011, 825).

(85) a. * ha-mixtav katuv be-et yafe.
    the-letter written in-pen beautiful
    b. ha-mixtav katuv be-et kaxol.
    the-letter written in-pen blue
    ‘The letter is written with a blue pen.’

25 These examples (and the ones below with napsaný ‘written’) contain a resultant state but that does not affect the argument.
According to Meltzer-Asscher, (85a) is ungrammatical because the pen is not part of the description of the written letter, whereas (85b) is grammatical if kaxol denotes the colour of the ink, not the colour of the pen. Such an interpretation is also possible in German, as shown in (86), and in Czech, as illustrated in (87).²⁶

(86) Der Brief ist mit roter Tinte geschrieben.
the letter is with red ink written  (Rapp 1996, 257)

(87) Ten dopis je napsaný červeným inkoustem.
the letter is written with red ink
‘The letter is written with a red ink.’

In the same vein, Maienborn (2007) argues that German adjectival passive constructions can contain by-phrases, instruments and locative adverbials to a certain extent. With respect to licensing conditions, she argues that the appropriate modifier must form a plausible informational unit with the modified participle, an ad hoc property, which is predicated of the subject and which is contrasted with salient alternatives.

That pragmatic principles play an important role in this matter seems to be supported by the contrast in the following example. (88a) is informationally too light in contrast to (88b), where the completion of the letter is brought into prominence by the phasal adverb už. For the same contrast, compare (88a) with (87b) and also with (ib) in footnote 26 (for related discussion see also Veselovská & Karlík 2004).

the letter is written
b. Ten dopis je už napsaný.
the letter is already written
‘The letter is already finished.’

²⁶ According to Rapp (1996, 257), in contrast to (86), (ia) is ungrammatical. It seems that (at least in Czech) the adverb is licensed in a context where (ib) is uttered by a graphologist analysing the handwriting of the letter, which is in accordance with the argumentation above.

(i) a. * Der Brief ist langsam geschrieben.
the letter is slowly written
b. Ten dopis je napsaný pomalu.
The letter is written slowly.
‘The letter is written slowly.’
Agent-oriented adverbs are also used as a diagnostic for the presence of an agent and for the height of attachment of the stativising operator (e.g. Anagnostopoulou 2003, Paslawska & von Stechow 2003). For instance, *special’no* in the Russian example (89) signals the presence of an agent, as does the Czech adverbs *záměrně/úmyslně* in (90a) and (90b).

(89) Okno zakryto special’no.
    window closed deliberately
    ‘The window is deliberately closed.’

(90) a.  To okno je zavřené záměrně/úmyslně.
    the window is closed deliberately
    ‘The window is deliberately closed.’

   b. Ten koberec je srolovaný záměrně/úmyslně.
    the carpet is rolled up deliberately
    ‘The carpet is deliberately rolled up.’

It is also possible to use the agent-oriented adverbial *velmi nedbale* ‘in a negligent manner’, which characterises the attitude of the agent. This adverbial is appropriate in a context where we see that the shape of the rolled-up carpet is very uneven; consider example (91).

(91) Ten koberec je srolovaný velmi nedbale.
    the carpet is rolled up negligently
    ‘The carpet is rolled up in a negligent manner.’

The presence of an agent in examples like (82a) is also confirmed by the contradiction test. Specifically, negating the presence of an agent or causer in the rolling event results in a contradiction, as shown below.

(92) # Ten koberec je srolovaný, ale nikdo (nic) ho neroloval(o).
    the carpet is rolled up but nobody nothing it NEG.rolled
    ‘The carpet is rolled up but nobody (nothing) was rolling it.’

From this discussion, I conclude that *ný/-řý*-participles can contain an agent (or causer), which is in accordance with the findings in Anagnostopoulou (2003), Meltzer-Asscher (2011),
McIntyre (2013), Bruening (2014) and Paslawska & von Stechow (2003). It is either expressed by a *by*-phrase or is implicit (existentially bound). This means that there are three types of the verbal head *v*; in addition to this passive *v* present in *n*-/*t*- and *ný*-/*ty*-participles, there is an unaccusative *v*, which does not introduce an external argument and is present in *lý*-participles, and the active *v*, which does introduce the external argument and is present in active sentences. Having established the structure of adjectival participles and the place of the stativising head in it, let us now look at how prefixes interact with the participial morphology and the target state operator.

### 4.5 Prefixes and the structure of *lý*- and *ný*-/*ty*-participles

In the preceding sections, I argued that the stativiser is attached high in the structure of Czech adjectival participles; it is the adjectival head that has the stativising semantics. It has been argued that superlexical prefixes differ from lexical prefixes in several aspects and that the distinctions reflect different base positions of these two types of prefixes, as discussed in section 4.1. Some authors argue that in contrast to lexical prefixes, superlexical prefixes cannot occur in adjectival participles; see Romanova (2006) for Russian past passive participles and Gehrke (2008) for Russian and Czech past active and past passive participles. In what follows, I will scrutinise these proposals with respect to *lý*- and *ný*-/*ty*-participles, investigating which types of prefixes can appear in which adjectival participles and how the prefixes interact with the stativising head.

#### 4.5.1 Lexical prefixes

The proposal that lexical prefixes are merged very low in the syntactic structure seems to be correct because every lexical prefix can appear in an adjectival participle. We already saw *ný*-/*ty*-participles with the lexical prefixes *vy*- ‘out’ and *s*- ‘with’. I repeat the relevant target state examples in (93) for the sake of convenience. Some other cases of lexical prefixes in *ný*-/*ty*-participles are shown in (94).

(93) a. vy-pracované svaly        b. s-rolovaný koberec  
    out-worked muscles           with-rolled carpet  
    ‘worked-out muscles’         ‘a rolled-up carpet’
These prefixes can also appear in -lý-participles, as shown by the following examples.

(95) a. led na-mrzlý na mrazáku b. vy-mrzlý pokoj c. při-mrzlé dveře
ice on-frozen on freezer out-frozen room at-frozen door
‘ice frozen to the freezer’ ‘a cold room’ ‘a door frozen to sth’
d. za-padlé pero e. u-šlý míč f. o-teklý prst
behind-fallen pen at-gone ball about-flowed finger
‘a pen that fell behind sth.’ ‘an empty ball’ ‘a swollen finger’
g. roz-teklý sýr h. po-rostlá zeď i. s-rostlé prsty
apart-flowed cheese on-grown wall with-grown fingers
‘a melted cheese’ ‘an overgrown wall’ ‘fingers that are grown together’

These data are not surprising because the participial morphemes -l and -n/-t and the adjectival head merge in the same projection in both types of adjectival participles. Therefore, from the syntactic point of view, one does not expect any difference between lý- and ný-/tý-participles with respect to their compatibility with a particular lexical (or superlexical) prefix.

On the other hand, given different semantic properties of lý- and ný-/tý-participles, 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 ný-/tý-participles are derived from agentive transitive verbs with an accusative object and lý-participles from unaccusative verbs. Since there is consensus that lexical prefixes can affect the argument structure of the base verb and can change its aspectual properties, they could have an effect on the choice between lý- and ný-/tý-affixes.
Considering data in (93)-(95), the following generalisations emerge with respect to argument structure. One and the same prefix can occur 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 \( l\text{-}\)participle or a \( n\text{-}/t\text{-}\)participle. Specifically, the examples in (95) show that when a prefix is attached to an unaccusative verb, then a \( l\text{-}\)participle is derived. In contrast, when a prefix is attached to an unergative verb, as in (93a) and (94a) and (94c), then a \( n\text{-}/t\text{-}\)participle is derived because the verb is transitivised. Finally, if a prefix is attached to a transitive verb, a \( n\text{-}/t\text{-}\)participle is derived because the verb remains transitive, as shown in (93b), (94b) and (94d-g). We already saw this behaviour of prefixes in the case of prefixed infinitives in chapter 2.7. The fact that we observe the same behaviour supports the view that prefixes merge before the infinitival and the participial morphology (and corresponding semantics) is attached.

The examples under discussion show that the type of the prefixed verbs and the type of the participles are determined by the base verb, not by the prefix; compare examples with different prefixes attached to the same verb in (93a) and (94a) for \( n\text{-}/t\text{-}\)participles derived from an unergative, in (94d-f) for \( n\text{-}/t\text{-}\)participles derived from a transitive verb, and in (95a-c), (95f-g) and (95h-i) for \( l\text{-}\)participles derived from a prefixed unaccusative.

Generally, prefixes can add an internal argument and the added argument competes with the complement of unaccusative and transitive base verbs. In addition, prefixes can also add an argumental prepositional phrase. From the constructionist point of view, this supports the view that prefixes are prepositions projecting a phrase in the complement position of the root, as discussed in chapter 2.

Specifically, in \( l\text{-}\)participles, the root is selected by the unaccusative \( v\) and is merged with a prepositional phrase, which is in complementary distribution with the defective prepositional phrase projected by a covert prepositional head introducing the internal argument of the unprefixed verb (which has the theme semantics, as discussed in chapter 2.8.2).\(^{27}\) For this reason, the argument structure of the base verb is not augmented in \( l\text{-}\)participles; maximally, a prepositional phrase can be added, as in the case of \( v\text{o}da\ n\text{ateklá na louce}\ ‘water flowed on the meadow’. Since the morpheme \( -n\text{-}/t\) is specified for agentive properties, only an \( l\)-participle and a \( l\text{-}\)participle can be derived in this case.

As to \( n\text{-}/t\text{-}\)participles derived by prefixation from unergative verbs, the root occurs in a syntactic environment with the external argument introduced by the passive \( v\). The

\(^{27}\) To make the derivation more economic, the information about unaccusativity/unergativity/transitivity either should be present in the root or the root should bear information – some diacritic – about the environment(s) in which it can occur (e.g. whether or not it can co-occur with the agentive \( v\)); see e.g. Acquaviva (2009).
prefix/preposition introduces an unselected argument(s) in its phrase in the complement of the root and we observe a transitivisation of the argument structure of the base verb. Given the prepositional nature of prefixes and the fact that \(-n/-t\) is specified for the features [agent, p], a \(ný/-tý\)-participle is derived in this case.

Finally, when a prefix is attached to a transitive verb, the projected prepositional phrase occurs in the position of the defective prepositional phrase introducing the theme argument of the unprefixed verb or the prefix is a preposition moved to the verb from a prepositional phrase selected by the base verb; hence, in both cases, the prefixed verb remains transitive and the prefix contributes an additional predicate to the verb.\(^{28}\) It is typically the figure argument of the prefix (preposition) which becomes the direct object of the derived verb and over which the participle predicates; see, for instance, examples (94b), (94f) and (94g). Note that when the preposition is not defective, that is, it introduces both arguments and assigns case, the ground argument – being merged in the complement position of the preposition – receives case already in the prepositional phrase.

Example (94f) can also be used to show that prefixes can add an additional (ground) argument to the transitive base verb, as in \(lano\text{ přidělané ke kolíku}\) ‘a rope tied to a stake’.\(^{29}\) As in the case of unergative verbs, since \(-n/-t\) – being specified as [agent, p] – is more specific than \(-l\) with respect to the feature content of the participial head, a \(ný/-tý\)-participle is derived when base transitives are prefixed.

Concerning the interaction of lexical prefixes and the target state operator, the examples (93)-(95) show that lexically prefixed \(lý\)- and \(ný/-tý\)-participles have a resultative meaning (see also Svenonius 2004, Romanova 2006, Gehrke 2008 and Žaucer 2009 for the claim that lexical prefixes are resultativity markers and introduce a result state subevent). The noun modified by the adjectival participle is the subject of the state expressed by the appropriate participle. The lexical prefixes can turn states and activities into telic eventualities; as shown by the resultative participles \(namrzlý\) ‘frozen onto’, \(vymrzlý\) ‘cold’ and \(přimrzlý\) ‘frozen to’ in (95a-c), derived from the stative \(mrznout\) ‘freeze’, and by the resultative participles \(oteklý\) ‘swollen’ and \(rozteklý\) ‘melted’ in (95f-g), derived from the activity \(téci\) ‘flow’.

\(^{28}\) Given this complementary distribution and the fact that prepositions have two individual arguments, we approach the explanation of why there are no four-place predicates.

\(^{29}\) \(K(e)\) ‘towards’ cannot function as a prefix in Czech; therefore the higher copy of the preposition is spelled out as \(pří\)– ‘at’, which is semantically close to \(k\). As already mentioned, it has also been argued for other languages that copies of the incorporated preposition do not have to be phonologically identical (e.g. Baker 1988, Biskup & Putnam 2012).
All the prefixed participles in (93)-(95) can denote a target state; as an illustration, consider the following examples, containing the diagnostic adverbial stále ještě ‘still’, which use the participles from (94d-f).

(96) a. Ten záchod je stále ještě po-dělaný.
    the toilet is still on-done
    ‘The toilet is still dirty.’

b. Ten přístroj je stále ještě roz-dělaný.
    the gadget is still apart-done
    ‘The gadget is still disassembled.’

c. To lano je stále ještě při-dělané.
    the rope is still at-done
    ‘The rope is still tied to sth.’

Given that the target state operator existentially binds the event variable and project the state variable present in the meaning of its sister constituent, the lexical prefixes (adding the state variable) must be lower than the stativising head in the participial structure.

To sum up, by means of transitivisation, lexical prefixation helps unergative base verbs to derive ný-/tý- participles and by perfectivisation and adding the state variable it helps imperfective unaccusative base verbs to derive lý- participles and in the same way it helps imperfective transitive verbs to derive resultative ný-/tý- participles. The fact that lexical prefixes license the target state interpretation confirms that they are merged lower than the stativiser.

4.5.2 Superlexical prefixes

In what follows, I investigate prefixes with superlexical interpretation that are homophonous with the prefixes discussed in the preceding section. Only the prefix vy- ‘out’ cannot have a superlexical meaning, which conforms to the view that superlexical prefixes form a subset of lexical prefixes (compare also the Russian vy- and the Polish wy-). The prefix s- ‘with, from’ can have the attenuative superlexical meaning in cases like skopený ‘a little sprinkled’, smočený ‘a little dipped’ but it is difficult to find a target state participle. In Russian, certain semelfactives are derived by means of the prefix s-, for instance, schodit’ ‘go there and back’, sletat’ ‘fly there and back’, splavat’ ‘swim there and back’, srabotat’ ‘bring into action’ (see
Zaliznjak & Šmelčv 1997), however, in Czech this meaning is mostly expressed by means of the prefix za-.

The other superlexical prefixes occurring in target state ný-/tý-participles are shown in (97), concretely, inceptive za- in (97a), inceptive u- in (97b), cumulative na- in (97c), inceptive o- in (97d), attenuative po- in (97e), inceptive roz- in (97f) and attenuative při- in (97g).30

(97) a. za-milovaný chlapec b. u-vězněný chlapec c. na-žehlená košile
behind-loved boy at-kept.in.prison boy on-ironed shirt
‘a boy in love’ ‘an imprisoned boy’ ‘a neatly ironed shirt’
d. o-slepený řidič e. po-mačkaná sukně
about-dazzled driver on-crumpled skirt
‘a dazzled driver’ ‘a crumpled skirt’
f. roz-pracovaný článek g. při-mhouřené oko
apart-worked article at-squinted eye
‘an unfinished article’ ‘a squinted eye’

The same prefixes can also appear in lý-participles, as shown below. Consider attenuative za-
in (98a), inceptive u- in (98b), cumulative na- in (98c), inceptive o- in (98d), attenuative po-
in (98e), inceptive roz- in (98f) and attenuative při- in (98g).

(98) a. za-rudlá ruka b. člověk u-vyklý pracovat
behind-reddened hand man at-accustomed work
‘a reddened hand’ ‘a man accustomed to work’
c. na-běhlé ruce d. o-chraptělý řečník
on-run hands about-become.hoarse speaker
‘swollen hands’ ‘a hoarse speaker’
e. po-bloudilý kazatel f. roz-měklý sníh g. při-tuhlá nafta
on-been.lost preacher apart-softened snow at-solidified oil
‘a heretic preacher’ ‘softened snow’ ‘solidified oil’

30 The verb oslepit does not have an unprefixed counterpart – just as uvyklý in (98b) – and from the traditional-grammar point of view it is derived from the adjective spleť. From the decompositional point of view, cases like these argue for the incorporation analysis of prefixes because the possibility of formation of these verbs is dependent on the presence of the prefix, as discussed in chapter 2.7.
Some of the discussed prefixes can also have other superlexical meanings, like na-, which has the attenuative meaning in nakloněný ‘a little leaned’. Given their inherent properties, the prefixes in (97) and (98) mostly form participles with the inceptive and the attenuative meaning. Other prefixes with a superlexical meaning can derive adjectival participles as well, as shown, for instance, by the excessive pře- in přesycený ‘overfed’. Broadly speaking, it seems that except the saturative za-, all superlexical prefixes can occur in adjectival participles, namely in both ný-/tý- and lý-participles.

In fact, there is no special interaction between superlexical prefixes and the stativiser in the adjectival head. All prefixed participles in (97) and (98) can denote a target state, as shown by the following examples with stále ještě ‘still’, based on participles from (97a-c).

(99) a. Ten chlapec je stále ještě za-milovaný.
   the boy   is  still behind-loved
   ‘The boy is still in love.’

b. Ten chlapec je stále ještě u-vězněný.
   the gadget is still at-kept.in.prison
   ‘The boy is still in prison.’

c. Ta košile je stále ještě na-žehlená.
   the shirt is still on-ironed
   ‘The shirt still looks neatly ironed.’

This suggests that superlexical prefixes merge below the head a, just as lexical prefixes. Recall from the discussion above that the target state operator existentially binds the event variable and projects the state variable. Since it is the prefix that brings the stative component, superlexical prefixes must be merged below the adjectival head with the target state operator.

With respect to aspectual classes, adjectival participles with superlexical prefixes behave like lexically prefixed adjectival participles. Superlexical prefixes can also turn states and activities into telic eventualities, as demonstrated in (97a), where the resultative zamílovaný ‘in love’ is related to the state milovat ‘love’, and in (97c), where the accomplishment participle nažehlený ‘neatly ironed’ is related to the activity žehlit ‘iron’ (see Brecht 1985, Klein 1995, Bertinetto 2001 and Arsenijević 2006 for the claim that superlexical prefixes are resultative as well).

If it were correct that superlexical prefixes differ from lexical ones in that they do not affect the lexical aspect of the base verb, as argued by Di Sciullo & Slabakova (2005) and
Richardson (2007), they should not help atelic unaccusatives to derive lý-participles. However, the contrast between, for instance, ochraptělý ‘hoarse’ in (98d) and the ungrammatical unprefixed chraptělý, formed from the atelic verb chraptět ‘speak in a hoarse voice’, shows that the generalisation does not hold.

The low-Merger analysis of superlexical prefixes is also supported by the fact that they can change the argument structure of the unprefixed predicate because argument structure properties are determined in the verbal domain; consider the transitivised (reflexivised) predicates přepracovat se ‘overwork’ from (24a), popracovat si ‘work for a while’ from (30a) and rozpracovaný ‘unfinished’ from (97f), formed from the intransitive praco vat ‘work’. As in the case of lexical prefixes, when a superlexical prefix is attached to an unaccusative predicate, a lý-participle is derived, as shown in (98). When the prefix is attached to an unergative predicate – which cannot derive adjectival participles –, the base verb is transitivised and consequently a ný/-tý-participle can be derived, as in the case of rozpracovaný ‘unfinished’ in (97f). And when the prefix is attached to a transitive predicate, the derived predicate is again transitive and a ný/-tý-participle is derived, as in (97a-c), (97e) and (97g). Thus, at least some superlexical prefixes can be analysed on a par with lexical prefixes, that is, as an incorporated preposition projecting its argument structure in a prepositional phrase merged with the root.

The argument-structure augmentation facts and the derivation of lý- and ný/-tý-participles can be accounted for as in the case of lexical prefixes in terms of the insertion of the appropriate vocabulary item (-l versus -n/-t) into the participial head and the complementary distribution of the prepositional phrase projected by the prefix and the prepositional phrase introducing the object. This means that superlexical prefixes can fulfill two functions, the argument-structure function and the quantificational/adverbial function. As to the latter, the appropriate superlexical prefixes can be analysed as a reflection of some higher functional category, as discussed in chapter 2. Not all superlexical prefixes must be analysed in this way, as we will see below; recall that there are also superlexicals that do not add arguments, like the completive do- in dopracovat ‘finish working’.

The presented data argue against the generalised distinction between lexical and superlexical prefixes with respect to the possibility of the formation of adjectival participles of the widely adopted syntax-based approach. It seems that ungrammatical superlexically prefixed participles should be rather analysed on a case-by-case basis. Note that one and the same superlexical prefix can behave differently with different predicates; for instance, the inceptive u- derives an adjectival participle with věznit ‘keep in prison’: uvězněný
‘imprisoned’ in (97b), but does not derive an adjectival participle with the verb věřit ‘believe’; the inceptive roz- derives an adjectival participle with pracovat ‘work’: rozpracovaný ‘unfinished’ in (97f) and měknout ‘soften’: rozměklý ‘softened’ in (98f), but does not derive an adjectival participle with bolet ‘ache’; and the completive do- derives an adjectival participle with stavět ‘build’: dostavěný ‘built’ and hořet ‘burn’: dohořelý ‘burnt out’, but does not derive an adjectival participle with hučet ‘rumble’, as shown in (29b) and (39b).31

The ungrammaticality of the examples can be accounted for as follows. Since (uvěřit ‘believe’ takes a dative object, which is introduced by a covert non-defective preposition and the preposition cannot be stranded, the null operator present in the prepositional phrase cannot move to the specifier of the adjectival head and form a predicate of individuals with the consequence that the derivation (of *uvěřilý or *uvěřený) crashes; see the discussion in section 4.4 again.

In the case of rozbolet ‘begin to ache’, the ný-/tý-participle rozbořený is ungrammatical because the participial head spelled out by -ní-t selects an agentive complement but rozbolet is an experiencer verb. On the other hand, the lý-participle rozbolelý is ungrammatical since the stativising adjectival head of lý-participles selects a complement with the unaccusative v.

As to the completive do-, dostavěný ‘built’ is grammatical because the derivation contains the agentive v and a prepositional phrase with the theme object and dohořelý ‘burnt out’ is grammatical because hořet contains the unaccusative v. The impossibility of the formation of a ný-/tý-participle from an unergative predicate correlates with the inability of the prefix to introduce an argument, like in the case of the ungrammatical dohučený formed from hučet ‘rumble, murmur’. The prefix do- only adds the completive meaning to the base predicate but does not affect its argument structure. Given that the completive do- does not add an argument (a prepositional phrase containing it) with unergatives, it is reasonable to assume that it also does not introduce an argument in the case of transitive verb bases. This means that the internal argument is introduced by the object-introducing prepositional phrase with both the prefixed transitive verb and the unprefixed transitive verb. The same also holds for the unaccusative dohořelý ‘burnt out’. Since the object-introducing prepositional phrase is defective (the preposition does not assign case; note that with unaccusatives the internal argument is assigned nominative and with transitives structural accusative), the null operator can move to the specifier of the adjectival head.

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31 Dostavěný and dohořelý are resultant state participles. The completive prefix do- does not form target states; the completeness of the appropriate eventuality holds forever.
The prefix *do-* can merge, for instance, in the specifier of the aspectual projection, as proposed by Ramchand (2004). Being a specifier, it does not belong to the complex verbal head projecting the aspectual phrase, hence it is not visible for the -n/-t participial head with the selectional features [agent, p], which results in ungrammaticality of *dohučený*. The *lý*-participle *dohučelý* also cannot be derived since the predicate does not contain the unaccusative v, which is required by the adjectival head of *lý*-particiles.

To summarise this section, since the stativising operator is merged in a high syntactic position, we do not observe any peculiar interaction between it and superlexical prefixes; most of superlexical prefixes can occur in both types of adjectival participles. All superlexical prefixes occur in *l*-particiles (and in the past tense). Since *l*-particiles are embedded in *lý*-particiles, the ungrammaticality of certain superlexically prefixed *lý*-particiles cannot be based on the too high Merger of the appropriate prefixes, as suggested by the syntactic approach to the distinction between lexical and superlexical prefixes. The same reasoning applies to the ungrammatical superlexically prefixed *ný/-tý*-participles because *ný/-tý*-participles contain the same projections as *lý*-particiles. I have argued that superlexical prefixes cannot be treated uniformly and that the ungrammaticality of certain superlexically prefixed participles does not have one source.

The participial data show that also superlexical prefixes can affect argument structure of the base verb. By means of transitivisation, they help the unergative unprefixed verb to derive a *n/-t*- and *ný/-tý*-participle, which means that they must merge lower than these participial morphemes (in actuality, the fact that they change the argument structure of the unprefixed verb suggests that they merge somewhere inside vP). Superlexicals can also turn atelic eventualities into telic ones, thereby helping base verbs to derive participles because telicity (the state variable added by the prefix) is a necessary condition for the formation of *lý*-particiles and stative *ný/-tý*-particiles. The fact that superlexical prefixes license the stative interpretation also confirms that they are merged lower than the target state operator, present in the adjectival head.

### 4.6 Deriving target state participles

In this section, I show in more detail how the derivation of target state adjectival participles works. I combine the analysis from the previous chapters with the proposal made in the preceding sections of this chapter. I present a step-by-step derivation of the adjectival participle *zasunutá* contained in the following determiner phrase.
(100)  ta taška za-sunutá za gaučem
    the bag behind-pushed behind sofa
    ‘the bag (that was) pushed behind the sofa’

That this participle indeed denotes a target state is confirmed by its compatibility with stále ještě ‘still’, as demonstrated below.

(101)  Ta taška je stále ještě za-sunutá za gaučem.
    the bag is still behind-pushed behind sofa
    ‘The bag is still behind the sofa.’

The relevant part of the syntactic structure of the participle, with the appropriate features, looks like (102).

(102)  [\(\)P Op1 a\(\)stat [PartP [agent, p] n/t [AspP Asp [\(\)vP t1 [\(\)vP nu [\(\)vP su [\(\)vP p [\(\)PP t1 [\(\)vP za gaučem]]]]]]]]

The prepositional phrase is non-defective since it contains both arguments and the preposition assigns case and is spelled out in two copies, on the predicate and in the prepositional phrase.

The figure argument taška ‘bag’ of the preposition za ‘behind’ is located in the specifier of PP and the ground argument gaučem ‘sofa’ is merged in the complement position. The complement receives case from the prepositional head P via the operation Agree between their Tense-features and \(\)φ-features (for details of the case assignment process, see chapter 6).

However, since the modified noun is generated outside adjectival participles, the figure argument (taška) is, in fact, represented in the prepositional phrase by the null operator. The operator moves to the specifier of the adjectival phrase and since the \(\)vP projection is a phase, it must stop at the edge of \(\)vP. This movement is driven by an appropriate Edge-feature. Although the prepositional phrase is non-defective, the operator can move because it is generated in the specifier position of P, not in the complement position.

By means of head incorporation, the complex head (103) is derived. Since the little verbal head of zasunutá is agentive and since p is part of the complex head, as demonstrated in (103), selectional requirements of the participial head -n/-t are satisfied. (103) also shows that head incorporation derives the correct order of morphemes za-su-nu-t. The form of the participial ending – in our example á – is determined by \(\)φ-features properties of the modified
noun *taška*, with which the adjectival head agrees, and by a case assigner that assigns case to the whole determiner phrase (which is not present in (100)).

Having the syntactic structure in mind, let us now turn to the semantic analysis. For the example under discussion, I propose the following derivation. The preposition *za* localises the referent of the external argument (the figure) behind the referent of the internal argument (the ground). What is crucial here is that the preposition also introduces the state variable. It is this variable that is projected by the target state operator and licenses the stative interpretation of prefixed participles. Thus, the state denoted by the prepositional phrase is the result state of the prefixed predicate. The meaning of *za* applies to the definite expression *gaučem*, which results in the meaning that the referent of *x* is in the state of being behind the sofa, as shown in (104).

After that, the meaning of P’ combines with the external argument. Since the modified noun *taška* ‘bag’ is merged outside the participle, the external argument is a null operator. In the tree in (104), the external argument is represented by the trace of the null operator because the operator moves to the specifier of the adjectival projection, as discussed in section 4.4. The trace is interpreted as a variable and its referent is determined by the assignment function *g* applied to its index (1). After movement of the operator to the specifier of *aP*, the assignment function is manipulated so that the index *l* is mapped to the individual variable *x* bound by the introduced lambda operator, hence I put *x* on all relevant nodes.
Importantly, the meaning of the head $p$ derives a prepositional phrase of the prefixal type. As proposed in chapter 2, the meaning consists of three conjuncts: $\lambda P\lambda Q\lambda s\lambda e[P(s) & Q(e) & \text{CAUSE}(s)(e)]$. The first conjunct stands for the meaning of PP, that is, for the result state; the
second conjunct introduces an event with properties of the root; and the third conjunct is responsible for the telicity effect of prefixation, that is, for the fact that prefixes bring about the causative relation between the state denoted by the prepositional phrase and the eventuality denoted by the root. This fits in with the claim that resultative adjectival participles are derived from telic verbs that have an eventive and stative component (Kratzer 1994, 2000; Rapp 1996; Cetnarowska 2000; Anagnostopoulou 2003; Giger 2009) and with the data presented in the preceding sections, showing that stative ný-/tý- and lý-participles are only derived from prefixed predicates.

The meaning of pP applies to the meaning of the root λe[push(e)], with the result that the referent of the external argument is in the state of being behind the sofa, which is caused by the event of pushing. Since n-/t-participles have ν of the passive type and there is no agentive instrumental phrase in our example, the external argument needs to be existentially quantified. I put the existential quantifier directly into the meaning of the little verbal head but it could also occur in a higher head. For ease of exposition, movement of the null operator to the edge of vP is not shown in (104); predicate abstraction and function application of the resulting meaning to the moved operator (of the type <e>) returns a meaning identical to the meaning of vP before the predicate abstraction.

Since the unvalued Tense-feature of the aspectual head is valued as perfective by the incorporated preposition, the aspectual head receives the perfective meaning. The perfective head is standardly treated as a perfective operator, which localises the running time of the event within the reference time: λPλtλe[τ(e) ⊆ t & P(e)] (e.g. Klein 1994, Paslawska & von Stechow 2003). Instead of the usual existential quantification over the event variable, I use lambda binding since it will be the target state operator that will existentially bind the variable. Because of the meaning of the prepositional phrase, I also add the state variable and assume that the time of e abuts the time of s: λRλsλe[R(s)(e) & τ(e) ⊆ t & τ(e) ⊆ τ(s)].

The reference time variable t is usually existentially bound by the tense head, which encodes the relation between the reference time and the speech time. However, adjectival participles do not contain the tense projection; they do not have their own speech time and do not include elements spelling out the tense head, for instance, the future prefix po-, as will be shown in chapter 5. The reference time of adjectival participles can be interpreted as the reference time of the main predicate of the clause; it can be specified by the context or by an

32 Recall from chapter 2 that for superlexical prefixes merged in the complement of the root I assume 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 that it is related to the higher head by means of a corresponding uninterpretable feature.
adverbial; therefore, I leave the variable free and the contextual information will decide how it will be interpreted.

Since the stativising operator, present in the adjectival head, is higher than the participial suffix representing the participial head, the participial morphology is meaningless and the participial head can be treated as an identity function. The meaning of the participial projection combines with the adjectival head, which has the meaning of Kratzer’s (2000) target state operator, which existentially closes the event argument and externalises the state variable: \( \lambda R \lambda s \exists e[R(s)(e)] \). Crucially, since a lexical prefix is present in the structure of the participle *zasunutá* ‘pushed’, hence a prefixal *pP* with a state variable, too, the stative meaning is successfully derived.

At this point, the state should still be accessible for modification. This is corroborated by the following example, in which the adverbial *dvě hodiny* ‘two hours’ measures the time span of the stative subevent.

(105)  ta  taška  dvě hodiny  za-sunutá  za  gaučem
       the  bag   two hours   behind-pushed behind  sofa
       ‘The bag that was behind the sofa for two hours.’

There is probably no reason not to existentially bind the state variable in the adjectival phrase already; therefore, I use the existential closure, as shown in (104). This means that the event of pushing causes the existence of the appropriate state. Moreover, we want the adjectival phrase to be of the type \(<e, t>\) because nominal elements are of the type \(<e>, <e, t>\) or \(<<e, t>, t>\).

The structure with the moved operator is interpreted according to the rule of predicate abstraction. Via the assignment function \( g \) manipulated by predicate abstraction (e.g. Heim & Kratzer 1998), the index \( l \) is mapped to the individual variable \( x \) bound by the introduced lambda operator (for ease of exposition, the lambda operator – bringing the type \(<e, t>\) – is not shown in (104)). The moved operator \( \text{Op} \), I analyse as an identity function (cf. Caponigro 2003 and for discussion of other possibilities see e.g. Šimík 2011), which takes the adjectival phrase of the type \(<e, t>\) and returns the same type. This allows the adjectival phrase to combine with the noun *taška* ‘bag’, namely, via predicate modification. Finally, the iota operator applies to the meaning of the noun phrase and returns a definite expression of the type \(<e>\), which can then combine with some predicate.
4.7 Conclusion

I have argued that ľý- and stative ný-/tý-participles are headed by the adjectival head that functions as a stativising operator. Since the stativiser is attached high in the participial structure, both lexical and superlexical prefixes can occur in these adjectival participles. We have seen that it is the prefix – concretely, the projected prepositional phrase with the state variable – that licenses the presence of the target state operator, hence the stative interpretation. Both types of prefixes help verbs to derive adjectival participles because they induce perfectivity and telicity, which are necessary conditions for deriving ľý- and stative ný-/tý-participles. Specifically, by perfectivisation and adding the state variable, prefixation helps imperfective unaccusative predicates to derive ľý-participles and in the same way it helps imperfective transitive predicates to derive stative ný-/tý-participles. By means of transitivisation, both types of prefixes help unergative predicates to derive ný-/tý-participles (but see also the completive *do- ‘to’).

I have argued against the generalised distinction between lexical and superlexical prefixes with respect to the possibility of the formation of adjectival participles of the widely-held syntactic approach and showed that the ungrammatical status of superlexically prefixed participles should be rather accounted for on a case-by-case basis.

With respect to the structure of ný-/tý-participles, I have shown that it can contain an agent. The accusative object restriction on the formation of ný-/tý-participles is based on the fact that the null operator can only move from a defective prepositional phrase or from the specifier position of PP.
Chapter 5

The future prefix *po*-

5.1 Introduction

While the preceding chapters discussed verbal prefixes from a broad perspective, this chapter is only concerned with the prefix *po*- ‘on’.\(^1\) It is shown that in contrast to Russian and Polish, Czech has a genuine future *po*-, which introduces the future time reference when attached to a motion verb. This prefix has a special status among other verbal prefixes. A comparison with non-future verbal prefixes (by which I mean all verbal prefixes except future *po*-) shows that the future *po*- differs from them, for instance, in its inability to affect selectional, aspectual and argument structure properties of the host verb and in its inability to form verbal nouns, participles and certain verbal forms. While the preceding chapters dealt with upward movement of prepositional elements from the synchronic point of view, this chapter is concerned with upward movement of prepositional elements from the diachronic point of view. It provides an analysis, under which the specific properties of future *po*- derive from the fact that it is a prepositional element that became grammaticalised as a future marker. Consequently, many differences between the future *po*- and non-future prefixes can be accounted for in terms of their different structural positions. It is proposed that the grammaticalisation process took place in two steps; while the first step is common to all three languages – Russian, Polish and Czech –, the second step only happened in Czech.

This chapter is organised as follows. Section 5.2 briefly discusses properties of the prefix *po*- in Russian, Polish and Czech and compares the Czech future *po*- with ingressive *po*- in Russian and Polish. Section 5.3 is concerned with morphosyntactic and semantic properties of the future *po*- in Czech. In section 5.4, the discussed properties are compared with corresponding properties of non-future prefixes. It is shown that the future *po*- differs from other readings of *po*- and from other prefixes in many respects, for instance, in its inability to form various verbal forms. Section 5.5 analyses future *po*- as a prepositional

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\(^1\) As in the preceding chapters, I will use the gloss *on* for the prefix.
element that evolved into a future marker in two reanalysis steps. It is shown that the proposed analysis accounts for properties of future po- as well as differences between future po- and other prefixes. It is proposed that the speaker-oriented meaning of future po-imperatives is based on the ability of the po- marker to spell out the allative/adessive meaning of the tense head. Finally, section 5.6 summarises the chapter.

5.2 The prefix po- in Russian, Polish and Czech

This section discusses similarities and differences between the Russian, Polish and Czech po-. The prefix can convey various meanings. For instance, all three languages have surface po-, as shown in (1), distributive po-, as in (2), delimitative po-, as in (3), iterative-diminutive po-, used together with the iterative suffix, as in (4), and the pure perfectivising po-, as in (5); for Russian see Isačenko (1962), Timofeev (1966), Švedova (1980), Zaliznjak & Šmelëv (1997), for Polish Grzegorczykowa, Laskowski & Wróbel (1984), Śmiech (1986), Piernikarski (1975) and for Czech Němec (1954), Kopečný (1962), Šlosar (1981), Petr (1986a), among others.

(1) a. po-rasti (R) b. po-sypać (P) c. po-bit (CZ)
on-grow on-sprinkle on-beat
‘overgrow’ ‘sprinkle’ ‘cover sth. with sth. in a beating manner’

(2) a. po-měrznut’ (R) b. po-łapać (P) c. po-bit (CZ)
on-freeze on-catch on-beat
‘freeze one by one’ ‘catch one by one’ ‘kill one by one’

(3) a. po-dumat’ (R) b. po-boleć (P) c. po-stát (CZ)
on-think on-give.pain on-stand
‘think for a while’ ‘give pain for a while’ ‘stand for a while’
‘feel sorry for sth. for a while’

(4) a. po-gulivat’ (R) b. po-gwizdywać (P) c. po-dřimovat (CZ)
on-walk on-whistle on-doze
‘walk a little from time to time’ ‘whistle lightly, iteratively’ ‘doze off iteratively’

There are also other types of po-, which are not shown here, e.g., the attenuative and saturative po- (see the literature cited above).
(5) a. po-smotret’ (R)  b. po-dziękować (P)  c. po-chválit (CZ)  
\begin{align*}
on-look & \quad \text{on-thank} & \quad \text{on-praise} \\
‘\text{look}’ & \quad ‘\text{thank}’ & \quad ‘\text{praise}’
\end{align*}

Russian and Polish also have ingressive *po-, which forms verbs denoting the beginning of a dynamic event, as demonstrated by example (6). More concretely, ingressive verbs in *po- are derived from determinate verbs of motion and similar verbs with a motion component; see, for instance, Isačenko (1962), Śmiech (1986), Zaliznjak & Šmelēv (1997), Anstatt (2003) and Dickey (2007).³

(6) a. po-jti (R)  
\begin{align*}
on-walk & \quad \text{on-run} & \quad \text{on-run} & \quad \text{on-go} \\
‘\text{start walking}’ & \quad ‘\text{start running}’ & \quad ‘\text{start running}’ & \quad ‘\text{start going}’
\end{align*}

However, when the prefix *po- attaches to an indeterminate motion verb, it brings about the delimitative interpretation, as in (7), which does not arise with determinate verbs of motion (Grzegorczykowa, Laskowski & Wróbel 1984, Zaliznjak & Šmelēv 1997, Anstatt 2003).

(7) a. po-chodit’ (R)  
\begin{align*}
on-walk & \quad \text{on-run} & \quad \text{on-run} & \quad \text{on-go} \\
‘\text{walk for a while}’ & \quad ‘\text{run for a while}’ & \quad ‘\text{run for a while}’ & \quad ‘\text{go for a while}’
\end{align*}

In contrast to Russian and Polish, in Modern Czech, the prefix *po- cannot yield the ingressive interpretation with motion verbs; compare the following examples with (6) (the form *pojít is grammatical only with the meaning ‘die’). Neither modern grammars of Czech like Petr (1986a) and Karlík, Nekula & Rusínová (1995) nor the standard work by Kopečný (1962) list the ingressive function of *po- in Modern Czech. According to Šlosar (1981), ingressive *po- is productive to a smaller extent in Modern Czech but his examples do not include verbs of motion.

(8) a. *po-jít  
\begin{align*}
on-walk & \quad \text{on-run} & \quad \text{on-go}
\end{align*}

³ While determinate motion verbs denote single more or less linear motion, indeterminate motion verbs express iterative, non-linear motions.
Instead, Czech – Slovak and to a certain extent Slovenian and Sorbian – has future *po-* (Kopečný 1962, Jacko 1973, Janaš 1976, Fasske 1981, Bláha 2008). What is interesting is that future *po-* (*pů-*) shows analogous behaviour; it only combines with determinate verbs of motion and verbs that have an inherent motion property, as shown in (9).

(9) a. pů-jdu on-walk.1SG ‘I will be walking’
b. po-běžím on-run.1SG ‘I will be running’
c. po-jedu on-go.1SG ‘I will be going’

Moreover, analogously to Russian and Polish, when the prefix *po-* attaches to an indeterminate motion verb, then the derived verb has a delimitative meaning, as illustrated in the Czech example below.

(10) Po-chodím / Po-běhám / Po-jezdí (si) po horách.
    on-walk.1SG on-run.1SG on-go.1SG (self) on mountains
    ‘I will walk/run/go in the mountains for a while.’

These facts point to the conclusion that ingressive *po-* evolved into future *po-* in Czech, but not in Russian and Polish (cf. Němec 1958, Kopečný 1958, Šlosar 1981). This is supported by the fact that the ingressive meaning and the future meaning are related, as argued by Kopečný (1958), Šlosar (1981) and Christensen (2011).

Dickey (2007), following Bondarko (1961), argues that the Czech future *po-* developed directly from the ablative meaning of Old Czech *po*-. This analysis, however, is problematic in the light of the parallel behaviour of future *po-* and ingressive *po-* and the fact that Old Czech had ingressive *po-* with motion verbs, as Russian and Polish, but later this type of *po-* disappeared. What is more, it seems that ingressive *po-* began to disappear approximately in the time when future *po-* began to expand, in 13th century; see Šlosar (1981, 76-80).

Future *po-* only co-occurs with verbs in the present tense in Czech, as shown by the comparison of (8), (9) and (11).

(11) a. *po-šel jsem on-walked am
    b. *po-běžel jsem on-ran am
    c. *po-jel jsem on-went am
In contrast, ingressive *po-* derives the whole tense paradigm in Russian and Polish, as demonstrated by examples (6) and (12).

\[(12)\]
\[
\begin{array}{ll}
\text{a. po-} & \text{b. po-}\text{š}e\text{l} \\
\text{on-walk.1SG} & \text{on-walked.M.SG} \\
'\text{I will start walking}' & 'I/you/he started walking' \\
\text{c. po-biegnę} & \text{d. po-biegem} \\
\text{on-run.1SG} & \text{on-ran.1SG.M} \\
'\text{I will start running}' & 'I started running'
\end{array}
\]

If it is correct that ingressive *po-* evolved into a future marker in Czech, then it is obvious why the other verbal forms – the infinitive and the past tense – are ungrammatical when combined with the prefix, in contrast to Russian and Polish.

To summarise this section, while all three languages have in common that they have the delimitative, distributive, surface and other readings of *po-* , they differ in the fact that only Czech has the genuine future *po-* . We have seen that Russian and Polish have ingressive *po-* in the context where Czech has future *po-* and that the Czech *po-* can be analysed as a future marker developed from ingressive *po-* .

### 5.3 Properties of future *po-*

In this section, I examine properties of the Czech future *po-* in more detail. The examples in (13) demonstrate that determinate verbs of motion like *jet* ‘go’ and *nést* ‘carry’ and verbs with an inherent motion property like *růst* ‘grow’ form the future tense by means of the prefix *po-* , which attaches to the present tense form of these verbs.

\[(13)\]
\[
\begin{array}{lll}
\text{a. po-} & \text{b. po-} & \text{c. po-}\text{rostu} \\
\text{on-go.1SG} & \text{on-carry.1SG} & \text{on-grow.1SG} \\
'\text{I will be going}' & 'I will be carrying' & 'I will be growing'
\end{array}
\]

The base verbs as well as the derived verbs are imperfective in contrast to the ingressive verbs in Russian and Polish, as in (6), and verbs which are derived by non-future prefixes in Czech, as shown in (14), where the prefixed verbs have a future time reference because of their perfectivity; see also (17) below for the diagnostic with the auxiliary *být* ‘be’ (for the imperfective status of verbs with future *po-* in Czech, see Trávníček 1951, Kopečný 1962,

(14) a. s-jedu
from-go.1SG
‘I will go down’

b. při-nesu
at-carry.1SG
‘I will bring’

c. vy-rostu
out-grow.1SG
‘I will grow up’

Since the imperfective status of future po- verbs is seldom tested in the literature, below I will present several arguments for their imperfectivity. Given that future po- is only compatible with present tense forms, the standard tests for perfectivity using phasal verbs or the future auxiliary budu ‘I will’ cannot be used. The other tests, using various participial forms, are not applicable either because future po- verbs do not form participles for independent reasons, as will be shown below.

However, if perfectivity correlates with telicity in the case of prefixed verbs (possibly with the exception of delimitative po- and the perdurative pro-), as discussed in chapter 2.3, we can use the telicity test with adverbial modifiers. First consider the contrast between the prefixed verbs with for-adverbials in (15) and in-adverbials in (16). The examples show that the prefixed verbs are telic because they are compatible with in-adverbials and incompatible with for-adverbials.

from-go.1SG hour
‘I will be down in one hour.’

b. *Při-nesu to hodinu.
at-carry.1SG it hour
‘I will bring it in one hour.’

c. *Vy-rostu dva roky (o pět centimetrů).
out-grow.1SG two years (about five centimetres)
‘I will grow up five centimeters within two years.’

(16) a. S-jedu za hodinu.
from-go.1SG behind hour
‘I will be down in one hour.’

b. Při-nesu to za hodinu.
at-carry.1SG it behind hour
‘I will bring it in one hour.’

c. Vy-rostu za dva roky (o pět centimetrů).
out-grow.1SG behind two years (about five centimetres)
‘I will grow up five centimeters within two years.’

\(^4\) There are a few exceptions; the negation prefix ne- and prefixes with a long vowel ná-, zá- and pří- do not perfectivise, like in náležet ‘belong’ nenávidět ‘hate’, závidět ‘envy’ and příslušet ‘belong’. 
Now consider the following examples, which confirm the correlation between telicity and perfectivity, showing that the prefixed verbs are perfective. Their infinitives cannot co-occur with the future auxiliary *budu* ‘I will’.

(17) a. *budu  s-jet        b.* budu  při-nést       c. *budu  vy-růst
     I.will from-go        I.will at-carry        I.will out-grow

Crucially, a comparison of (15) and (16) with (18) and (19) reveals that the examples with future *po*- display the opposite pattern; verbs with future *po*- combine with *for*-adverbials but do not with *in*-adverbials. Specifically, the event time of future *po*- predicates can only be measured by *for*-adverbials; the sentences with *in*-adverbials in (19) are grammatical only when the adverbial is meant to measure the time between the speech time and the beginning of the event time. Given the correlation between telicity and perfectivity, this pattern supports the view that verbs with future *po*- are imperfective.

     on-go.1SG  hour              on-carry.1SG  it  hour
     ‘I will be going for one hour.’        ‘I will be carrying it for one hour.’
     c.   Po-rostu     dva  roky.
     on-grow.1SG  two  years
     ‘I will be growing for two years.’

     on-go.1SG behind  hour          on-carry.1SG  it  behind hour
     c. *Po-rostu     za   dva  roky.
     on-grow.1SG  behind two  years

Verkuyl (1972) proposes a test with conjoined adverbials; while sentences with telic predicates only have a reading with two distinct events, sentences with atelic predicates are ambiguous; besides the reading with two different events, they also have a reading under which one and the same event takes place during the time interval denoted by the conjoined adverbials. More concretely, the verbs with the non-future prefixes in (20) bring about only the reading with two distinct events.
(20) a. S-jedu (tam) odpoledne a večer.
from-go.1SG there afternoon and evening
‘I will go down (there) in the afternoon and in the evening.’
b. Při-nesu to odpoledne a večer.
at-carry.1SG it afternoon and evening
‘I will bring it in the afternoon and in the evening.’
c. Té ještěřce vy-roste ocas tento měsíc a příští měsíc.
the lizard.DAT out-grow.3SG tail this month and next month
‘The tail of this lizard will (re)grow this month and next month.’

In contrast, the following examples with verbs with future po- also have the reading with one event stretching over the time denoted by the two adverbials. Again, if telicity correlates with perfectivity, these data support the imperfective analysis of future po- verbs.

(21) a. Po-jedu (tam) odpoledne a večer.
on-go.1SG there afternoon and evening
‘I will go (there) in the afternoon and in the evening.’
b. Po-nesu to odpoledne a večer.
on-carry.1SG it afternoon and evening
‘I will carry it in the afternoon and in the evening.’
c. Té ještěřce po-roste ocas tento měsíc a příští měsíc.
the lizard.DAT on-grow.3SG tail this month and next month
‘The tail of this lizard will regrow this month and the next month.’

So far, we have used diagnostics based on (a)telicity; now, let us turn to (im)perfectivity itself. Example (22a) shows that adverbial clauses which are introduced by the conjunction když ‘when, if’ and contain an imperfective verb license the simultaneous reading. The event of singing the Rolling Stones takes place at the same time as the event of suffering. On the contrary, when the adverbial clause contains a perfective verb, as in (22b), the simultaneous reading is not possible; the event of singing the Rolling Stones must follow the event of suffering. Examples (22c) and (22d) demonstrate the same for the future tense.
(22) a. Když trpěl, zpíval Stouny.
    when suffered sang the.Rolling.Stones
    ‘While he was suffering, he was singing the Rolling Stones.’

b. Když to pro-trpěl, zpíval Stouny.
    when it for-suffered sang the.Rolling.Stones
    ‘After he got through, he was singing the Rolling Stones.’

c. Když bude trpět, bude zpívat Stouny.
    when will suffer will sing the.Rolling.Stones
    ‘While suffering, he will be singing the Rolling Stones.’

d. Když to pro-trpí, bude zpívat Stouny.
    when it for-suffer will sing the.Rolling.Stones
    ‘After he gets through, he will be singing the Rolling Stones.’

Let us apply the diagnostic to verbs with future po-. When the adverbial clause contains the verb pojede, the events of going/driving and singing can overlap, as demonstrated in (23a).5 This shows that future po- derives imperfective verbs. This conclusion is confirmed by the simultaneous interpretation of example (23b), with the future po- verb ponese. If it is correct that verbs with delimitative po- are perfective but atelic, then example (23c), with the non-simultaneous reading, shows that it is indeed (im)perfectivity – and not (a)telicity – that determines the type of the reading in the discussed diagnostic.

(23) a. Když po-jede, bude zpívat Stouny.
    when on-go.3SG will sing the.Rolling.Stones
    ‘He will be singing the Rolling Stones while driving/going.’

b. Když po-nese ten velký balvan, bude zpívat Stouny.
    when on-carry.3SG the heavy stone will sing the.Rolling.Stones
    ‘He will be singing the Rolling Stones while carrying the big stone.’

c. Když si (trochu) po-lyžuje, bude zpívat Stouny.
    when self a little on-ski.3SG will sing the.Rolling.Stones
    ‘After some skiing, he will be singing the Rolling Stones.’

---

5 Marginally, the adverbial clause could also receive the interpretation ‘If he is allowed to go’. Then the event of singing the Rolling Stones can precede the event of going.
The next argument is based on aspectual preferences of certain conjunctions. For instance, the conjunction *mezitím co* ‘while’ selects an imperfective verb in the adverbial clause; hence (24a), with the imperfective *četla*, is grammatical, in contrast to (24b), with the perfective *přečetla*. The example with delimitative *po-* in (24c) again shows that the relevant factor is (im)perfectivity and not (a)telicity.

(24) a. Mezitím co *četla*, umyl nádobí.
    while read.F.SG washed.M.SG dishes
    ‘While she was reading, he did the dishes.’

b.* Mezitím co *pře-četla* noviny, umyl nádobí.
    while over-read.F.SG newspaper washed.M.SG dishes

c.* Mezitím co si *po-četla*, umyl nádobí.
    while self on-read.F.SG washed.M.SG dishes

This diagnostic applied to verbs with future *po-* confirms that these verbs are imperfective since both (25a) and (25b), containing the future *po-* verbs *pojede* and *ponese*, are grammatical. This conclusion is corroborated by the contrast between (25a) and the ungrammatical (25c), which contains the perfective verb *přijede*.

    while František on-go.3SG home Alžběta buy.3SG
    ‘While František is going home, Alžběta will do the shopping.’

b. Mezitím co Alžběta *po-nese* nákup domů, František zaparkuje auto.
    while Alžběta on-carry.3SG shopping home František park.3SG car
    ‘While Alžběta is carrying the shopping home, František will park his car.’

c.* Mezitím co František *při-jede* domů, Alžběta nakoupí.
    while František at-go.3SG home Alžběta buy.3SG

Having shown that future *po-* verbs are imperfective, let us now turn to their temporal properties. There are various analyses of the fact that verbs with non-future prefixes have the future meaning (see e.g. Klein 1995, Schoorlemmer 1995, Borik 2002, Paslawska & von Stechow 2003) and all of them build on perfectivity of the prefixed verbs. However, since verbs with future *po-* are imperfective, the analyses cannot be applied to them and the future meaning of these verbs must be derived in a different way.
Imperfective verbs derive the future tense with the help of the auxiliary *být* ‘be’, as shown in (26). This formation, however, is not possible with verbs with future *po-* since future *po-* does not derive the infinitival form, as demonstrated in (8), repeated below as (27).

(26) a. budu dělat
   will.1SG do
   ‘I will be doing’

   b. budu zpívat
   will.1SG sing
   ‘I will be singing’

   c. budu číst
   will.1SG read
   ‘I will be reading’

(27) a. *po-jít
   on-walk
   ‘I will walk’

   b. *po-běžet
   on-run
   ‘I will run’

   c. *po-jet
   on-go

We saw in examples (9) and (13) that future *po-* is compatible with imperfective verbs and the following examples show that it cannot attach to perfective verbs. Unfortunately, the compatibility cannot be tested with simplex perfective verbs because all unprefixed motion verbs are imperfective. Although *vyrostu* ‘I will grow’ cannot take future *po-*, as shown in (28c), *povyrostu* is grammatical with the meaning ‘I will grow a little’, that is, when it contains the attenuative *po-*.

*vyrostu* also shows that the ungrammatical status of (28a) and (28b) is not caused by multiple prefixation.

(28) a. *po-s-jedu
   on-from-go.1SG
   ‘I will throw sth. away’

   b. *po-při-nesu
   on-at-carry.1SG
   ‘I will buy’

   c. *po-vy-rostu
   on-out-grow.1SG
   ‘I will paint the town red’

The fact that future *po-* only combines with imperfective verbs cannot be ascribed to a general property of prefixes because non-future prefixes can co-occur with perfective verbs, simplex, as in (29a) and (29b), as well as prefixed, as in (29c), with the attenuative *po-*.

(29) a. vy-hodím
   out-throw.1SG
   ‘I will throw sth. away’

   b. na-koupím
   on-buy.1SG
   ‘I will buy’

   c. po-vy-razím si
   on-out-strike.1SG self
   ‘I will paint the town red’

Future *po-* does not form participles, neither *l-*participles, as shown in (30), nor *n-/-t-* participles, as illustrated in example (31), with the transitive verbs *vézt* ‘carry’, *nést* ‘carry’.

(30) a. *po-s-jedu
   on-from-go.1SG
   ‘I will throw sth. away’

   b. *po-při-nesu
   on-at-carry.1SG
   ‘I will buy’

   c. *po-vy-rostu
   on-out-grow.1SG
   ‘I will paint the town red’
and věst ‘lead’ (recall from chapter 4 that n-/t-participles can only be derived from transitives).6

<table>
<thead>
<tr>
<th></th>
<th>(30) a. * po-jel</th>
<th>b.* po-nesl</th>
<th>c.* po-rostl</th>
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<tbody>
<tr>
<td></td>
<td>on-went</td>
<td>on-carried</td>
<td>on-grew</td>
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<td>on-carried</td>
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For this reason, future po- also does not derive forms based on these participles, like adjectival participles, as shown in (32) and (33), the past tense, as shown in (34) (see also example (11)), and the periphrastic passive, as demonstrated in (35).7

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<thead>
<tr>
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<th>(32) a.* po-jelý</th>
<th>b.* po-neslý</th>
<th>c.* po-rostlý</th>
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<tr>
<td></td>
<td>on-went</td>
<td>on-carried</td>
<td>on-grew</td>
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<tr>
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<th>(33) a. * po-vezený</th>
<th>b.* po-nesený</th>
<th>c. * po-vedený</th>
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<td></td>
<td>on-carried</td>
<td>on-carried</td>
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<tr>
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<th>(34) a.* po-jel jsem</th>
<th>b.* po-nesl jsem</th>
<th>c.* po-rostl jsem</th>
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<tbody>
<tr>
<td></td>
<td>on-went am</td>
<td>on-carried am</td>
<td>on-grew am</td>
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<tr>
<th></th>
<th>(35) * je/ byl/ bude po-vezen, po-nesen, po-veden</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>is/ was/ will on-carried on-carried on-led</td>
</tr>
</tbody>
</table>

Adverbial participles (transgressives) with future po- are also ungrammatical, as shown by the present adverbial participles (which can be derived from both perfective and imperfective verbs) in (36) and by the past adverbial participles (which are derived only from perfective verbs) in (37). Therefore, they cannot be used as a diagnostic for the (im)perfective status of future po- verbs. It is important to note that adverbial participles are very bookish.

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6 The form porostl is grammatical with the meaning ‘overgrew’, i.e., when it contains surface po-. This also holds for the forms in (32c) and (34c).

7 There are also other restrictions on the formation of adjectival participles relevant to the discussed cases; see chapter 4.

8 The form povedený is grammatical with the meaning ‘well-done’.
The contrast between examples in (38) and (39) shows that the future *po-* also cannot form verbal nouns.

(38) a. vezení  
    carrying 

(39) a. *po-vezení  
    on-carrying 

Regarding verbal mood, future *po-* derives the indicative and imperative, but does not form the conditional, as illustrated by the following examples.

(40) a. po-jedu  
    on-go.1sg  
    ‘I will go’

b. po-jed’  
    on-go.2sg  
    ‘Go!’

c. *po-jel  by  
    on-went  would

What is interesting is that the imperative is speaker-oriented in that it has a meaning component ‘to the speaker’ or ‘with the speaker’. Specifically, as shown by the following contrast, the imperative with future *po-* in (41b) does not exclude the speaker in contrast to the unprefixed imperative in (41a); the speaker must be involved in the described event, as shown by the translation.

(41) a. Jed’ do Prahy!  
    go.2sg to Prague  
    ‘Go to Prague!’

b. Po-jed’ do Prahy!  
    on-go.2sg to Prague  
    ‘Come with me/us to Prague!’

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Similarly, example (42a), with the proximity adverb *sem* ‘here’, has the meaning component ‘to the speaker’, but when *sem* is replaced with the adverb expressing distality *tam* ‘there’, as in (42b), only the reading with the speaker actively involved in the event is possible.

(42) a. Po-jed’ *sem*!
    on-go.2SG here
    ‘Come here!’

b. Po-jed’ *tam*!
    on-go.2SG there
    ‘Let us go there together!’

Having described properties of future *po*-, let us now turn to non-future prefixes.

### 5.4 Properties of non-future prefixes

This section compares properties of future *po*- discussed in the preceding section with corresponding properties of non-future prefixes. We will see that future *po*- differs from other readings of *po*- and from other prefixes in many respects.

In (43), there are various types of *po*-, surface *po*- in (43a), delimitative *po*- in (43b), distributive *po*- in (43c), attaining-property *po*- in (43d) and the pure perfectivising *po*- in (43e). Prefixes other than *po* will be represented by *za*- ‘behind’ in this section. In contrast to future *po*-, which derives imperfective verbs, as we saw in the preceding section, all the prefixed verbs in (43) are perfective because they cannot co-occur with the future auxiliary (see also (17)).

(43) * budu  +  a. po-mazat  b. po-zpivat si  c. po-mřít
   I.will  on-spread  on-sing self  on-die
   ‘spread’  ‘sing for a while’  ‘to die one by one’

   d. po-češtit  e. po-trestat  f. za-mazat
   on-to.Czech  on-punish  behind-spread
   ‘Czechify’  ‘punish’  ‘dirty’

As to aspectual properties of the base verb, non-future prefixes differ from future *po*-, which only attaches to imperfective verbs, because they do not impose any aspectual restrictions on their host. Thus, they are compatible with perfective verbs, as shown below by the attenuative *po*- attached to the prefixed verb in (44a) and to the simplex perfective verb in (44b), and by the prefix *za*- in (44c) (for other examples with other prefixes see (29)).
That non-future prefixes can also attach to imperfective verbs is demonstrated in (43). With the exception of češtit, which does not exist as a verb, all the verbs in (43a-f) are imperfective.\footnote{The verb mířit is probably used only in artistic texts.}

Non-future prefixes also differ from future po- with respect to lexico-semantic properties of the host verb. While future po- only attaches to determinate verbs of motion, as discussed in section 5.2, non-future prefixes co-occur with indeterminate motion verbs, as shown in (45), partially repeated from (10), and with non-motion verbs, as illustrated in (46).

(43) a. po-vy-jet          b. po-hodit            c. za-hodit
    on-out-go          on-throw            behind-throw
    ‘drive out a little’ ‘throw sth. carelessly’ ‘throw away’

(45) a. Po-chodím / Po-běhám / Po-jezdím (si) po horách.
    on-walk.1SG  on-run.1SG  on-go.1SG (self) on mountains
    ‘I will walk/run/go in the mountains for a while.’
  b. Za-jezdím si na lyžích.
    behind-go.1SG self on skis
    ‘I will ski.’

(46) a. po-milovat          b. po-číst si            c. za-držet
    on-love          on-read self            behind-hold
    ‘make love to sb.’ ‘read for a while’ ‘hold’

Other prefixes like za- can also freely attach to determinate verbs of motion, as shown in the following example.

(47) a. za-jít          b. za-jet                    c. za-nést
    behind-walk      behind-go                behind-carry
    ‘walk somewhere, visit’ ‘go somewhere, knock down’ ‘bring sth. somewhere’

In contrast, non-future po- prefixes do not attach to determinate motion verbs because that would lead to a situation where one and the same form (e.g. pojede from jet ‘go’) is imperfective (with future po-) and perfective (with a non-future po-) at the same time. There
are three exceptions, *pojít* ‘die’, *povést se* ‘succeed’ and *potáhnout* ‘cover’, but the future form derived from the perfective *pojít* is *pojde* ‘he/she/it will die’, whereas future *po*- derives the non-homophonous imperfective future *půjde* ‘he/she/it will walk’.

As to tense properties, non-future prefixes are more open than future *po*- because they also derive the infinitive form, as shown in (43), (44), (46), (47), and the past tense form, as demonstrated below.

(48) a. po-vy-jel jsem  b. po-hodil jsem  c. za-hodil jsem
    on-out-went am   on-throw am   behind-throw am
    ‘I drove out a little’   ‘I threw sth. carelessly’    ‘I threw away’

The example above also shows that non-future prefixes form *l*-participles and the examples in (49) and (50) demonstrate that non-future prefixes also derive *n-/t*-participles and corresponding adjectival participles if the base verb is transitive.

(49) a. po-sypán  b. po-hozen  c. za-hozen
    on-sprinkled    on-thrown    behind-thrown
    ‘sprinkled’    ‘thrown carelessly’    ‘thrown away’

(50) a. po-sypaný  b. po-hozený  c. za-hozený
    on-sprinkled    on-thrown    behind-thrown
    ‘sprinkled’    ‘thrown carelessly’    ‘thrown away’

In contrast to future *po*- , non-future prefixes can also derive adjectival *lý*-participles if the base verb is unaccusative, as shown below.

(51) a. po-bledlý  b. po-rostlý  c. za-rostlý
    on-paled    on-grew    behind-grew
    ‘a little pale’    ‘overgrown’    ‘overgrown, hairy’

Given the fact that non-future prefixes form *n-/t*-participles, it does not come as a surprise that they derive the periphrastic passive, as well; consider the following examples.10

---

10 Prefixed (perfective) *n-/t*-participles cannot have the ongoing – the verbal passive – interpretation with the present form of the auxiliary *být* ‘be’, as discussed in chapter 4. This interpretation is not available because of the
In contrast to adverbial participles with future po-, adverbial participles containing non-future prefixes are grammatical, as demonstrated by the past adverbial participles in (53).

(53) a. po-sypav
   on-having. sprinkled.M.SG
   ‘having sprinkled’

b. po-hodiv
   on-having.thrown.M.SG
   ‘having thrown carelessly’

c. za-hodiv
   behind-having.thrown.M.SG
   ‘having thrown away’

As mentioned in the preceding section, present adverbial participles can also be derived from perfective (prefixed) verbs. However, these forms are even rarer than present adverbial participles derived from imperfectives (see Dvořák 1983) and because of their perfective aspect, they are used to refer to an anterior event in the future; see the examples below.

(54) a. po-sypaje
   on-having. sprinkled.M.SG
   ‘having sprinkled’

b. po-hodě
   on-having.thrown.M.SG
   ‘having thrown carelessly’

c. za-hodě
   behind-having.thrown.M.SG
   ‘having thrown away’

Non-future prefixes also differ from future po- in their ability to form verbal nouns, as demonstrated in the following example.
Let us now turn to verbal mood. I showed in the preceding section that while future po-
derives the indicative and imperative, it does not form the conditional mood. In addition, we
saw that the imperative with future po- has a speaker-oriented meaning component. In
contrast, non-future prefixes derive all three moods; for the conditional, see (56), for the
imperative (57) and for the indicative, see example (48) above. Importantly, none of the forms
have a speaker-oriented interpretation with the meaning component ‘to the speaker’ or
‘together with the speaker’.

(56) a. po-vy-jel by
on-out-went would
‘he would drive out a little’

(57) a. Po-vy-jeď!
on-out-go
‘Drive out a little!’

We already saw in the preceding chapters that prefixes can affect selectional and argument
structure properties of the verb they attach to. This, however, only holds for non-future
prefixes; consider example (58), with delimitative po-, which makes the dative si obligatory,
and (59), with distributive po-, which requires a plural (mass) object.

(58) a. František (*si) včera odpoledne lyžoval a pak šel do práce.
František self.DAT yesterday afternoon skied and then went to work
‘František was skiing yesterday afternoon and then he went to work.’

b. František *(si) včera odpoledne po-lyžoval a pak šel do práce.
František self.DAT yesterday afternoon on-skied and then went to work
‘František skied for a while yesterday afternoon and then he went to work.’
Properties of future *po-* and non-future prefixes are summarised in the following table.

<table>
<thead>
<tr>
<th></th>
<th>Future <em>po-</em></th>
<th>Non-future prefixes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tense</td>
<td>only present tense</td>
<td>also past and infinitive</td>
</tr>
<tr>
<td>Aspect</td>
<td>does not perfectivise</td>
<td>perfectivise</td>
</tr>
<tr>
<td>Aspect</td>
<td>only with imperfectives</td>
<td>also with perfectives</td>
</tr>
<tr>
<td>Lexico-semantic properties</td>
<td>only determinate motion verbs</td>
<td>also other verbs</td>
</tr>
<tr>
<td>Voice</td>
<td>only active</td>
<td>also passive</td>
</tr>
<tr>
<td>Mood</td>
<td>indicative and imperative</td>
<td>also conditional</td>
</tr>
<tr>
<td>Imperative</td>
<td>speaker-oriented</td>
<td>not speaker-oriented</td>
</tr>
<tr>
<td>Participles</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Verbal nouns</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Argument structure</td>
<td>does not affect</td>
<td>can affect</td>
</tr>
<tr>
<td>Selectional properties</td>
<td>does not affect</td>
<td>can affect</td>
</tr>
</tbody>
</table>

To conclude, it is obvious from the discussion above that future *po-* is very different from other readings of the prefix and from other prefixes and that a separate analysis is necessary.

5.5 Future *po-* and reanalysis

In this section, I provide an analysis that can account for the specific properties of future *po-* as well as differences between future *po-* and non-future prefixes. I will analyse future *po-* as a prepositional element that evolved into a future marker and propose that the process took place in two reanalysis steps.

Since future *po-* only attaches to imperfective verbs in the present tense form, which have the present time reference, and the resulting verbs have a future meaning, it must be the prefix that brings about the future meaning. Note also that the future meaning cannot arise from combining perfectivity with the present tense – as in the case of non-future prefixes – since the verbs derived with future *po-* are imperfective. Moreover, if future *po-* had the same
status as non-future prefixes, it should also form infinitives and the past tense, contrary to the facts.

For this reason, I propose that future *po-* represents the tense head and works as a future marker. Syntactically, it spells out the tense head whose Tense-feature has the value [Future], as shown in (60a). Semantically, the tense head combines with the aspectual phrase, which denotes a predicate over times (as discussed in chapter 2.8.2), existentially binds the time variable and introduces the precedence relation between the speech time \( t^* \) and the reference time \( t \), as schematised in (60b).

\[
\begin{align*}
(60) & \quad \text{a. } & \text{b. } \\
& \quad T \begin{array}{c} \text{[Fut]} \\
\text{po-} \end{array} & \lambda \exists t[P(t) \& t > t^*] \\
& \quad \text{AspP} & \lambda [\ldots t \ldots] \\
& \quad \text{Asp} & \\
& \quad \nu P & \\
& \quad & 
\end{align*}
\]

As to the progressive property of the future tense, it is determined in the aspectual head. Specifically, since base verbs to which future *po-* attaches are imperfective, the aspectual head introduces the restriction that the reference time must be included in the event time.

Besides the non-future *po-* prefixes, future *po-* is also homophonous with the preposition *po*, which is in accord with the claim that prefixes are historically derived from prepositions or that prefixes and prepositions have a common ancestor (e.g. Smyth 1920/1974, Němec 1954, Kopečný 1973, Wunderlich 1987, Lehmann 1993, Stiebels 1996, Van Gelderen 2011). According to Němec (1954), the Slavic preposition *po* and the prefix *po-* evolved from the adverb *po* and these elements had three spatial meanings, the ablative, allative/adessive and the goal-oriented meaning. The first two meanings gradually disappeared, whereby the specific ablative meaning evolved into the abstract ingressive meaning (see Christensen 2011 for the claim that ingressive verbs like the Polish *pobieć* ‘start running’ also denote movement away from a source).

Such diachronic changes can be analysed in terms of historical reanalysis of morphosyntactic structure; see, for instance, Roberts & Roussou (1999, 2003) and Van Gelderen (2004, 2011). Specifically, since it is less economical to merge early and then move than wait as long as possible before merging, Van Gelderen (2004, 2011) proposes an economy principle *Late Merge Principle*, according to which elements merge in the
derivation as late as possible. This principle can account for grammaticalisation changes like the change from lexical to functional head or from functional to higher functional head.

With respect to lexical prefixes, I have argued that they start as a preposition in the complement position of the root and then incorporate into the verb. This analysis can also be applied to the ablative _po_. As to superlexical prefixes, it has been argued that they can project an (aspectual) phrase above the verbal domain (e.g. Ramchand 2004, Markova 2011, Wiland 2012). If this holds for ingressive _po_, then we can propose that the lower _po_ with the ablative meaning was reanalysed as the ingressive aspectual head because of the *Late Merge Principle*, as shown below.

![Diagram](image)

Such an analysis can also be applied to other superlexical prefixes because superlexicals always have a homophonous lexical counterpart (superlexicals form a subset of lexical prefixes) and their meaning can be treated as a certain abstraction of the meaning of the corresponding lexical prefix. Recall that I argued in chapter 2.8 that at least some superlexical prefixes should be analysed as lexical prefixes, with the difference that they license the presence of a higher functional head in the derivation. If the proposal with reanalysis of superlexical prefixes is on the right track, then such cases can be viewed as a transition-period cases and we expect that later such superlexical prefixes will be fully grammaticalised and merge directly in the higher clausal position and project the corresponding functional projection.

If the ingressive aspectual head in (61) is just a certain type of the standard aspectual head, then ingressive _po_ should block the secondary-imperfective suffix, which also represents the aspectual head. This prediction is borne out because the secondary-imperfective _poplyvat_ from the Russian _poplyt_ ‘start swimming’ is ungrammatical and the Russian verb _pochodiť_ cannot function as a secondary-imperfective form of the ingressive _pojit_ ‘start walking’.
According to Němec’s (1954) diachronic point of view, in many cases, the prefixed verb is older than prepositional phrases with a preposition homophonous to the verbal prefix. If this also holds for the ablative po, then my diachronic assumptions would be that firstly the ablative po always incorporates into the verb and later it gains the ability to stay in situ. Since Němec’s analysis relies on overt occurrences of prepositional elements, the historic data with prefixed verbs do not exclude the possibility that there is a covert copy of the preposition in a prepositional phrase in the complement position of the root. Note also that the prefixed verbs often take a complement with case identical to the case assigned by the homophonous preposition.

As discussed in section 5.2, in contrast to Russian and Polish, ingressive po-evolved into future po-in Czech. Since the asp ectual head is lower than the tense head in the clausal architecture, the Late Merge Principle is applicable in this case, as well. Thus, in Czech, the lower ingressive po-was reanalysed as the tense head, in contrast to Russian and Polish, as illustrated below.

(62)

\[
\begin{align*}
\text{TP} & \quad \text{T} \\
& \quad \text{Asp}_{\text{Ingress}}P \\
& \quad \text{po-}
\end{align*}
\]

This analysis is supported by Dostál (1954), who argues that the modern půjdu ‘I will be walking’ was originally part of the asp ectual system but that this is no longer so.

Given that future po-represents the future tense head as a result of reanalysis, we can now explain why infinitival forms like ponést ‘on.carry’ are ungrammatical. Crucially, the infinitival marker -t cannot spell out the tense head with the Tense-feature with the [Future] value because it is specified as [Infinitive]. Since in finite forms with future po-like ponesu ‘I will be carrying’ the tense head is represented by two vocabulary items – by future po-and the agreement ending -, I assume the operation Fission here.\(^{11,12}\)

\(\text{11} \) An alternative analysis would be to assume that the agreement ending spells out a projection dedicated to agreement, which is placed above the tense phrase.

\(\text{12} \) The agreement ending is also compatible with the tense head with the value [Present], as in nesu ‘I am carrying’.
The proposed analysis can also account for why future *po-* does not perfectivise the base verb. In chapter 2, we saw that non-future prefixes affect aspectual properties of their host because they incorporate into the verb and value the unvalued Tense-feature of the aspectual head. However, since the tense head is higher than the aspectual head, future *po-* cannot value the Tense-feature of the c-commanded aspectual head. On the other hand, in the case of the Russian and Polish ingressive *po-*, which was not reanalysed, we expect that verbs like the Russian *pojti* ‘start walking’ and the Polish *pobiec* ‘start running’ will be perfective. This is indeed the case.

Why does future *po-* not combine with perfective verbs in contrast to other prefixes? First, let us look at similarities in the aspectual behaviour of future *po-* and the future auxiliary. The examples below show that future *po-* in (63a) and the future auxiliary in (63b) bring about the ongoing interpretation in the adverbial clause, in contrast to the non-future prefix in (63c), which derives the bounded interpretation because of its perfectivising function. Thus, since future *po-* verb *ponese* and the periphrastic future *bude vyplňovat* (as a whole) are imperfective, the event of calling overlaps with the event of carrying and filling in (63a) and (63b), whereas in (63c) the event of calling takes place after the event of filling; see also the simultaneous reading in examples (22) and (23) in section 5.3.

(63) a. Zavolej na něj, až to po-nese.
   call on him when it on-carries
   ‘Shout at him when he is carrying it.’

   b. Zavolej na něj, až to bude vy-plňovat.
   call on him when it will out-fill
   ‘Shout at him when he is filling it.’

   c. Zavolej na něj, až to vy-plní.
   call on him when it out-fills
   ‘Shout at him when he has filled it.’

Further, while in example (63c), the speech time can overlap with the event of filling, it is not possible in (63a) and (63b), where the events of carrying and filling must follow the speech time. Another aspectual parallelism between future *po-* and the future auxiliary concerns the
imperfective status of the verb with which they combine (recall from section 5.3 that the future auxiliary is used as a diagnostic for imperfectivity).\textsuperscript{13} 

According to Błaszczak & Klimek-Jankowska (2012), the Polish future auxiliary \textit{będzie} ‘he/she/it will’ denotes a Kimian state that selects complements that are semantically unbounded. The auxiliary represents the aspectual head and imposes a morphosyntactic restriction on its verbal complements requiring that it must have the Imperfective-feature.\textsuperscript{14} 

The semantic analysis is not applicable to future \textit{po}- but it is possible to use the syntactic implementation. Since there is a selectional relation between the tense head and its aspectual phrase complement, I assume that the tense head with the future value – that is, the tense head which is spelled out by the future \textit{po}- – selects an imperfective complement. On the contrary, non-future prefixes/prepositions do not have such a selectional property.

If the future auxiliary is merged in the aspectual phrase, then we explain why forms like \textit{pobude zpívat} ‘on.will sing’, containing the future auxiliary with future \textit{po}-, are ungrammatical. Since the future auxiliary itself is perfective (historically, it is the perfective present form of the verb \textit{być} ‘be’, see Van Schooneveld 1951 and for Russian e.g. Miklosich 1926, Junghanns 1997), the aspectual phrase does not satisfy the imperfective selectional requirement of the tense head.

The fact that future \textit{po}- only combines with determinate verbs of motion can be explained by historical factors. In the case of the most important motion verbs in Proto-Slavic and Old Czech, there was an opposition between determinate and indeterminate types of verbs. This opposition played a crucial role in obviating the tension between the perfectivising function of non-future prefixes and the imperfective function of future \textit{po}-. More concretely, the perfective meaning was expressed by the indeterminate \textit{po}- verb, like \textit{pochoz’u} ‘I will walk’, and the imperfective future was expressed by the determinate \textit{po}- verb, like \textit{pójdu} ‘I will be walking’ (see Šlosar 1981). The imperfective future function of \textit{po}- then spread to other motion verbs by analogy and the prefix became productive (most strongly in the last 150 years according to Šlosar; see also Horálek 1955, Ertl 1925/1926 and Kopečný 1962). Since lexico-semantic properties like ‘determinate motion’ are not visible to syntax, this (in)compatibility issue is resolved at the semantic interface.

Many of the differences between future \textit{po}- and non-future prefixes observed in sections 5.3 and 5.4 can be accounted for by different structural positions in which the two types of

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\textsuperscript{13} See also Kopečný (1962), who argues that a verb with future \textit{po}- is synonymous with the phrase which contains the same verb and the future auxiliary and that the two forms can only differ in stylistic properties.

\textsuperscript{14} Cf. Veselovská (2008) and Gruet-Skrabalova (2012), who argue that the Czech future auxiliary merges in a position lower than the tense head, albeit not in the aspectual head (they do not posit AspP).
Prefixes merge. Future \textit{po}- does not derive \textit{n-}/\textit{t-}\participle{s}, corresponding adjectival \textit{ný-}/\textit{tý-}\pariciples and the periphrastic passive because it is too high for these elements. As we saw in chapter 4, participles are structurally smaller than the tense phrase and maximally contain the aspectual phrase from the verbal domain. This is corroborated by data like example (64), with the \textit{n-}\pariciple \textit{nesen}, which shows that temporal properties are expressed by the auxiliary \textit{být} ‘be’.

\begin{center}
(64) On je / byl / bude \textit{nesen}.
\end{center}

he is was will carried
‘He is/was/will be carried.’

On the other hand, non-future prefixes can occur in all such forms because they typically merge in some position inside the aspectual phrase.

The same reasoning applies to \textit{l-}\pariciples, to the corresponding adjectival \textit{lý-}\pariciples and also to the past tense and the conditional, which contain an \textit{l-}\pariciple. Since also the \textit{l-}\pariciple maximally contains the aspectual phrase, as discussed in the preceding chapter, future \textit{po-} is excluded from these forms. Note also that in the past tense, the tense head is represented by the auxiliary \textit{být} ‘be’, like in \textit{nesl jsem} ‘I was carrying’, which bears information about person and number of the subject (which is the typical agreement property of the tense head). The reasoning applies to adverbial participles, too, which also do not contain the tense phrase and bear only the standard participial agreement markers expressing gender and number.

According to Schoorlemmer (1995), Russian verbal nouns are relatively small; they contain the verbal projection with an agreement projection, but do not embed the aspectual phrase. Although Czech verbal nouns contain the aspectual projection, they do not provide temporal information; consider the example below, which shows that the verbal noun is compatible with the past, present and future time references introduced by the three adjectives.

\begin{center}
(65) včerejší / dnešní / zítřejší \textit{zpívání}
\end{center}

yesterday’s today’s tomorrow’s singing

Again, future \textit{po-} is structurally too high for deriving verbal nouns, contrary to the lower non-future prefixes.
In the preceding section, we saw that non-future prefixes can affect selectional and argument structure properties of the base verb. This follows from the fact that argument structure and selectional properties are determined locally in the verbal domain (vP), that is, in the place where lexical and also some superlexical prefixes merge. From this, it is obvious that future po-, representing the tense head, cannot change such properties.

Concerning verbal mood, we already know that future po- does not form the conditional because it cannot occur in l-participles. As to the indicative, future po- and non-future prefixes do not differ. What about the imperative? Why is the imperative of future po- verbs speaker-oriented?

As demonstrated in sections 5.3 and 5.4, the presence of the speaker-oriented meaning depends on the presence of future po-; we saw that unprefixed verbs and verbs with a non-future prefix do not have such a meaning component. It seems that the po- in imperatives with a motion verb is identical with future po- since future po- evolved from the prefix po-, which also had the allative/adessive meaning; compare Němec (1954), who hypothesises that the speaker-oriented meaning of the imperative po- can be a relic of the allative/adessive meaning. I interpret it in the way that the marker po- still has the ability to spell out the allative/adessive meaning.

If the imperative po- and future po- are identical, then the feature representing the speaker-oriented meaning – the allative/adessive meaning – should occur in the tense head, given the proposal that future po- spells out the tense head.\footnote{If the operation Fusion is assumed, the relevant feature could also occur on the complementiser head, which fuses with the tense head; see Biskup (2016c).} Po- cannot merge in a lower position with the allative/adessive meaning and then move to the tense head, where it is spelled out, since there is no productive preposition po or prefix po- in Modern Czech that has the allative/adessive meaning (see also properties of future po- discussed in section 5.3, which argue against such an analysis).

Note that the tense phrase can be treated as an anchoring category because it (deictically) anchors the event expressed by the clause – its reference time – to the speech time and encodes the information about the speaker (speech act participants); see Wiltschko (2014) for the proposal that the grammatical category tense instantiates the general anchoring category and that in tense-less languages like Halkomelem, the anchoring can be encoded by the proximate/distal location. Consider also Harley & Ritter (2002), who, among others, decompose the Person-feature into three features: speaker, participant and person and treat the particular person values as bundles of these features.
Therefore, I assume that the tense head bears an Adessive-feature, which brings about the speaker-oriented meaning at LF, that is, the interpretation ‘with the speaker’ or ‘to the speaker’; see (66).

Given that the speaker-oriented meaning is restricted to future \textit{po-} imperatives, the tense phrase with [Future] and [Adessive] is only selected by an imperative complementiser head.

On one hand, since future \textit{po-} also occurs in forms without the speaker-oriented meaning (i.e. without the feature [Adessive]) like \textit{ponesu} ‘I will be carrying’, it cannot be specified as [Adessive] given the Subset Principle. On the other hand, future \textit{po-} should be more specific than non-future prefixes and the future auxiliary since these elements do not bring about the speaker-oriented interpretation. It is sufficient if future \textit{po-} is specified as [Future] in contrast to the future auxiliary and non-future prefixes.\footnote{This will also block future \textit{po-} from appearing in present forms, i.e., in the tense head with the value [Present].}

This feature specification does not pose a problem for interpretation since the future auxiliary is perfective, as discussed above, hence the future meaning of the periphrastic future, like \textit{budu zpívat} ‘I will be singing’, can be derived in the same way as with the simple future, that is, as with verbs with a non-future prefix in the present tense, like \textit{zazpívám} ‘I will sing’, in which the combination of perfectivity and the present tense shifts the reference time forward.

When the \textit{po-} marker is inserted into the tense head with [Future], we derive the progressive future meaning, like in \textit{pojedu} ‘I will be going’, whereas when it is inserted into the tense head with [Future] and [Adessive], we derive the speaker-oriented future meaning in imperatives like \textit{pojd} ‘come here’.

In (60b) I proposed that the tense head with [Future] has the following meaning $\lambda P \exists t[P(t) \& t > t^*]$. Recall also that prepositions localise the figure argument with respect to the ground element. More concretely, in Old Church Slavonic, Old Czech and other Old Slavic languages, the adessive prepositional element \textit{po} had the stative meaning with the figure argument located ‘at’ the ground argument and the allative \textit{po} had the dynamic meaning with motion of the figure ending at the ground argument. Since the tense head encodes the
information about speech act participants, it does not come as a surprise that the figure argument is the addressee and the ground argument the speaker in future po- imperatives. Consequently, I propose for the tense head with [Future] and [Adessive] the meaning shown in (67), which differs from the meaning of the tense head with [Future] in the presence of the third conjunct.

(67)

\[
\begin{align*}
\text{po-} & \quad \text{T} \\
\lambda P \exists t[P(t) & \& t >^* \& \text{addressee AT speaker}] & \quad \text{AspP} \\
\lambda t[\ldots t \ldots] & 
\end{align*}
\]

It depends on the meaning of other elements in the sentence and the contextual information whether the stative, adessive interpretation – that is, ‘with the speaker’ – or the dynamic, allative interpretation – that is, ‘to the speaker’ – is obtained. If the goal of the motion verb is specified (in the sentence or in the context) and differs from the location of the speaker, as in (41b), repeated as (68a), we receive the adessive interpretation; the ground of the preposition do ‘to’ is not identical with the ground of the po-. In addition, both the speaker and the addressee are the figure argument of the directional do.

(68) a. Po-jed’ do Prahy!  
\text{on-go.2SG to Prague}  
‘Come with me/us to Prague!’

b. Po-jed’!  
\text{on-go.2SG}  
‘Come here!’

c. Po-jed’ sem!  
\text{on-go.2SG here}  
‘Come here!’

In contrast, when the goal of the motion verb is not specified, as shown in (68b), we receive the allative interpretation and the goal of the motion is identical with the ground of the po-, that is, with the location of the speaker. The same also holds for cases with the proximity adverb sem ‘here’, as in (68c).

Let us look at the allative/adessive meaning from the diachronic point of view. As already mentioned, Old Czech, as other Old Slavic languages, had the allative/adessive prepositional element po. This reading of po evolved into the posterior reading of po, as in the Czech po něm ‘after him’, and in surface po, which then evolved into delimitative po-, as in the Russian pochodiť ‘walk for a while’. The original allative/adessive meaning was in conflict with the ablative meaning of po- and disappeared and the only relic is the speaker-
oriented meaning of future po- in imperatives in Czech; in Russian and Polish imperatives with motion verbs, the prefix po- cannot have the adessive/allative meaning.

Loss of flexibility of the allative/adessive prepositional element po – the allative/adessive meaning only occurs with the future prefix po-, only in imperatives and only with the speaker and addressee as arguments –, can be taken as evidence for a grammaticalisation process. Hence, I postulate the following reanalysis for Czech.

\[(69)\]
\[
\begin{array}{c}
TP \\
T \\
pos- \\
AspP \\
Asp \\
vP \\
v \\
\sqrt{P} \\
\sqrt{P} \\
pP \\
\end{array}
\]

Since the reanalysis ends in the tense head, as does the reanalysis of ingressive po-, one vocabulary item po- spells out the allative/adessive meaning and the future meaning at the same time.

5.6 Conclusion

This chapter has provided an analysis of the verbal prefix po-. The comparison of the Czech future po- with non-future verbal prefixes and po- from Russian and Polish has shown that future po- differs from other uses of verbal prefixes in a number of important ways. I have proposed a diachronic analysis with two reanalysis steps, which derives the idiosyncratic properties from the fact that future po- is a prepositional element that was grammaticalised as a future marker representing the tense head. In the first step, the ablative po was reanalysed as the ingressive prefix po- and in the second step, the ingressive prefix was reanalysed as future po-. In contrast to Czech, Russian and Polish did not undergo the second grammaticalisation step. I have also proposed that the speaker-oriented meaning of imperatives containing a verb with future po- results from the ability of the marker po- to spell out the allative/adessive meaning. The original allative/adessive prepositional element was reanalysed as an allative/adessive tense element taking the addressee and the speaker as its arguments.
Chapter 6

Decomposed prepositional phrases and case

6.1 Introduction

In the preceding chapters, I treated verbal prefixes as incorporated prepositions and analysed prepositional phrases as containing two projections, PP and pP. This chapter explores prepositional phrases in more detail and provides a more articulated analysis of their syntactic and semantic structure. It also presents a new model of prepositional case assignment, focusing on Russian, Polish and Czech prepositions. Building on the preceding chapters, prepositional cases are treated on a par with structural cases as a reflection of the operation Agree between \( \varphi \)-features and Tense-features. The type of prepositional case assigned is determined by semantic properties of particular heads of the decomposed preposition. I assume that there is a correspondence between semantic properties of the particular heads and their syntactic features. Syntactic features of heads incorporated into the case-assigning head are copied on the prepositional complement by the operation Agree and at the level of PF, they are spelled out as a case by means of a specific vocabulary insertion rule. The proposed system derives case properties of simple and complex prepositions as well as adverbial prepositions.

This chapter is organised as follows. In section 6.2, I discuss properties of Russian, Polish and Czech primary prepositions and adverbial prepositions. In section 6.3, I decompose prepositions into several projections and discuss syntactic and semantic properties of the particular phrases. I will be concerned mainly with spatial prepositions. It is shown that the prepositional complement can be overt as well as covert. Section 6.4 demonstrates how the process of prepositional case assignment works. It establishes the relation between the meaning of particular projections and their syntactic features and proposes vocabulary insertion rules for particular cases. Section 6.5 summarises the chapter.
6.2 Properties of Russian, Polish and Czech prepositions

This section is concerned with prepositional systems of Russian, Polish and Czech. It focuses on case properties of primary prepositions, complex and adverbial prepositions. Let us begin with Russian prepositions.

6.2.1 Russian prepositions


(1) a.  do avtomobil-ja  
    to car-GEN.SG  
    ‘to the car’  

b.  iz avtomobil-ja  
    out car-GEN.SG  
    ‘out of the car’  

c.  k avtomobil-ju  
    towards car-DAT.SG  
    ‘towards the car’  

d.  ot avtomobil-ja  
    away car-GEN.SG  
    ‘away from the car’  

e.  u avtomobil-ja  
    at car-GEN.SG  
    ‘at the car’  

f. čerez avtomobil’  
    over car-ACC.SG  
    ‘over the car’

Seven prepositions assign two cases: v ‘in’, za ‘behind’, mež ‘between’, meždu ‘between’, na ‘on’, o ‘about’, pod ‘under’ and three cases are assigned by prepositions po ‘on’ and s ‘from’. Apart from the prepositions mež and meždu, all these prepositions use case assignment to express the difference between the stative (locative) and dynamic (directional) meaning. In dynamic contexts these prepositions assign accusative case (see (2b) and (3b)). In stative contexts some of them assign instrumental case (2a) and others locative (3a).1

(2) a.  pod / za jaščik-ami  
    under / behind box-INST.PL  

b.  pod / za jaščik-i  
    under / behind box-ACC.PL

---

1 I will use the terms stative and dynamic instead of locative and directional because they also cover differences between non-spatial prepositions.
This difference is confirmed by the (in)compatibility of the prepositional phrases with stative verbs like *ležat* ‘lie’, as shown in (4) and (5) (*o* is incompatible with positional verbs like *ležat*’ but it can combine with other stative verbs – which also holds for Polish and Czech – like *pomnit* ‘remember’: *pomnit*’ *o* stole / *pomnit*’ *o* stol). Since dynamic verbs can co-occur with a stative prepositional phrase when the prepositional phrase localises the whole event, I will only use stative verbs for testing purposes.

(4) a. *ležat* pod / za jaščik-ami
   lie under / behind box-INST.PL
b. *ležat* pod / za jaščik-i
   lie under / behind box-ACC.PL

(5) a. *ležat* v / na stol-e
   lie in / on table-LOC.SG
b. *ležat* v / na stol
   lie in / on table-ACC.SG

Turning to prepositions assigning three cases, consider, for instance, the difference between the stative meaning of the locative and instrumental prepositional phrases in (6a) and (7a) and the dynamic meaning of the accusative and genitive prepositional phrases in (6b) and (7b).

(6) a. po priezd-e
   after arrival-LOC.SG
b. po pojas
   to waist-ACC.SG
   ‘after the arrival’
   ‘up to waist’

(7) a. stakan s vod-oj
   glass with water-INST.SG
b. veter s jug-a
   wind from south-GEN.SG
   ‘a glass with water’
   ‘wind from the south’
Specifically, in (6a) the (missing) figure argument is just temporally located after the time of the arrival, whereas in (6b) there is a body path going from below to the waist. In (7a) there is a containment relation, with water placed in the glass, whereas in (7b) there is a path followed by the wind that goes from the south to the reference point. The preposition s also assigns the approximative accusative and po also assigns dative, which can convey various meanings, for instance, the distributive meaning, the reason meaning and the motion along a surface.

6.2.2 Polish prepositions


Some of the prepositions assigning one case are shown in example (8), which is analogous to the Russian (1). There are, however, three differences. Firstly, since Polish does not have the preposition iz, z is used instead in the ‘out’ meaning in (8b); secondly, in the ‘towards’ meaning in (8c), do must be used instead of ku (samochodowi) since ku is rarely used nowadays; and thirdly, in the ‘at’ meaning in (8e), przy, kolo or obok must be used instead of u since the adessive u in cases like u samochodu is judged as archaic or bookish (Markowski et al. 2000).

(8) a. do samochod-u    b. z samochod-u    c. do samochod-u
    to car-GEN.SG       from car-GEN.SG       to car-GEN.SG
    ‘to the car’        ‘out of the car’        ‘towards the car’

² Some authors present a more extensive list of prepositions but they also include compound prepositions, e.g. Skibicki (2007), or they list primary and secondary prepositions together, e.g. Kaleta (1995) and contrastive grammar books like Engel et al. (1999), Rytel-Schwarz et al. (2012).
As far as prepositions assigning two cases are concerned, consider the accusative-instrumental alternation in (9) and the accusative-locative alternation in (10). The examples show that similarly to Russian, instrumental and locative prepositional phrases have the stative meaning and accusative prepositional phrases the dynamic meaning.

(9) a. nad / pod / przed skrzyni-ami
   above / under / in.front.of box-INST.PL
b. nad / pod / przed skrzyni-e
   above / under / in.front.of box-ACC.PL
c. leżeć nad / pod / przed skrzyni-ami
   lie above / under / in.front.of box-INST.PL
d. *leżeć nad / pod / przed skrzyni-e
   lie above / under / in.front.of box-ACC.PL

(10) a. w / na / o stol-e
   in / on / about table-LOC.SG
b. w / na / o stół
   in / on / about table.ACC.SG
c. leżeć w / na stol-e
   lie in / on table-LOC.SG
d. *leżeć w / na stół
   lie in / on table.ACC.SG

Polish is not as restrictive as Russian and Czech with respect to the co-occurrence of verbs and stative prepositional phrases. Stative prepositional phrases like (9a) can also combine with certain dynamic verbs and denote the final location of the figure argument. This, however, does not mean that the prepositional phrases have a dynamic meaning (see e.g. Weinsberg 1973, Grochowski 1975, Przybylska 2002).

Prepositions assigning three cases also express the difference between the stative and dynamic meaning, as shown by the difference between the locative and instrumental
prepositional phrases in (11a), (12a) and (13a) and the accusative and genitive prepositional phrases in (11b), (12b) and (13b). The dynamic meaning of the examples in (b) is based on the presence of a body path in (11b), a transportation path in (12b) and the trajectory of the figure argument that ends behind the house in (13b), in contrast to (13a), where the whole event takes place behind the house.\(^3\)

(11) a. po obiedzi-e b. po kolan-a  
after lunch-LOC.SG to knee-ACC.PL  
‘after the lunch’ ‘knee deep’

(12) a. kolega z jablk-ami b. jablka z prowincj-i  
colleague with apples-INST.PL apples from province-GEN.SG  
‘a colleague with apples’ ‘apples from the province’

(13) a. strzelać za dom-em b. strzelać za dom  
shoot behind house-INST.SG shoot behind house-ACC.SG  
‘shoot behind the house’ ‘shoot at sth. behind the house’

6.2.3 Czech prepositions


\(^3\) The preposition po also assigns dative, conveying the adverbial manner meaning, as in po cichu ‘quietly’. Z also assigns accusative, which is restricted to the approximative meaning, as in z godźinę ‘about one hour’. This type of z is often categorised as a particle; see e.g. Markowski et al. (2000). And za also assigns genitive which has the temporal meaning ‘during’: za młodych lat ‘at an early age’.
As in the case of Polish prepositions, \( z \) must be used in the ‘out’ meaning in (14b), however, in contrast to Polish, the prepositions \( k \) and \( u \) can be used in the ‘towards’ and ‘at’ meaning, respectively, as it is the case in Russian; see (14c) and (14e).

With respect to prepositions assigning two cases, the accusative-instrumental alternation in (15) and the accusative-locative alternation in (16) again show that instrumental and locative prepositional phrases have the stative meaning and that accusative prepositional phrases have the dynamic meaning. As to (16), the Czech preposition \( o \) also cannot combine with positional verbs like ‘lie’ and \( v(e) \) cannot co-occur with the accusative \( stůl \) because it only combines with accusative determiner phrases which have an abstract meaning or which express time units.

(14) a. do aut-a  b. z aut-a  c. k aut-u
   to car-GEN.SG  from car-GEN.SG  towards car-DAT.SG
   ‘to the car’  ‘out of the car’  ‘towards the car’

d. od aut-a  e. u aut-a  f. přes aut-o
   away car-GEN.SG  at car-GEN.SG  over car-ACC.SG
   ‘away from the car’  ‘at the car’  ‘over the car’

(15) a. nad / pod / před bedn-ami
   above / under / in.front.of box-INST.PL
b. nad / pod / před bedn-y
   above / under / in.front.of box-ACC.PL
c. ležet nad / pod / před bedn-ami
   lie above / under / in.front.of box-INST.PL
d. * ležet nad / pod / před bedn-y
   lie above / under / in.front.of box-ACC.PL

(16) a. ve / na / o stol-e
   in / on / about table-LOC.SG
b. na / o stůl
   on / about table.ACC.SG
c. ležet ve / na stol-e
   lie in / on table-LOC.SG
The difference between the stative and dynamic meaning can also be found in the case of prepositions assigning three cases, as demonstrated below. The instrumental prepositional phrases in (17a) and (18a) again have the stative meaning and the genitive and accusative prepositional phrases have the dynamic meaning, as shown in (17b) and (18b). While in (17a) there is a containment relation, in (17b) there is a path going from the staircase to the floor. In (18a) the prepositional phrase localises the event of shooting behind the house, whereas in (18b) it is only the final part of the trajectory path that is placed behind the house.4

(17) a. sklenice s vod-ou b. pád se schod-ů
   glass with water -INST.SG fall from staircase -GEN.PL
   ‘a glass with water’ ‘a fall from the staircase’

(18) a. střílet za dom-em b. střílet za dům
   shoot behind house -INST.SG shoot behind house -ACC.SG
   ‘shoot behind the house’ ‘shoot at sth. behind the house’

6.2.4 Complex prepositions, adverbial prepositions and the case marker

All three languages also have complex prepositions consisting of two or three prepositions, as shown for Russian in (19), for Polish in (20) and for Czech in (21).

(19) a. iz-za stol-a b. iz-pod stol-a
   out-behind table -GEN.SG out-under table -GEN.SG
   ‘from behind the table’ ‘from under the table’

(20) a. s-przed stol-u b. z-nad stol-u
   from-in.front.of table -GEN.SG from-above table -GEN.SG
   ‘from in front of the table’ ‘from above the table’

4 The preposition s also assigns accusative but only in idioms být s to něco udělat ‘be able to do something’ and kdo s koho ‘who wins over whom’. Za also assigns genitive, with the circumstantial and temporal ‘during’ meaning, similarly to the Polish za.
c. s-po-za stol-u
   from-on-behind table-GEN.SG
   ‘from behind the table’

(21) a. ze-za stol-u   b. z-pod stol-u
   from-behind table-GEN.SG   from-under table-GEN.SG
   ‘from behind the table’   ‘from under the table’

c. z-po-nad stol-u
   from-on-above table-GEN.SG
   ‘from above the table’

All three languages also have adverbial prepositions, which often can function as an adverbial
and which consist of more than one preposition or of a preposition (or more prepositions) and
an element belonging to another word class, as demonstrated in the Russian (22), Polish (23)
and Czech (24) examples below.⁵

(22) a. v-pered-i drug-ich   b. s-zad-i dom-a
   in-in.front.of-LOC.SG other-GEN.PL   from-back-GEN.SG house-GEN.SG
   ‘in front of the others’   ‘from behind the house’

(23) a. po-srodk-u stol-u   b. do-kol-a stol-u
   on-middle-LOC.SG table-GEN.SG   to-circle-GEN.SG table-GEN.SG
   ‘in the middle of the table’   ‘around the table’

(24) a. o-kol-o stol-u   b. ze-zad-u mistnost-i
   about-circle-ACC.SG table-GEN.SG   from-back-GEN.SG room-GEN.SG
   ‘around the table’   ‘from the back of the room’

The case assigned by a preposition can attach to various categories, for instance, to a noun, as
in (25a), (26a) and (27a), to an adjective, as in (25b) and (26b), to another preposition, as in
(27b), to a demonstrative pronoun, as in (25c) and (26c), and to a deictic adverb, as in (27c).

⁵ In (22a) pered is analysed as a preposition, not like the noun peréd ‘front’, because the case ending -i does not
go together with the masculine gender of peréd. The related Czech před in examples like (27b) is also glossed as
_in front of since it can only function as a preposition.
6.3 Decomposing prepositional phrases

This section decomposes prepositional phrases into several projections and discusses their syntactic and semantic properties.

6.3.1 Dynamic and stative prepositional phrases

In the preceding section, we saw that prepositions can have a stative or dynamic meaning and that the meaning is related to the assigned case. It has been argued that dynamic prepositional phrases are structurally, or at least semantically, more complex than stative prepositional phrases; see Jackendoff (1983), Bierwisch (1988), Wunderlich & Herweg (1991), Koopman (2000), Kracht (2002, 2008), Van Riemsdijk & Huijbregts (2002), Zhang (2002), Zwarts (2008), Den Dikken (2010) and Pantcheva (2011). In addition to the stative meaning, dynamic prepositional phrases contain a dynamic component. In what follows, I present several empirical arguments for this point of view.

There are complex prepositions with a dynamic meaning that contain a stative preposition, as we saw in examples (19)-(21), but there are not complex prepositions with a stative meaning that contain a dynamic preposition. Although the prepositions nad ‘above’, pod ‘under’, przed ‘in front of’ and za ‘behind’ are ambiguous between the stative and directional meaning, in the examples in (19)-(21) their stative meaning is used, for instance,
the Russian *iz-pod stola*, repeated below as (28a) denotes motion from a place that is located under the table (and does not denote motion to under the table) and the Polish *znad stołu* in (28b) denotes motion from a place that is above the table (and does not denote motion that ends above the table).

(28) a. *iz-pod stol-a*  
    out-under table-GEN.SG  
    ‘from under the table’

b. *z-nad stol-u*  
    from-above table-GEN.SG  
    ‘from above the table’

For the same point with some non-ambiguous examples see the postpositions from Lezgian in (29) and (30), taken from Haskelmath (1993, 214-216). While *wilik* has the spatial or temporal stative meaning, the elative form *wilikaj* has the path dynamic meaning. In the same vein, *arada* has the spatial stative meaning and the elative *aradaj* expresses source and path.

(29) a. *wilik*  
    in.front.of  
    ‘in front of, before’

b. *wilikaj*  
    in.front.of  
    ‘along’

(30) a. *arada*  
    between  
    ‘between, among’

b. *aradaj*  
    between  
    ‘from between, from among’

The same pattern can also be observed in the case of case affixes, as shown by the following Lezgian examples, where the dynamic markers -*aj* and -*di* are attached to the stative markers -*w* and -*qh* (Haspelmath 1993, 74).

(31) a. *sewre-*w  
    bear.ERG-at  
    ‘at the bear’

b. *sewre-*w-aj  
    bear.ERG-at-from  
    ‘from the bear’

c. *sewre-*w-di  
    bear.ERG-at-to  
    ‘toward the bear’

(32) a. *sewre-*qh  
    bear.ERG-behind  
    ‘behind the bear’

b. *sewre-*qh-aj  
    bear.ERG-behind-from  
    ‘from behind the bear’

c. *sewre-*qh-di  
    bear.ERG-behind-to  
    ‘to behind the bear’
Similarly, dynamic wh-adverbs can be derived from stative wh-adverbs, as shown for Polish and Czech temporal adverbs below. On the contrary, there are no examples of stative wh-adverbs derived from dynamic wh-adverbs.

(33) a. kiedy
    when
    ‘when’

b. do kiedy
    to when
    ‘till when’

c. od kiedy
    from when
    ‘since when’

(34) a. kdy
    when
    ‘when’

b. dokdy
    to when
    ‘till when’

c. odkdy
    from when
    ‘since when’

It is not decisive for the argument whether or not the preposition forms one word with the adverb; what is crucial is that the dynamic element includes the stative element. With respect to locative adverbs, we find the same pattern in German; consider (35), where the illative wohin and the ablative woher contain the stative wo.

(35) a. wo
    where
    ‘where’

b. wo-hin
    where-there
    ‘where’

c. wo-her
    where-here
    ‘from where’

Adverbial prepositions behave in the same way. Dynamic adverbial prepositions, as the Russian (36b), (36c) and the Polish (37b), (37c), contain a stative preposition, as (36a) and (37a), but there is no stative adverbial preposition that contains a dynamic preposition.

(36) a. pered
    in.front.of
    ‘in front of’

b. v-perēd
    in-in.front.of.ACC.SG
    ‘to the front of’

c. s-pered-i
    from-in.front.of-GEN.SG
    ‘from the front of’

(37) a. koł-o
    circle-NOM/ACC.SG
    ‘at’

b. do-koł-a
    to-circle-GEN.SG
    ‘around’

c. w-o-koł-o
    in-about-circle-ACC.SG
    ‘around’
One might propose that the Russian vperēd is derived from the noun perēd but this is problematic for speredi because the case ending -i does not go together with the masculine gender of perēd (see footnote 5). To conclude this discussion, elements with the dynamic meaning project a dynamic phrase and embed the stative phrase, which encodes the stative meaning, as shown in (38a). In contrast, stative elements have structure (38b).

(38) a. DynamicP              b. StativeP
    Dynamic                Stative
    StativeP              DP
    DP

Recall from section 6.2 that there is a correspondence between cases and the type of the meaning: locative and instrumental prepositional phrases have the stative meaning and accusative and genitive prepositional phrases have the dynamic meaning. Given this, locative and instrumental prepositional phrases have the structure in (38b), whereas accusative and genitive prepositional phrases have the structure in (38a).

6.3.2 The tense head and case

At this stage, the question arises how case is assigned in the decomposed structure. The generalisation drawn from the data is that case is determined by the highest head in the prepositional structure. For instance, complex prepositions like the Polish sprzed and nad in (20), repeated here for convenience as (39), assign genitive, which is the case assigned by the dynamic s and z. What is crucial is that the prepositions przed, nad and po do not assign genitive; przed and nad assign accusative and instrumental and po assigns dative, accusative and locative.

(39) a. s-przed       stol-u
      from-in.front.of table-GEN.SG
      ‘from in front of the table’

b. z-nad       stol-u
      from-above table-GEN.SG
      ‘from above the table’

---

6 The Czech adverbials dopředu ‘to the front’ zeprědu ‘from the front’, kupředu ‘forward’, vpřed ‘forward’, which contain the preposition před ‘in front of’ and the preposition do/zεl(u)v, show the same pattern. Although před is ambiguous between the stative and dynamic meaning, in the discussed examples, its stative meaning is used; the adverbials describe motion to or from a place that is located in front of a certain reference point.
The Russian complex prepositions *iz-za* and *iz-pod* in (19), repeated here as (40), assign genitive, the case assigned by the dynamic component *iz*, but not by *za* and *pod*, which are used in their stative meaning in (40). The prepositions *za* and *pod* can assign only accusative and instrumental.

\[(40)\]
\[
\begin{align*}
a. & \quad iz-za \quad stol-a \\
& \quad out-behind \ table-GEN.SG \\
& \quad ‘from behind the table’
\end{align*}
\[
\begin{align*}
b. & \quad iz-pod \quad stol-a \\
& \quad out-under \ table-GEN.SG \\
& \quad ‘from under the table’
\end{align*}
\]

Similarly, the Czech complex prepositions *zeza*, *zpod* and *zponad* from (21), repeated below as (41), also assign genitive, which is the case assigned by the dynamic *z(e)*. The prepositions *pod* and *nad* assign accusative and instrumental and *po* assigns accusative and locative. Although *za* can assign genitive, with this preposition, genitive cannot have a spatial meaning.\(^7\)

\[(41)\]
\[
\begin{align*}
a. & \quad ze-za \quad stol-u \\
& \quad from-behind \ table-GEN.SG \\
& \quad ‘from behind the table’
\end{align*}
\[
\begin{align*}
b. & \quad z-pod \quad stol-u \\
& \quad from-under \ table-GEN.SG \\
& \quad ‘from under the table’
\end{align*}
\[
\begin{align*}
c. & \quad z-po-nad \quad stol-u \\
& \quad from-on-above \ table-GEN.SG \\
& \quad ‘from above the table’
\end{align*}
\]

That case is determined by the highest head is also corroborated by data with adverbial prepositions and adverbials derived from prepositions which themselves bear a case marker. In the Russian example in (42), the null accusative and the locative and genitive -*i* are assigned by the left prepositions *v* and *s*, which can be dynamic (as in (42a) and (42c)) in

\(^7\) To be more accurate, the meaning of (41c) can be paraphrased as ‘from the place that is a little above the table’. This argues for the decomposition approach to prepositions since only the stative part of the preposition is modified by *po*. According to Biskup (2009b), the delimitative *po* is a morphological adjunct in Czech, hence it is not visible for syntactic processes and does not participate in case assignment. The Russian *po-nad* and *po-z* *za*, which assign instrumental, and the Polish *ponad* and *poza*, which assign accusative and instrumental, could instantiate the same pattern since neither the Russian *po* nor the Polish *po* can assign instrumental.
contrast to the stative *pered*, which assigns only instrumental. In the Polish examples, the accusatives in (43a) and (43b) could theoretically be assigned by both prepositions, *na* and *o* and *w* and *o*, but crucially the genitive in (43c) can be only assigned by the left preposition *do*.

(42) a. v-peréd
    in-in.front.of-ACC.SG
    ‘to the front of’

b. v-peręd-i
    in-in.front.of-LOC.SG
    ‘in front of’

c. s-pered-i
    from-in.front.of-GEN.SG
    ‘from the front of’

(43) a. na-o-kol-o
    on-about-circle-ACC.SG
    ‘around’

b. w-o-kol-o
    in-about-circle-ACC.SG
    ‘around’

c. do-o-kol-a
    to-about-circle-GEN.SG
    ‘around’

In the Czech adverbials below, the dative case in (44a) and the genitives in (44b) and (44c) must be assigned by the higher dynamic prepositions *k(u)*, *do* and *ze* since the preposition *před* assigns accusative and instrumental.

(44) a. ku-před-u
    towards-in.front.of-DAT.SG
    ‘forward’

b. do-před-u
    to-in.front.of-GEN.SG
    ‘to the front’

c. ze-před-u
    from-in.front.of-GEN.SG
    ‘from the front’

As discussed in the preceding section, stative prepositions project only the stative phrase and assign stative cases, whereas prepositions with a dynamic meaning project the dynamic phrase above the stative phrase and assign dynamic cases. This means that the case assigning head should know whether or not the dynamic phrase projects. The dynamic and stative heads, however, cannot assign case by themselves because the dynamic head should assign case exactly when the stative head does not assign case and the stative head in turn should assign case when the dynamic head does not project. From the derivational point of view, the stative head cannot know whether or not the dynamic head will merge in the structure, which gives rise to the look-ahead problem. Another problem is that it is not clear why in certain cases the stative head could assign case and in others could not.

It also does not help to assume that the ability of the stative head to assign case is tied to the presence of unvalued ϕ-features (or some other feature) that are optional because there should be a dependency between the presence/absence of these features on the stative head.
and the presence/absence of the dynamic head (or its unvalued φ-features) in the derivation. The problem is summarised in the following table, showing all possible scenarios.

<table>
<thead>
<tr>
<th></th>
<th>a. No Dynamic</th>
<th>b. Dynamic without φ-fs</th>
<th>c. Dynamic with φ-fs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. No Stative</td>
<td>not interesting</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>2. Stative without φ-fs</td>
<td>*</td>
<td>*</td>
<td>√</td>
</tr>
<tr>
<td>3. Stative with φ-fs</td>
<td>√</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

The cells 2c and 3a pose the dependency problem. Cases 1b and 1c are ungrammatical because the presence of the dynamic meaning – that is, the presence of the dynamic head – presupposes the presence of the stative meaning (head). Cases 2a and 2b potentially violate the Case Filter because it can happen under certain circumstances that the prepositional complement does not receive case in the derivation. Case 3b is ungrammatical because the appropriate preposition would have a dynamic meaning but the prepositional complement would receive a stative case. Finally, 3c is ungrammatical because φ-features on the dynamic head would remain unvalued.

Because of these problems, I adopt the assumption in Biskup (2009b) that prepositional case is assigned by some higher head, which has all information relevant to case assignment. Analogously to the verbal domain, there is a tense head in the prepositional structure, which c-commands the dynamic and stative head. In accordance with the proposal in preceding chapters that also prepositional cases are a reflection of the operation Agree between Tense-features and φ-features, the tense head has a valued Tense-feature and unvalued φ-features. Since the case assigned to the prepositional complement is not identical for all prepositions, as we saw in section 6.2, the tense head must be somehow instructed which case it shall assign. This is ensured by incorporation of the lower prepositional heads into the tense head. Given that the stative head follows the dynamic one (e.g. in the Russian iz-za ‘from behind’, Polish s-przed ‘from in front of’ and Czech z-pod ‘from under’), the incorporation happens to the right. In this respect Slavic languages differ from languages like English where the lower preposition precedes the higher one like in into and onto. This should not pose a problem because it is known that directionality parameters can be set differently for different categories even in one and the same language, for instance, the verbal domain in German is
OV, whereas the prepositional domain is VO (with a few exceptions). The whole case assigning process is schematised in the tree below. 8

Recall from chapter 2 that there are indeed languages that manifest overt prepositional agreement or have tensed prepositions; for overt prepositional agreement consider the Jacaltec example in (46) and the Kiribati example in (47) and for tensed prepositions see the Maori example in (48) and the Titan example in (49).

(46) y-ul te’ ſah
    3-in the house
    ‘in the house’           (Baker 2008, 194; originally Craig 1977, 110)

(47) nako-ia mooa
    to-3PL chickens
    ‘to the chickens’        (Hagège 2010, 139; originally Groves et al. 1985, 65)

8 For more details, see section 6.4. One might propose that the tense head can receive the relevant information via the selection/sisterhood relation with its complement (dynamic or stative phrase). This proposal would be problematic in the case of more articulated prepositional phrases where case is determined by more projections. It is also difficult (albeit not impossible) to model it in terms of Agree; the tense head would have to enter into an Agree relation with all heads relevant to the case assignment and results of these operations would have to be reflected by the operation Agree between the tense head and the prepositional complement. In approaches assuming multiple cases (e.g. Merchant 2006, Matushansky 2008, Biskup 2009a, Richards 2013, Assmann et al. 2014), the prepositional complement staying in situ could receive case from every relevant head either via the operation Agree or some case assigning mechanism that percolates case to all elements present in the sister constituent. Note, however, that in none of the discussed Slavic languages are there multiple case markers on the prepositional complement and that the prepositional case marker does not have to occur on all elements contained in the prepositional complement. The prepositional complement could also move to the relevant case assigning projections (e.g. Van Riemsdijk 2007, Caha 2009) but it is difficult to motivate such movements because the Spec-Head relation is not necessary for case assignment in the minimalist approach and the movements also would have no word order reflections, in contrast to e.g. Dutch, where directional prepositions can follow their complement.
At first sight, it might seem awkward to assume a tense projection in the prepositional structure. However, we know that the prepositional predication holds at a certain time. For instance, according to Klein (1990, 1991) the internal and the external argument bear a time index. In contrast to Klein, Wunderlich (1993) argues that the time indices are never different and that it is the location as a whole that is predicated of some time interval. He proposes that prepositions localise the eigenplace (region of interaction) of the figure argument with respect to the ground argument and that eigenplaces are time dependent. In the same vein, von Stechow (2006, 2007) assumes a time argument in the meaning of prepositions, besides the internal and external argument and the world argument. Similarly, Kracht (2008) postulates a function loc’ in the prepositional meaning, which takes an object and a time point and returns the region that the object occupies at that time point. 

The relevance of the tense projection in prepositional phrases can be illustrated with the following example: Ta žena se zničeným kufrem se chová divně. ‘The woman with the broken suitcase is behaving inappropriately.’ The prepositional phrase se zničeným kufrem ‘with the broken suitcase’ can be related at least to two different times, to the speech time – for instance, in a dialogue between two people who are observing a woman at a party that has a broken suitcase and that is behaving inappropriately – or to some reference time in the past, for instance, in a dialogue when two people are observing a woman at a party who is behaving inappropriately and whom they also met at the airport a short while ago, where she had a problem with her broken suitcase.
Following my proposal in chapter 2, there is a little prepositional head \( p \) on the top of the prepositional structure and this head selects the tense phrase and brings about the right categorial status of the whole prepositional structure, allowing its embedding.

### 6.3.3 The prepositional structure in more detail

The internal structure of prepositional phrases is more complex, for instance, Lang (1991) and Wunderlich & Herweg (1991) propose that there is a localising function that situates the figure argument in space relative to a neighbourhood region of the ground argument. This localising function has been argued to be morphologically realised in Japanese and Korean (Wunderlich 1991, 2012; Bierwisch 1996; cf. also Svenonius 2008); consider the general locative marker \( ni \) in the Japanese example below.

(50) Hon wa teeburu no ue/ shita ni aru.

book TOP table GEN on-/under-region LOC be

lit. ‘The book is located in the on-region/under-region of the table.’

(Wunderlich 2012, (31))

The neighbourhood region is often expressed by a special functional word with a meaning like ‘top’, ‘bottom’, ‘front’, ‘back’, which is called \textit{relator noun} (Blake 2001) or \textit{Axial Part} (Svenonius 2006); hence some authors assume an AxPart projection in the prepositional structure (e.g. Kracht 2008, Pantcheva 2008). In the example above, the neighbourhood region is represented by \textit{ue} and \textit{shita}. As to Slavic languages, we could analyse the Russian \textit{dol’}, the Polish \textit{śród} and the Czech \textit{zad} as AxPart elements in the following adverbial prepositions.

(51) a. v-dol’
    in-bottom.ACC.SG
    ‘down, along’

b. w-śród
    in-middle.ACC.SG
    ‘in the middle of’

c. ze-zad-u
    from-back-GEN.SG
    ‘from the back of’

Following the idea of the region semantics, I will use the meaning (52) for the locative head.

In order to allow the application of the little prepositional head, I modify the usual meaning of the localising function by adding the state variable. Thus, the referent of the figure argument \( x \) is in the state of being located with respect to the neighbourhood region of the ground argument \( R \), which is specified by the appropriate preposition.
Dynamic prepositional phrases have been proposed to contain the operator \textit{become} (or \textit{change}); see Dowty (1979), Wunderlich (1991) and Stiebels (1996) (but see Gehrke 2008 for some criticism of \textit{become} in prepositional phrases). This operator identifies the transition from one region (in the case of spatial prepositions like here; more generally, it is an event/state) into the other and takes the final stage as its argument. \footnote{Compare the definition of \textit{become} in (i) from Beck (2005, 7), and also Dowty (1979), von Stechow (1996), Filip (2012). Compare also Fong’s (1997) concept of phase quantifiers.} It comes in two types; for goal prepositions, I propose the meaning (53a) and for source prepositions the meaning (53b).

\begin{equation}
\lambda \mathcal{P} \lambda x \lambda s[\text{become}(\mathcal{P}(x)(s))]
\end{equation}

\begin{equation}
\lambda \mathcal{P} \lambda x \lambda s[\text{become}(\neg \mathcal{P}(x)(s))]
\end{equation}

The presence of \textit{become} is responsible for telicity of prepositional phrases, which differs from telicity of prefixed verbs, which is derived by the \textit{cause} operator in the head $p$ of the prefixal type. That these two phenomena are different is obvious from the fact that incorporated prepositions/prefixes generally induce telicity in the verbal domain (possibly there are two exceptions, delimitative \textit{po-} and perdurative \textit{pro-}), as discussed in chapter 2.3, and that non-incorporated telic prepositions with \textit{become} do not telicise the verb. Instead of \textit{become}, the notion of path and the path projection could be used (see e.g. Zwarts 2005); this would also derive the case patterns under discussion. \footnote{It is also possible to combine both approaches; compare Kracht (2002, 2008).} Although the path approach is more flexible in certain aspects, there are also arguments for the presence of \textit{become} in the structure of prepositional phrases; see McIntyre (2006b).

The dynamic phrase, projected by the \textit{become} operator, embeds the phrase containing the localising function \textit{loc}, which in turn embeds the stative phrase. I assume that \textit{axpart} elements also project the stative phrase. Consequently, the prepositional structure of dynamic prepositions looks like (54) and stative prepositions differ from them in lacking the dynamic projection.

\begin{equation}
[p \mathcal{P} \text{ TP T DynamicP Dynamic LocP Loc StativeP Stative DP N}]\]\]
\end{equation}
As an illustration consider the LF with the Russian dynamic prepositional phrase v stakan ‘into the glass’ in (55), occurring, for instance, in the sentence Artur vlił lekarstvo v stakan ‘Artur poured the drug into the glass’.

Applying the meaning of the stative head to its complement, we receive the internal region of the referent of the glass. The localising function situates the referent of the figure argument x in that region. The figure, however, merges later in the derivation since it does not intervene between the case-assigning tense head and the ground argument.11

Applying the meaning of the dynamic head, the result is that it becomes true that the referent of x is in the state of being located in the internal region of the glass. The tense head then relates this meaning to a certain time. The time variable is free and receives a value at the semantico-pragmatic interface, depending on the meaning of other elements in the sentence and the context. In certain sentences, the time of the prepositional predicate could be identified, for instance, with the event time of the verbal predicate, as in the Polish Leżał na podłodze ‘He was lying on the floor’ (recall also the Titan example in (49) showing that some languages manifest tense concord on prepositions) but there are also cases where such an identification is not possible. Consider the Czech example in (56), where, given the present tense of the verb, its event time coincides with the reference time and the speech time. The

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11 Alternatively, the figure argument could merge directly in the specifier of the locative phrase and the ground would have to move across it. The question, however, arises how such movement would be motivated. What is more, some higher copy of v would have to be spelled out as the preposition.
time of the prepositional phrase *do Japonska*, however, must be different; the time for which it (possibly) holds that the goods are located in Japan must follow the speech time.

(56) To zboží do Japonska stojí tamhle.

the goods to Japan stand.PRES over.there

‘The goods to be exported to Japan are over there.’

Returning to the derivation in (55), the figure argument merges in the specifier position of the tense phrase. It is the earliest option for it not to block Agree and the case assignment between the tense head and the ground argument. This means that the locus of the syntactic defectivity, as discussed in chapter 3.3.3, is the tense head. For instance, if a prepositional phrase is defective and the figure argument is missing, its tense head does not have φ-features and the selectional feature responsible for Merger of the figure. The syntactically unrealised prepositional argument would then semantically correspond to the free variable *x* in the meaning of the localising function.

In chapter 2.8.2 we saw that in cases with an incorporated preposition like (55), the little prepositional head has the prefixal meaning with the *cause* relation between the two subevents because prefixes telicise. In verbal complements like in the Russian *v Germanii* in (57), from which the preposition does not incorporate into the verb, the little prepositional head cannot have the *cause* meaning because the event of Artur’s residing does not cause Artur’s state of being in Germany.

(57) Artur žil v Germanii.

Artur lived in Germany

Therefore, I assume that in cases like this the little prepositional head has the meaning (58) (note that in many cases, the same tense phrase can be selected by both types of *p*, deriving either prefixed or unprefixed verb). It takes the tense phrase, which expresses Artur’s state of being in Germany, and then it takes the root of *žít* ‘live’, which is a predicate over events.

(58) \[\lambda P \lambda Q \lambda s \lambda e [P(s) \& Q(e)]\]
If the time of the prepositional phrase is identified with the event time of the verbal predicate *live*, we obtain a correct meaning for (57) since Artur is in an argument relation with the event of living and at the same time he is located in Germany.\(^{12}\)

If Larson (1988), Pesetsky (1995), Stroik (1996), Haider (2004) and others are right in that modifiers – like the Russian *pod mostom* in (59) – can merge in the complement position of the verb, then the meaning (58) can also be used for the little prepositional head in these cases.

\[(59)\]Timur spal pod mostom.

Timur slept under bridge

‘Timur was sleeping under the bridge.’

Coming back to (55), the prepositional phrase merges with the root of *lit* ‘pour’ and the complex head *p* incorporates into it. Semantically, the meaning of the prepositional phrase applies to the predicate of events expressed by the verbal root and then the derivation proceeds as discussed in chapter 2.

### 6.3.4 The covert prepositional complement

Let us now turn to prepositional complements. They can be overt as well as covert. The Russian (60a-b), Polish (60c-d) and Czech (60e-f) examples do not contain an overt determiner phrase but they contain a case ending.

\[(60)\]

\begin{align*}
a. & \text{ po-sred-i} \\
& \text{on-amidst-DAT.SG} \\
& \text{‘in the middle of’}

d. & \text{ do syt-a} \\
& \text{to sated-GEN.SG} \\
& \text{‘to one’s fill’}
\end{align*}

\begin{align*}
b. & \text{ iz-redk-a} \\
& \text{out-rare-GEN.SG} \\
& \text{‘seldom’}

e. & \text{ z-tam-a} \\
& \text{from-there-GEN.SG} \\
& \text{‘from there’}
\end{align*}

\begin{align*}
c. & \text{ na lew-o} \\
& \text{on left-ACC.SG} \\
& \text{‘on the left’}

d. & \text{ do syt-a} \\
& \text{to sated-GEN.SG} \\
& \text{‘to one’s fill’}
\end{align*}

\begin{align*}
e. & \text{ z-tam-a} \\
& \text{from-there-GEN.SG} \\
& \text{‘from there’}
\end{align*}

\begin{align*}
f. & \text{ do-před-u} \\
& \text{to-in.front.of-GEN.SG} \\
& \text{‘forward’}
\end{align*}

\(^{12}\) Another possibility would be to replace the state variable of the prepositional phrase with the variable *e* so that both *P* and *Q* would predicate over the same event: \(\lambda P \lambda Q \lambda e [P(e) \& Q(e)]\), which is the standard modification template. In any case, Artur is an argument of the verbal as well as the prepositional predicate, which means that it moves from \(pP\) to \(vP\).
In what follows, I present several arguments for the presence of a covert noun in examples like these. The first one is theory-internal; since case is a reflection of the operation Agree between φ-features, there must be an element in these examples that has valued φ-features (at least historically in unproductive cases). Secondly, adverbials like dopředu ‘forward’ refer to a certain place; hence we expect a referential element in such phrases (e.g. a covert noun PLACE, as proposed by Katz & Postal 1964, Kayne 2004, Botwinik-Rotem 2008, Pantcheva 2008, Noonan 2010). Such an analysis is supported by the existence of prepositions in which the noun place itself is present overtly; consider the Russian (61a), the Czech (61b), the Slovak (61c), the German (61d) and the English in place of.

(61) a. v-mesto      b. na-místo      c. na-miesto      d. an-statt
    in-place.ACC      on-place.ACC      on-place.ACC      on-place
    ‘in place of’      ‘in place of’      ‘in place of’      ‘in place of’

Another argument comes from the consistent case behaviour; compare case markers in the Czech example (62) with the singular case endings of the masculine paradigm hrad ‘castle’ in table 2 (the Russian adverbial prepositions speredi ‘from the front of’, vperēd ‘to the front of’ and vperedi ‘in front of’ use the feminine paradigm tetrad ‘notebook’). This means that there must be information in the prepositional phrase that ensures that the assigned cases are spelled out as nominal endings of the appropriate paradigm.

(62) a. do-před-u      b. ze-před-u
    to-in.front.of-GEN.SG     from-in.front.of-GEN.SG
    ‘to the front’      ‘from the front’

c. ku-před-u      d. v-před
    towards-in.front.of-DAT.SG     in-in.front.of.ACC.SG
    ‘forward’      ‘forward’

e. ve-před-u
    in-in.front.of-LOC.SG
    ‘in the front’

<table>
<thead>
<tr>
<th>Table 2</th>
<th>NOM</th>
<th>GEN</th>
<th>DAT</th>
<th>ACC</th>
<th>LOC</th>
<th>INST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hrad</td>
<td>hrad-u/a</td>
<td>hrad-u</td>
<td>hrad</td>
<td>hrad-u/ě</td>
<td>hrad-em</td>
</tr>
</tbody>
</table>

An interesting question is what all information remains present or active in the unproductive forms. I will not discuss this issue here since it would lead us too far away from the main topic of this chapter.
The nominal element becomes visible in the Czech noun *předek* ‘front, ancestor’ (cf. the Russian *predok* ‘ancestor’), as shown below.

(63) a. do před-k-u
    to in.front.of-NMLZ-GEN.SG
    ‘to the front’

b. na před-ek
    on in.front.of-NMLZ.ACC.SG
    ‘onto the front’

c. v před-k-u
    in in.front.of-NMLZ-LOC.SG
    ‘in the front’

Another argument is based on case-assigning properties. Adverbial prepositions like the Russian *vperedi* ‘in front of’ or the Czech *zezadu* ‘from the back of’ assign genitive, which is the case of complements of nouns.

Examples like *izredka* ‘seldom’ in (60b), *na lewo* ‘on the left’ and *do syta* ‘to one’s fill’ in (60c-d), in which the case marker is attached to an adjective, contain a covert noun of the Slavic neuter *o*-stem paradigm; compare also the Polish and Czech examples with the locative ending -e, respectively: *biednie* ‘poorly’, *řídce* ‘seldom’. There are prepositional phrases in which the neuter noun is present overtly; consider the Polish *około* ‘about’, *dokoła* ‘around’, *dookoła* ‘around’, *wokoło* ‘around’, the Russian *około* ‘about, near’ and the Czech *około* ‘about, around’, *kolem* ‘about, around’, which contain the neuter noun *koło* ‘wheel’.

Doetjes (1997) argues that quantificational adverbs contain nominal material which forms the restrictor of the tripartite quantificational structure. This is the reason why quantificational adverbs cannot combine with nouns. This should also hold for cases like the Russian *izredka*, the Polish *rzadko* and the Czech *zřídka* and *řídce*, all with the meaning ‘seldom’, if they indeed contain a covert noun. Example (64a) demonstrates it for the Czech *zřídka*.

The control example in (64b) shows that the adverb can co-occur with a verbal predicate (i.e. the nucleus of the quantifier) and (64c) shows that if the adverbial category is changed to the adjectival category, the phrase becomes grammatical.14

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14 This also holds for quantificational adverbs like *často* ‘often’ (Russian *často* and Polish *często*), which have the accusative ending -o of the neuter *o*-stem paradigm. In certain quantificational adverbs, the noun is visible; consider e.g. the Russian *mnogo raz* ‘many times’, the Polish *wiele razy* ‘many times’, the German *oftmals* ‘often’ and the English *oftentimes* and *many times*. 182
The covert noun of the neuter o-stem paradigm could also occur in cases like ztama ‘from there’ in (60e) or zkama ‘from where’, in which the genitive -a – assigned by the preposition z – is attached to an adverb. Some evidence for this comes from Proto-Slavic, Old Church Slavonic and other older stages of Slavic languages. There were forms tamo ‘there’, kamo ‘where’ and semo ‘here’ (e.g. Vasmer 1976, Rusinová 1984, Rejzek 2001), with the ending -o, which is identical with the nominative and accusative marker of the neuter o-stem paradigm.

From the theoretical point of view, it has been argued by Kayne (2004) that here and there are demonstratives modifying an empty noun place which is embedded in a determiner phrase headed by a null determiner (cf. also Leu 2008, chap. 2). According to Kayne, the noun, in fact, can be overt in some dialects of English. The same also holds for Polish and Czech, as demonstrated by (65a) and (65b), respectively.

(65) a. tam-to miejsce b. tady-to místo
there-that place here-this place
‘that place’ ‘this place’

A more interesting analysis is to decompose tam as t-a-m and analyse t- as a deictic morpheme and -m as a noun. In a similar fashion, one can decompose the wh-adverb kam, in which k- would represent a question morpheme, and also, for instance, the Czech sem ‘here’ and onam ‘over there’, where s- would be a deictic morpheme expressing proximity and on- a morpheme expressing distality.15

That the morpheme -m stands for a noun is supported by the fact that in Slavic languages, -m derived or derives (as in Modern Russian) m-participles from verbs and participles show nominal properties. The morpheme -m also derives nouns like the Russian bel’mo, the Czech bělmo, the Slovak beľmo and the Polish pasmo, the Czech pásmo and the Slovak pásma, as shown below.

---

15 Compare these morphemes in the Old Church Slavonic stative ṣde ‘here’ and oṇde ‘there’, the dynamic sēṃd ‘to this place’ and onaṃd ‘to that place’ and the temporal ṣęg̣da ‘now’ and oṇęg̣da ‘at that time’.

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The covert noun is also present in conjunctions consisting of a preposition, a demonstrative pronoun and a complementiser, as illustrated by the following examples.

(68) a. po-tomu čto
    along-this that
    ‘because’

b. pre-to-že
    for-this-that
    ‘because’

c. mezi-tím-co
    between-this-that
    ‘while’

Particular Slavic languages differ with respect to the grammaticalisation and orthography of these conjunctions. For instance, the Russian potomu čto in (68a) consists of two words but Slovak and Czech have a one word conjunction for the same meaning; consider the Slovak pretože in (68b) and the Czech protože. Further, the Czech mezitímečo from (68c) can also be written as mezitím co, as its Slovak counterpart medzítým čo, whereas its Russian equivalent meždu tem kak ‘lit. between this how’ is fully transparent.

If the forms of the neuter demonstrative to in (68) represent the determiner head, then, given the overtly realised agreement between demonstratives and the noun in Slavic languages, there must be a covert neuter noun in the conjunctions. Consequently, the structure of these expressions looks like (69).

(69) \[ \_DP \_pre \_DP \_to \_DP \_NP \_\_CP \_C’ \_že \_\_\_\_\_\_\]]

The second prominent analysis – the no-DP analysis – analyses traditional determiners as adjectives adjointed to a noun phrase (e.g. Bošković 2009). Again, there must be a noun in conjunctions like those in (68), to which the demonstrative is adjoined.

If we do not analyse the demonstrative as a determiner selecting a noun phrase and treat it as an independent pronoun, there will still be a noun present since pronouns themselves always contain a noun in their structure, as argued by Déchaine & Wiltschko (2002).
If we assumed that the demonstrative selects directly the clausal projection CP, which has φ-features that can enter into an Agree relation with the demonstrative, we would have a problem with embedded clauses that do not contain a neuter element capable of valuing φ-features of the complementiser; consider the Russian example in (70).

(70) … po-tomu ďto ona pošla v škol-u.

along-this that she went.F.SG in school-F.SG

‘… because she went to the school.’

One might then propose that the embedded clause always has neuter φ-features for some reason or that the neuter form of the demonstrative is the default form used in the discussed configurations. This proposal, however, would have a problem with conjunctions in which the demonstrative is not neuter, as in the Czech (71).

(71) po-té co

after-this.LOC.F.SG that

‘after’

The analysis with a covert noun is also supported by the fact that there are conjunctions like the Polish (72), in which the noun is present overtly.

(72) pod-czas gdy

under-time.ACC.M.SG when

‘whereas’

The observed pattern is not specific to Slavic languages; it can also be found in Germanic, Romance and various other languages, as shown by the conjunctions below. The Italian affinché in (73a) is composed of the preposition a ‘to’, the noun fine ‘end’ and the complementiser che ‘that’; and allorché in (73b) is derived from allora ‘at that time’ – which is from the Latin ad illam hōram ‘lit. at those hours’ – and the complementiser che. In contrast to these examples, the Spanish example in (73c) is fully transparent.
The example in (74) demonstrates the pattern for German. In certain German dialects, conjunctions with the prepositional structure like trotzdem can be followed by the complementiser daß ‘that’.

(74) … trotz-dem daß man ihm nicht trauen kann.
‘… despite the fact that one cannot trust him.’ (Lenerz 1984, 98)

Now consider the contrast between the Malaya lam examples (75) and (76) (taken from Alsina, Mohanan & Mohanan 2005, (32)). They show that the postpositions cannot have a that clause as their complement but can merge with a that clause if it is embedded under a nominal element.

(75) a. *[kuTTi ciriccuwenn] ineppatti b.* [kuTTi ciriccuwenn[o] koNT[∂]
child smiled.that about child smiled.that because.of

(76) a. [kuTTi ciriccuwennat] ineppatti b. [kuTTi ciriccuwennat[o] koNT[∂]
child smiled.that.it about child smiled.that.it because.of
‘about (the statement) that the child smiled’ ‘because of (the statement) that the child smiled’

Note also that it has been argued that (at least certain) clauses are dominated by a noun projection; see Ross (1967), Chomsky (1973), Emonds (1976), Müller (1995), Müller & Sternefeld (1995), Alsina, Mohanan & Mohanan (2005), among others. If that is correct, then it is not surprising that there are languages that manifest morphological case on clauses, as for instance Japanese, Korean, Imbabura Quechua, Malayalam and Yukulta. In the Japanese example below, the complementiser or nominaliser of the embedded clause koto bears a case marker even if the clause is not selected by a preposition.
Having the structure of prepositional phrases in place, let us now turn to the prepositional case assignment.

6.4 Prepositional case assignment

In this section, I discuss in more detail how prepositional case assignment works. It is shown that the choice of prepositional case is determined by the meaning of particular projections of the decomposed preposition.

I assume that there is a correspondence between semantic properties of particular heads of the prepositional structure and their syntactic features, and that syntactic features of heads incorporated into the tense head represent values of its Tense-feature. These values are copied on the prepositional complement by the operation Agree. At the level of PF, the values are spelled out as a case by means of the operation Vocabulary Insertion. This proposal has the advantage that the relation between prepositions and their cases is not accidental since case is based on semantic properties of the particular preposition, which is in accord with the semantic approach to cases like that of Jakobson (1936, 1958), Chvany (1986), Neidle (1988) and Franks (1995), who treat cases as bundles of semantic features.

Let us demonstrate this with some examples (I will not analyse all prepositions here; I will only present some representative examples). Consider (78), with the LF of the Russian dynamic prepositional phrase iz doma ‘out of the house’, showing the part relevant to the case assignment process. The meaning of the preposition iz ‘out’ differs from the meaning of v ‘in’, shown in (55), in the type of the BECOME operator, as illustrated below. Since iz (and its Polish and Czech counterpart z) is a source preposition, the negative BECOME is used.

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16 Besides the adjectival and adverbial modifiers discussed above, there are also negative and existential morphemic modifiers -ni- and -ně/-nie- like in the Russian niotkuda ‘from nowhere’, in the Polish donikąd ‘to nowhere’ and in the Slovak odniekiaľ ‘from somewhere’ (see also footnote 7). Unbound phrasal modifiers are also possible; consider the Czech dva metry za domem ‘two metres behind the house’. The structure of prepositional phrases can be even more articulated; see e.g. Kracht (2008), Svenonius (2008), Caha (2009), Cinque (2010), Noonan (2010) and Pantcheva (2011).
As to the correspondence between semantic properties of particular heads and their syntactic
features, the internal meaning of the stative head corresponds to the syntactic Internal-feature
and the meaning of the negative BECOME corresponds to the syntactic Become-feature and
Source-feature. The presence of the general Become-feature and the specific Source-feature
or Goal-feature on the dynamic head allows us to have just one vocabulary insertion rule for
accusatives, as we will see below. Since source prepositions assign genitive – see the Russian
iz, the Polish z and the Czech od in (79), taken from section 6.2 –, I propose the vocabulary
insertion rule (80).

(79) a. iz avtomobil-ja b. z samochod-u c. od auta
    out car-GEN.SG   from car-GEN.SG   away car-GEN.SG
    ‘out of the car’ ‘out of the car’ ‘away from the car’

(80) [Become, Source] → genitive

Because of the high complexity of the case system of the three discussed languages, I will
only use general vocabulary insertion rules, following Biskup (2017) (see also Matushansky
2008 and Biskup 2009b). Instead of particular vocabulary items, I put case in the vocabulary
insertion rules, which should be viewed as an abstraction over the specific case markers.
Although such general rules do not capture syncretism of particular case markers – as do the
rules with specific vocabulary items –, they have the advantage that they (at least partially)
show the meaning of particular cases and that they are crosslinguistically and

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17 Since the meaning of the locative head is identical for all prepositions, its features do not have to be taken into
considerations.
transparadigmatically valid. For instance, the rule in (80) can be used for all three discussed languages and all their inflectional classes.

For the insertion of the case marker, also φ-features and the inflectional class feature of the host noun are relevant, which comes specified with these features from the syntactic component. Regarding the class feature, in a morphosyntactic approach like the current one, in which derivational affixes are merged in syntax, it must be already present in the syntactic component because the class information is inherent to derivational suffixes, as demonstrated in the examples below. In the Russian example (81a), the suffix -ar’ derives a masculine noun of the first declension from the root. In (81b), -tel’ also derives a noun of the first declension, but from the verbalised root. In (81c), the suffix -nic derives a feminine noun of the second inflectional class from the noun (81b). In the Polish (82), the nominaliser -al derives a masculine o-stem from the root (compare it with the feminine a-stem in (82a)) and the suffix -k- again derives a feminine a-stem.

(81) a. pis-ar’-Ø
write-NMLZ.M-NOM.SG.M
‘clerk’

b. pis-a-tel’-Ø
write-TH-NMLZ.M-NOM.SG.M
‘writer’

c. pis-a-tel’-nic-a
write-TH-NMLZ.M-NMLZ.F-NOM.SG.F
‘writer’

(82) a. gó-r-a
mountain-NOM.SG.F
‘mountain’

b. gó-r-al-Ø
mountain-NMLZ.M-NOM.SG.M
‘highlander’

c. gó-r-al-k-a
mountain-NMLZ.M-NMLZ.F-NOM.SG.F
‘highlander’

In the Czech example, (83a) shows a masculine noun of the declension hrad ‘castle’. The suffix -ař derives a masculine noun of the declension muž ‘man’ from the root in (83b); but there is also the nominaliser -ák, which derives a colloquial masculine noun of the declension pán ‘gentleman’ in (83c). In (83d), the suffix -k- derives a feminine noun of the inflection žena ‘woman’ from (83b) and in (83e) -tv- derives a neuter noun of the inflection stavení ‘building’.

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Regarding the source preposition *iz* and the difference between particular Slavic languages, prepositions differ with respect to how many meanings they can spell out. While Russian has two specific prepositions *iz* and *s* for the meanings ‘out’ and ‘from’, respectively, Polish only has one form *z* for both meanings. Czech patterns with Polish, with the exception that in addition to *z*, it has an orthographic variant *s* for the meaning ‘from surface’.

Let us look at some stative preposition, for instance, the Russian *za* (and its Polish and Czech counterpart *za*), as shown below in the prepositional phrase *za domom* ‘behind the house’.

(84)

The referent of the figure argument (represented by the variable *x* in (84)) is located in a region that is external to the house. The exterior is relativised with respect to the observer axis *obs*; specifically, *-obs* is used for the meaning ‘behind’ and *+obs* for the ‘in front of’ meaning.

The external meaning of the stative head corresponds to the syntactic External-feature and the observer axis meaning (and the vertical axis meaning for prepositions *nad* ‘above’ and *pod* ‘under’) corresponds to the syntactic Projective-feature. Since stative projective prepositions assign instrumental, as shown by the Russian *za* ‘behind’ and *pod* ‘under’, by the Polish *nad* ‘above’ and the Czech *před* ‘in front of’ in (85), taken from section 6.2, I assume the vocabulary insertion rule (86).
In section 6.2, I showed that the stative na ‘on’, o ‘about’, po ‘along’, v ‘in’ and their Polish and Czech equivalents assign locative; consider the Russian examples in (87a), the Polish example in (87b) and the Czech example in (87c).

These prepositions can be taken to denote a contact between the figure argument and the ground argument (with o, it is a non-spatial relation), in addition to their specific meanings. This meaning is present in the stative head and correspondingly, the head has a syntactic Contact-feature (sometimes called coherence or intimacy; see e.g. Hjelmslev 1935, 134 and Wiese 2004). Given this, we can use the following vocabulary insertion rule.18
under / behind box-ACC.PL
b. nad skrzyni-e
above box-ACC.PL
c. před bedn-y
in.front.of box-ACC.PL

The dynamic *za* (modulo *pod* and the Polish *nad*, *pod*, *przed*, *za* and the Czech *nad*, *pod*, *před*, *za*) has a meaning like the stative *za* in (84), with the difference that the dynamic head with the \textit{become} operator is present. The positive become meaning corresponds to the syntactic \textit{become}-feature and \textit{goal}-feature, which suggests the following vocabulary insertion rule.

\begin{equation}
\text{[Become, Goal]} \rightarrow \text{accusative}
\end{equation}

Given these two features, accusative markers are more specific than instrumental markers; consider the vocabulary insertion rule in (86), containing only the \textit{projective}-feature. Therefore, accusative markers fit better in the dynamic feature specification provided by the syntactic derivation in the instrumental-accusative alternation examples.

While in Polish and Czech all four projective prepositions assign both accusative and instrumental, in Russian it is only *pod* ‘under’ and *za* ‘behind’; *pered* ‘in front of’ and *nad* ‘above’ assign only instrumental. In cases like this, differences between prepositions are accounted for in terms of the presence or absence of certain projections (and their corresponding meanings) in the structure of the prepositional phrase and in terms of different feature specifications provided by the syntactic context for the insertion of vocabulary items. Concretely, the Russian *pered* and *nad* never contain the dynamic projection and consequently features copied on the prepositional complement by \textit{agree} never form a feature context appropriate for the insertion of an accusative marker, that is, a superset context.

The vocabulary insertion rule in (90) can also be used with the same effect for the Russian prepositions *na* ‘on’, *o* ‘about’, *po* ‘along’, *v* ‘in’ and their Polish and Czech equivalents (as discussed with respect to (87)), which alternate between locative and accusative, and also for the accusative preposition *čerez/przez/přes* ‘over’. This is in line with

\footnote{This only holds for Modern Russian (and Modern Belarussian); in Old Russian (and Old Belarussian), these prepositions also assign accusative (Mareš 1984).}
the fact that goal prepositions mostly assign accusative and with the claim that accusative is characterised as indicating the goal (Jakobson 1936, Van Schooneveld 1986, Anderson 2006).

In contrast to Russian, in West Slavic languages, the preposition \( \nu \) loses its ability to assign accusative, especially, in spatial contexts (in Czech and Slovak more than in Polish, see Kopečný 1973); in such cases, the preposition \( \textit{do} \) ‘to’ is used instead. The goal preposition \( \textit{do} \) assigns genitive, as demonstrated in (91a) for Russian, in (91b) for Polish and in (91c) for Czech, taken from section 6.2.

(91) a. \textit{do} avtomobil-ja \hspace{1cm} b. \textit{do} samochod-u \hspace{1cm} c. \textit{do} aut-a

\begin{tabular}{l}
\text{to car-GEN.SG} \\
\text{‘to the car’}
\end{tabular}
\begin{tabular}{l}
\text{to car-GEN.SG} \\
\text{‘to the car’}
\end{tabular}
\begin{tabular}{l}
\text{to car-GEN.SG} \\
\text{‘to the car’}
\end{tabular}

Given the form of the other vocabulary insertion rules, it is not possible to have one rule for this goal genitive and the source genitive (e.g. \texttt{[Become]} \( \rightarrow \) genitive). Since with \textit{do} the referent of the figure argument does not have to end in the ground argument – it can be located just near the ground argument –, I assume that the stative head has a Proximity-feature. This feature stands for the union of the interior and the proximal exterior region of the prepositional complement. Given this assumption, the vocabulary insertion rule in (92) then correctly prevents accusative markers from appearing on the complement of the preposition \textit{do} because they are less specific than the goal genitive markers.

(92) \texttt{[Become, Goal, Proximity]} \( \rightarrow \) genitive

Concerning dative case, it is assigned by the prepositions \( k, ku, k \), with the meaning ‘towards’, as shown in (93a) for Russian, in (93b) for Polish and in (93c) for Czech.\(^{20}\) With these prepositions, the figure argument is oriented with respect to the ground argument, which leads to the vocabulary insertion rule (94).

(93) a. \( k \) avtomobil-ju \hspace{1cm} b. \( ku \) nieb-u \hspace{1cm} c. \( k \) aut-u

\begin{tabular}{l}
\text{towards car-DAT.SG} \\
\text{‘towards the car’}
\end{tabular}
\begin{tabular}{l}
\text{towards sky-DAT.SG} \\
\text{‘towards the sky’}
\end{tabular}
\begin{tabular}{l}
\text{towards car-DAT.SG} \\
\text{‘towards the car’}
\end{tabular}

(94) \texttt{[Become, Goal, Oriented]} \( \rightarrow \) dative

\(^{20}\) As already mentioned in section 6.2, the Polish \( ku \) is bookish and is rarely used nowadays.
This vocabulary insertion rule blocks accusative markers from appearing on the complement of the preposition \(k\)/\( ku\)/\( k\) because the accusative goal markers are less specific than the goal dative markers.

Complex prepositions like the Russian \(iz-za\) ‘from behind’, the Polish \(przed\) ‘from in front of’ and the Czech \(zpod\) ‘from under’ have a more complex structure; as an illustration, consider (95), with the Polish \(przed domu\) ‘from in front of the house’. The referent of the figure argument moves out of the region that is located in front of the house. Structurally, the derivation contains two stative projections.

\[
(95)
\]

The external meaning of the lower stative head corresponds to the syntactic External-feature and the feature +obs corresponds to the Projective-feature. The internal meaning of the higher stative head corresponds to the syntactic Internal-feature and the meaning of the negative dynamic head corresponds to the syntactic Become-feature and Source-feature. Since the vocabulary item with the highest number of matching features is inserted into the terminal, a genitive marker wins over the instrumental marker; compare the vocabulary insertion rule in (80), with the Become-feature and Source-feature, and the vocabulary insertion rule in (86), containing only the Projective-feature.

Analogously, we can analyse adverbial prepositions like the Russian \(speredi\) ‘from the front of’, with the difference that, in contrast to the derivation in (95), the determiner phrase is covert (only its case ending -i is visible) and embeds a genitive complement.

In this way, we account for the observation that it is the higher preposition that determines case. Specifically, a comparison of the proposed vocabulary insertion rules shows
that dynamic case markers are more specific than stative case markers. This, however, is not sufficient for all cases because there are also cases like the Russian adverbial preposition vpered in (96a) and the Czech adverbial vepředu in (96b), which contain two statively used prepositions. In these examples, case is determined by the higher (left) preposition v and ve but vocabulary insertion rules for locative and instrumental are equally specific; compare (86) with (88).

(96) a. v-pere-di
     in-in.front.of-LOC.SG
     ‘in front of’

b. ve-pře-du
     in-in.front.of-LOC.SG
     ‘in the front’

Thus, in cases in which two vocabulary items are not in a subset/superset relation and compete for insertion into the same morpheme, structural properties come into play. What is relevant is c-command relations between particular heads and their features in a specific prepositional phrase, not a universal hierarchy of features (contrary to e.g. Noyer 1997). Recall that particular heads of the prepositional structure with their syntactic features incorporate into the tense head and that the syntactic features represent values of the Tense-feature, which are copied by Agree on the prepositional complement.

I assume that the feature structure of the complex tense head (i.e., values of the Tense-feature) is translated into a partially ordered set. In the case of vpered and vepředu, the set with ordered values of the Tense-feature copied on the prepositional complement looks like (97), where features of the higher stative head Contact and Internal precede features of the lower stative head Projective and External.

(97) {Contact, Internal > Projective, External}

Then, in the process of competition, the vocabulary item with the highest feature wins. Concretely, for the feature context (97), there are two competing vocabulary insertion rules, (86) and (88), as shown below. Comparing the Projective-feature and the Contact-feature, the vocabulary insertion rule in (88) has the highest feature, hence a locative marker is inserted in vpered and vepředu. 21

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21 Alternatively, one could use impoverishment, but why should it always be features of the lower head that are deleted?
Building on this discussion, I define *Specificity*, as follows.

(98) **Specificity**

A vocabulary item $VI_1$ is more specific than a vocabulary item $VI_2$ with respect to feature context $C$ if $a$ or $b$ holds.

a. $VI_1$ has more features belonging to $C$ than $VI_2$ has.

b. $VI_1$ and $VI_2$ have an equal number of features belonging to $C$ and $VI_1$ is the vocabulary item with the highest feature belonging to $C$.

As we know, the Subset Principle of the Distributed Morphology framework chooses the most specific vocabulary item for insertion into the feature context $C$, whose features are a subset of $C$. The principle in (98) then defines specificity of vocabulary items; (98a) is the standard part of the definition and (98b) adds the structural component relevant to the insertion procedure in the exceptional cases like *vperedì*.

One may ask whether there can be two vocabulary items that both have the highest feature belonging to $C$, given that particular heads of the decomposed preposition can have more features (that are then equally high in the feature context on the prepositional complement). For instance, the source genitive has features [Become, Source] and accusative has features [Become, Goal]. Although these two vocabulary items have an equal number of features, they, in fact, cannot compete because there is generally only one dynamic phrase with the *BECOME* operator in the prepositional structure. Concretely, either there is a dynamic head with features [Become, Goal] or with features [Become, Source], with the consequence that features of the accusative and genitive vocabulary item cannot be a subset of the feature context $C$ at the same time. Concerning the Polish *naokoło* ‘around’ (in which both *na* and *o* can assign accusative), the accusative ending -*o* is determined by the higher preposition *na* because *o* does not project a (second) dynamic phrase.

In the case of dative, with features [Become, Goal, Oriented], and the goal genitive, with features [Become, Goal, Proximity], the problematic situation with two highest features could hypothetically occur because the Become-feature and the Goal-feature are present on the dynamic head in the decomposed preposition and the Oriented-feature and the Proximity-feature occur on a stative head. In actuality, however, such a configuration does not exist;
there is no complex preposition or an adverbial preposition of the form *do-k(-case marker)* or *k-do(-case marker)*.

In the ideal case, the vocabulary insertion rules proposed in this section should be used for all cases, that is, also for the non-prepositional ones. This means that, for instance, in the case of structural accusative, the verb (specifically, the aspectual head) must assign at least features [Become, Goal] to create an appropriate context for insertion of the accusative marker.\(^\text{22}\) It seems that these features are not much worse than features of syntax-based approaches (e.g. Bierwisch 1967 and Müller 2004) since, as already mentioned, accusative signals the goal (Jakobson 1936, Van Schooneveld 1986, Anderson 2006). Similarly, the dative features [Become, Goal, Oriented] could also be used for the indirect object of a verb because the event (theme) is typically oriented to its recipient. Other vocabulary insertion rules can be more problematic, for instance, it is not easy to find a relation between the agentive instrumental in passive constructions and the Projective-feature used in the vocabulary insertion rule for the prepositional instrumental.

Approaches using syntax-based features, however, face the same problem, just the other way around; they often use features that have little relevance to differentiating prepositional cases. Consider, for instance, the feature [+oblique]; one expects all prepositional cases to be oblique, that is, also the prepositional accusative, in contrast to structural accusative. It seems that no contentful case decomposition theory can fully handle all cases, prepositional as well as non-prepositional. In the current approach, I follow localist theories of the content of case, in which cases are analysed in terms of spatial dimensions (e.g. Hjelmslev 1935, Anderson 1971, 2006). This point of view is supported by the facts that in languages with large case systems, their systems elaborate on spatial cases and the fact that when nouns develop to adpositions, the development is almost always to a spatial form (Blake 2001). In addition, non-spatial cases typically develop from spatial cases in the evolution of case systems (Creissels 2008).

Now, for the sake of clarity, I will present the relevant part of the derivation of the Russian prepositional phrase *v Moskvu* ‘to Moscow’. The syntactic derivation, with the complex tense head and appropriate features relevant to case assignment, is shown in (99a).

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\(^{22}\) These features cannot come from an incorporated preposition because the aspectual head always assigns accusative (or genitive) and not all prepositions have such features; moreover, there are also unprefixed verbs assigning accusative (genitive). The same also holds for the tense head, assigning nominative, if the complex aspectual head incorporates into it.
The Tense-feature of the prepositional complement is valued as \{Become, Goal > Internal\} via the operation Agree with the complex tense head.\(^{23}\)

\[(99)\]

\[\text{a.}\]

\[\begin{align*}
\text{T'} & \\
\text{T} & \text{DynamicP} \\
\text{T} & \text{Dynamic} \quad \text{Dynamic} \quad \text{LocP} \\
\text{Dynamic} & \text{Loc} \quad \text{Loc} \quad \text{StativeP} \\
[\text{Become}] & \text{Loc} \quad \text{Stative} \\
[\text{Goal}] & \text{Loc} \\
\text{v} & \text{Stative} \\
\text{v} & \text{Internal} \\
\text{v} & \text{Internal} \\
\end{align*}\]

\[\text{DP} \{\text{Become, Goal > Internal}\} \]

\[\text{Moskva}\]

\[\text{b.}\]

\[v \quad \text{Moskva} \leftarrow -u\]

The PF of \(v \text{ Moskva}\) is shown in (99b). Given the feature context \{Become, Goal > Internal\}, the most specific vocabulary item is an accusative marker; see the vocabulary insertion rule in (90) \([\text{Become, Goal}] \rightarrow \text{accusative}\). Because of the singular number and the second inflectional class of \(\text{Moskva}\), the accusative marker \(-u\) is suffixed to the noun. The semantic derivation of \(v \text{ Moskva}\) is shown below.

\[(100)\]

\[\begin{align*}
\lambda x \lambda y \lambda s [\text{AT} & (\text{BECOME}(x \text{ LOC INT(Moskva)(s))})(t)] \\
\lambda x \lambda s [\text{AT}(P(x)(s)) (t)] & \lambda x \lambda s [\text{BECOME}(x \text{ LOC INT(Moskva)(s))}] \\
\lambda P \lambda x \lambda s [\text{BECOME}(P(x)(s))] & \lambda x \lambda s [x \text{ LOC INT(Moskva)(s))}] \\
\lambda R \lambda x \lambda s [x \text{ LOC R(s)}] & \text{LocP} \quad \text{StativeP} \\
\lambda y [\text{INT}(y)] & \text{Moskva} \\
\text{v} & \text{Stative} \\
\text{DP} & \text{Moskva} \\
\text{Moskva} & \lambda y [\text{INT}(y)] \\
\end{align*}\]

The positive become meaning of the dynamic head corresponds to the syntactic Become-feature and the Goal-feature and the internal meaning of the stative head corresponds to the syntactic Internal-feature.

\(^{23}\) It also receives the perfective value from the tense head. Since this always happens and the value has no consequences for the prepositional case assignment, I omit it in the following derivations.
With respect to the position of the case marker, it holds that it is spelled out in accordance with the linearised syntactic structure, that is, on the closest overt element. If the noun of the prepositional complement is covert, the marker is suffixed to the closest non-nominal element. Given that precedence relations of the linearised derivation reflect c-command relations of the prepositional structure, the closest host is also structurally the closest element. For instance, in the Russian prepositional phrase svysoka ‘from above, haughtily’ and the Polish z bliska ‘from near’, the genitive ending -a is suffixed to the adjectival modifier, as demonstrated below for z bliska.

(101) a. 

T’

T

DynamicP

T

Dynamic

Dynamic

LocP

Dynamic

[Become]

Loc

Loc

StativeP

[Source]

Stative

z

[Internal]

Stative

DP

{Become, Source > Internal}

z

[Internal]

D

NP

AP

blisk

Ø

b. 

z

blisk

← -a

If there is no modifier, the case ending is attached to the determiner (if it is present overtly), as in the Russian potom ‘then’ in (25c) and the Polish przedtem ‘earlier’ in (26c), which contain the deictic morpheme -t-. If there is not an overt element in the determiner phrase, the case marker is suffixed to the closest preposition like in the Czech adverbial dopředu ‘forward’ in (27c). As an illustration, consider the syntactic derivation of dopředu with appropriate features in (102a) and the level of PF in (102b). The Tense-feature of the prepositional complement is valued as {Become, Goal > Proximity > Projective, External} via the operation Agree with the tense head. For this feature context, goal genitive markers are more specific than accusative markers and instrumental markers, as shows the comparison of vocabulary insertion rules [Become, Goal, Proximity] → genitive, [Become, Goal] → accusative and [Projective] → instrumental. Since the covert noun is of the paradigm hrad ‘castle’, as discussed in section 6.3.4, the genitive marker -u is attached to před.
Examples like these show that under suitable circumstances, case markers can occur on a ‘wrong’ element. The English genitive marker occurring on the verbs in (103) provides another example of this sort.

(103)  a.  Who do you think’s idea was best?  
        b.  the player I met’s jersey

For the sake of completeness, consider now the semantic derivation of *dopředu* in (104). The covert prepositional complement is represented by the free variable $z$, whose meaning is determined by the context. Typically, it refers to the speaker or the subject of the sentence. The meaning of the stative *do* applies to the region of the lower stative phrase and returns its proximity region, that is, the union of the interior and the proximal exterior. Then the derivation continues with the known meaning steps.
How does the derivation work in the case of deictic adverbs like the Czech *zříma* ‘from there’? When the adverb *tam* ‘there’ is decomposed along the lines discussed in section 6.3.4, then the derivation (at least from the diachronic point of view) proceeds as shown in (105). Given the feature context \{Become, Source > Internal\} and the vocabulary insertion rule \[Become, Source\] → genitive, a genitive marker attaches to the noun morpheme -m. Since the noun is of the neuter o-stem paradigm *město* ‘town’, as argued in 6.3.4, the genitive marker -a is used.

24 The status of -a- in *tam* is not clear; it might be inserted for pronunciation reasons.
The semantic derivation of *ztama* is shown below. The noun phrase is a place predicate and the determiner, which is of the type <<e, t>, e>, derives a definite expression from it. Applying the meaning of the stative head, we receive the internal region of the place and then the derivation proceeds analogously to the examples above.

(106)

\[
\begin{align*}
T' & \quad \lambda x\lambda s[\text{AT(BECOME}(\neg x \text{ LOC INT}(ty[\text{PLACE}(y)])(s)))(t)] \\
T & \quad \text{DynamicP} \\
\lambda P\lambda x\lambda s[\text{AT}(P(x)(s))(t)] & \quad \lambda x\lambda s[\text{BECOME}(\neg x \text{ LOC INT}(ty[\text{PLACE}(y)])(s))] \\
\lambda P\lambda x\lambda s[\text{BECOME}(\neg P(x)(s))] & \quad \lambda x\lambda s[x \text{ LOC INT}(ty[\text{PLACE}(y)])(s)] \\
\lambda R\lambda x\lambda s[x \text{ LOC R}(s)] & \quad \text{StativeP} \\
& \quad \text{INT}(ty[\text{PLACE}(y)]) \\
z & \quad \text{Stative} \\
\lambda y[\text{INT}(y)] & \quad \text{DP} \\
t & \quad \text{D} \\
\lambda S y[S(y)] & \quad \lambda x[\text{PLACE}(x)] \\
\lambda y[S(y)] & \quad \lambda x[\text{PLACE}(x)] \\
\end{align*}
\]

6.5 Conclusion

This chapter has provided a detailed analysis of syntactic and semantic properties of prepositional phrases. It has presented a model of prepositional case assignment, with complete derivations, showing their syntactic and semantic structures, and the level of PF with a (non-exhaustive) set of vocabulary insertion rules, which, accompanied by the Subset Principle and Specificity, correctly derive the discussed prepositional cases.

We have seen that prepositional cases have a meaning; they are based on semantic properties of particular prepositional heads incorporated into the case-assigning tense head. Syntactically, prepositional cases result from the operation Agree between φ-features and Tense-features of the tense head and the prepositional complement. I have shown that the prepositional complement can be overt as well as covert and provided several arguments for the presence of a covert noun in prepositional phrases. In either case, the case marker is spelled out on the closest overt element in the prepositional phrase, be it a noun, a modifier, a determiner or a preposition.
Chapter 7

Conclusions

This book has discussed topics that are very prominent in the literature on Slavic languages, case and aspectual phenomena, from both the domain of the grammatical aspect and the domain of the lexical aspect. We have seen that these phenomena are related. Verbal prefixes – as incorporated prepositions – are responsible for prepositional case, for telicity and perfectivity and also indirectly for certain case alternations.

I have argued in chapter 2 that lexical prefixes and certain superlexical prefixes are prepositions that project a prepositional phrase with the figure argument and the ground argument and then incorporate into the verbal root. It has been shown that it is the syntactic and semantic properties of the prepositional phrase whose head incorporates that are responsible for various prefixation effects. Specifically, prepositions denote a state – with the exception of the prepositional phrase introducing the theme argument of unprefixed verbs – and the verbal root introduces another eventuality and the head $p$ of the prefixal type with the \textsc{cause} operator relates these two eventualities. The head $P$ bears a Tense-feature with the value [perfective] and values the Tense-feature of the aspectual head, which results in the perfective interpretation that the event time is included in the reference time.

As far as case is concerned, structural as well as non-structural cases have been treated as a reflection of Agree between $\varphi$-features and Tense-features and some case alternations have been based on the difference between the perfective and the imperfective value of the Tense-feature. More concretely, partitive genitive has been analysed as a spell-out of the perfective Tense-feature of the verbal object, which was assigned by the aspectual head.

The perfective Tense-feature has been used not only for the uniform analysis of cases and deriving perfectivity but also for deriving various definiteness effects. In other words, verbal prefixes are indirectly responsible for definiteness and quantisation of the direct object because they value the aspectual head as perfective, which in turn values the Tense-feature of the direct object. Specifically, in syntax, given the A-over-A principle, the perfective Tense-feature blocks extraction of an embedded element with a Tense-feature of the same value; at
LF, the feature triggers the quantised interpretation and at PF, the feature can be realised as a definite marker in languages like Bulgarian.

Given the fact that most of the verbal prefixes are prepositions that introduce two individual arguments in their phrase in the complement position of the base verb, they can change its argument structure. We have seen that they can, for instance, add an unselected argument to unergative predicates.

Chapter 3 has categorised compositional and non-compositional prefixed verbs by means of a paraphrase diagnostic and provided syntactic and semantic analyses of their various types. I have treated non-compositional prefixed verbs as idioms and have shown that they can receive a compositional analysis even if they have an idiosyncratic meaning. We have seen that non-compositional prefixed verbs are derived in the standard bottom-up fashion and that they differ from compositional prefixed verbs in the fact that the meaning of certain derivational steps can be updated in the course of the derivation.

It has been argued that there are three types of non-compositional prefixed verbs. Prefixed verbs of class 2 (with a prefix which has a regular meaning and a verb which has an irregular meaning) and class 3 (with a prefix with an irregular meaning and a verb with a regular meaning) are non-compositional in the sense that their meaning is not composed of the original meanings of their parts but they have been derived compositionally with the help of the operation of predicate transfer. The third type of non-compositional prefixed verbs has been derived in the way typical for idioms, by the insertion of a listed meaning into the verbal root.

This proposal has a consequence for the classification of prefixed verbs because it groups together spatially prefixed verbs, with the regular meaning of the prefix, and superlexically prefixed verbs, and separates them from idiosyncratically prefixed predicates. This contrasts with the widely accepted lexical-superlexical approach, which groups together spatially prefixed verbs and idiosyncratically prefixed verbs in opposition to superlexically prefixed predicates.

Chapter 4 has investigated prefixed lỳ- and nỳ-/tỳ-participles in Czech and argued against the generalised distinction between lexical and superlexical prefixes with respect to the possibility of formation of adjectival participles. It has been argued that the ungrammatical status of some superlexically prefixed participles should be accounted for on a case-by-case basis.

It has been shown that it is the prepositional phrase with its state variable whose head incorporates that licenses the presence of the target state operator in the participle. I have
argued that the stativiser is present in the adjectival head, which has the consequence that both lexical and superlexical prefixes can be contained in target state adjectival participles.

We have seen that prefixes help verbs to derive adjectival participles because they induce perfectivity and telicity, which are necessary for deriving \( l\)ý- and stative \( n\)ý-\( l\)ý-participles. In addition, by means of transitivisation, both types of prefixes help unergative verbs to derive \( n\)ý-\( l\)ý-participles.

With respect to the accusative object restriction on the formation of \( n\)ý-\( l\)ý-participles, it has been argued that it derives from the fact that the null operator can only move from a defective prepositional phrase or from the specifier position of the PP projection.

In chapter 5, I have discussed the verbal prefix \( p\)o-. The comparison of the Czech future \( p\)o- with other verbal prefixes and \( p\)o- from Russian and Polish has shown that future \( p\)o-differs from other uses of verbal prefixes in a number of important ways, for instance in its inability to derive various verbal forms. I have analysed future \( p\)o- as a prepositional element that evolved into a future marker representing the tense head in two reanalysis steps. It has been shown that the proposed analysis accounts for properties of future \( p\)o- as well as differences between future \( p\)o- and other prefixes.

In the first step, the ablative \( p\)o was reanalysed as the ingressive prefix \( p\)o- and in the second step, the ingressive prefix was reanalysed as future \( p\)o-. Russian and Polish – in contrast to Czech – did not undergo the second step.

It has been proposed that the speaker-oriented meaning of imperatives with future \( p\)o- is based on the ability of the marker \( p\)o- to spell out the allative/adessive meaning. The original allative/adessive prepositional element was reanalysed as an allative/adessive tense element, which takes the addressee and the speaker as its arguments.

In chapter 6, I have provided a detailed analysis of syntactic and semantic properties of primary prepositions and adverbial prepositions in Russian, Polish and Czech. I have presented a model of prepositional case assignment in which the choice of prepositional case is determined by the meaning of particular projections of the decomposed preposition.

Thus, prepositional cases have a meaning; they are based on semantic properties of particular prepositional heads incorporated into the case-assigning tense head. Syntactically, prepositional cases are a reflection of the operation Agree between Tense-features and \( \varphi \)-features of the tense head and the prepositional complement. It has been proposed that there is a correspondence between semantic properties of particular heads of the prepositional structure and their syntactic features and that the syntactic features of heads incorporated into the tense head represent values of its Tense-feature. These values are copied on the
prepositional complement by Agree and at PF, the values are spelled out as a case with the help of the operation Vocabulary Insertion. I have proposed a non-exhaustive set of vocabulary insertion rules, which, accompanied by the Subset Principle and Specificity, correctly derive the prepositional cases under discussion.

I have argued that the prepositional complement can be overt as well as covert and provided several arguments for the presence of a null noun in prepositional phrases. We have seen that in either case, the case marker is spelled out on the closest overt element in the prepositional phrase, be it a noun, a modifier or a preposition.
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