Lexical Prefixes and Templatic Domains: Prefix Lengthening in Czech*

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1. Introduction

Slavic prefixes are usually divided into two groups: lexical prefixes (LP) and superlexical prefixes (SP); e.g. Svenonius (2004) among others. The aim of my paper is to show that although both lexical and superlexical prefixes are homonymous in Czech (the former form a superset of the latter), they display different phonological behaviour which can be derived from their different position in the morpho-syntactic tree.

Czech vowel-final prefixes have short and long versions whose distribution is sensitive to the presence of a theme suffix: stem-nominals, i.e. nouns and adjectives containing theme suffixes, have short prefixes (e.g. *vy-kon-á*$_{th}$*-n-í*, *vy-kon-a*$_{th}$*-n-ý* 'execution, executed'), on the other hand, root-nominals which lack themes, have long prefixes (e.g. *výkon, výkon-n-ý* 'execution, executive').[1] The distribution of prefix length in Czech is analyzed in Scheer (2001). He argues that prefix lengthening is of templatic nature: the template scopes over the prefix and the root, if they occur in a root-nominal, and restricts a total amount of vocalic items inside this prefix-root domain to three. This is the reason why prefixes in root-nominals lengthen when they merge with short roots.

In this paper I incorporate Scheer's templatic analysis of prefix lengthening into a theory of the syntax-phonology interface. Following Svenonius' decomposition of the verbal complex which assumes the SP>theme>root>LP hierarchy, I argue that only lexical prefixes, which form constituents with their roots, are in the scope of the template. If the next constituent above an LP-root constituent is headed by a nominal suffix (as in root-nominals), the template is activated which then triggers prefix lengthening. On other hand, if the next constituent

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1 I use Czech spelling where long vowels are marked by an acute accent. The only exception is long *u* which can bear either an acute accent ("ú") or a superscript circle ("ů"): *ú* appears always in loanwords, *ů* occurs in words of the Proto-Slavic origin (cf. an orthographic minimal pair *kúra* 'cure' and *kůra* 'bark'). Moreover, these graphemes mark also long vowels resulting from the lengthening of short vowels: lengthening of the prefix *u-* is marked by *ú* (e.g. *ú-padek* 'decline'), *ů* then marks the long *u* which is a result of lengthening of a mid back vowel *o* (e.g. *brambůr-ek* 'potato, diminutive' < *brambor*).

above an LP-root constituent is headed by a theme suffix (as in stem-nominals), nothing happens phonologically, that is the prefix remains short.

The paper is organized as follows. Section 2 introduces Scheer's templatic analysis of prefix lengthening. Section 3 deals with the distinction between lexical and superlexical prefixes. I argue that only the former are in the scope of the template. Section 4 discusses prefix length in verbs. I provide arguments that verbs with long prefixes are built on root-nominals, in which the template that triggers prefix lengthening is active. In Section 5, I show how the templatic analysis can be formalized within a theory of the syntax-phonology interface. I assume that the template is inserted into the complex verbal head that is made of the lexical prefix and the verbal root. Section 6 treats the allomorphy of the template. I argue that this allomorphy is conditioned by gender features associated with a little *n* head.

2. Prefix lengthening is templatic: Scheer (2001)

Prefixes that end in high and low vowels, namely *při-*, *vy-*, *u-*, *na-* and *za-*, have short and long allomorphs in Czech, as illustrated in table (1).[2]

(1)

	V	VV	gloss
high V	při-stavění	pří-stavba	adding, extension
	vy-konaný	vý-konný	executed, executive
	u-činit	ú-činkovat	to do, to perform
low V	na-lepení	ná-lepka	sticking, sticker
	za-kopání	zá-kop	digging in, trench

The distribution of long and short allomorphs of the prefixes has been analyzed by Scheer (2001).[3] Based on a large corpus of words with the prefix *za-*, Scheer has formulated the following generalization: the distribution of the length depends on the morpho-syntactic structure of the prefixed words, namely on whether or not they contain a verbal stem. The presence of a verbal stem correlates with the prefix shortness, while its absence is concomitant with prefix length. This generalization is illustrated in table (2): verbal stems in Czech, and generally in Slavic, are made of roots and theme suffixes: $[\text{root-theme}]_{\text{stem}}$. Infinitives as well as stem-nominals ending in *-ní*/*-tí* are both built on verbal stems and take short prefixes. Root-nominals, on the other hand, lack a theme suffix:

2 Prefixes with final mid vowels are discussed in Section 6.2.

3 Scheer's 2001 paper is really pioneering because Czech grammars do not even provide a systematic description of the prefix alternations.

the root is immediately followed by a particular nominalizing suffix, including nominalizing zero; these constructions have long prefixes.[4]

(2)

infinitive	stem-nominal	root-nominal
za-mot-a-t	za-mot-á-n-í	zá-mot-ek
za-sah-ova-t	za-sah-ová-n-í	zá-sah
za-táh-nou-t	za-táh-nu-t-í	zá-tah
za-stav-ě-t	za-stav-ě-n-í	zá-stav-b-a

Scheer further argues that prefix lengthening in root-nominals is of templatic nature. Templates are well-known from languages with non-concatenative morphology.[5] In short, the template is a rigid connection between a certain portion of the morpho-syntactic structure and a certain portion of the phonological structure. How templates work is illustrated in (3): a perfective template in Classical Arabic consists of two vowels, from which the first one is *a*, flanked by three consonants: CaCVC. When the tri-consonantal root √rkb 'ride' is associated with this template, the perfective stem *rakib* is derived. On the other hand, the root √fr 'flee' consists of just two consonants. Hence, in order to meet the template which requires three consonants, the root-final consonant is reduplicated, and the perfective stem *farar* is derived.

(3)

perfect = CaCVC ↔ √rkb 'ride' → rakib 'ride, perfective'
↔ √fr 'flee' → farar 'flee, perfective'

Templates which count an amount of vocalic or consonantal items within particular morpho-syntactic domains are traditionally assumed to be a characteristic feature of the Afro-Asiatic, and specifically the Semitic language families. However, Scheer (2001, 2003, 2004), Bethin (2003) and Caha & Scheer (2008) show that also in Czech, the distribution of vowel length is also governed by the templatic constraints. Templates which control vowel lengthening are active for example in masculine diminutives (e.g. *dar* > *dár-ek* 'gift, dim.'), iteratives (*chod-i-t* > *chod-í-va-t* 'to go, iter.'), infinitives (e.g. *pí-t* 'to drink' vs. *pi-t-í* 'drinking') and also in prefixed root-nominals.[6]

As for root-nominals, Scheer (2001) assumes that the template scopes over the prefix-root domain and restricts the total amount of vocalic items inside this domain to three. Stem-nominals on the other hand have no templatic restriction. The root-nominal template is depicted in (4): inner brackets delineate a domain

4 Line by line glosses: to wrap, involution, cocoon; to interfere, interference, hit; to pull, pulling, tug; to build up, building up, built-up area.

5 The first autosegmental analysis of templates was proposed by McCarthy (1979).

6 Templatic activity has alos been identified in other Indo-European languages; see e.g. Bendjaballah & Haiden (2003) on German, Brandão de Carvalho (2004) on Portuguese.

where the restriction on the vocalic space takes effect; outer brackets define the morpho-syntactic context of this phonological constraint. The phonology of the template is restricted to three vocalic items which I call morae (μ): short vowels and syllabic consonants count for one mora, long vowels for two morae. (I use the traditional term mora as a purely descriptive category with no theoretical implication.)

(4) [[prefix-root $_{3\mu}$]n]

Table (5) then illustrates how the tri-moraic template affects the phonology of the prefix. The morpho-syntactic structure of the noun *zá-mot-ek* 'cocoon' matches the morpho-syntactic structure of the template: the prefix-root constituent occurs in the context of the nominal suffix *-ek*. The short prefix *za-* plus the short root √mot weigh two morae. However, the template requires three morae; this is the reason why the prefix lengthens, which means that it becomes bi-moraic.

(5) [[prefix-root $_{3\mu}$]n] ↔ [[za-mot $_{2\mu}$]ek] → [zá-mot $_{3\mu}$]

By contrast, when the same prefix merges with a long root, it does not lengthen: in the root-nominal *za-cház-k-a* 'detour' the templatic constraint is satisfied because the short prefix *za-* plus the long root √cház weigh exactly three morae. (Root-nominals with long roots are further discussed in Section 6.1 below.)

Scheer's analysis of the phonological behaviour of the prefix *za-* based on the notion of the template makes a number of predictions concerning the morpho-syntactic structure of prefixed words which Scheer does not mention. The first prediction that I explore below is that in root-nominals where the template is active, the prefix and the root form a single morpho-syntactic constituent. I show that the prefix-root constituency follows directly from the fact that root-nominals can be prefixed only with lexical prefixes. The second prediction of Scheer's analysis that I explore concerns denominal verbs. Although Scheer (2001:40) claims that "prefixal length never occurs in verbal items", his templatic analysis in fact predicts that verbs with long prefixes can exist without being labelled "misbehaving".

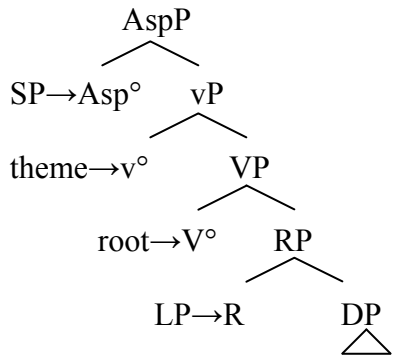
3. The scope of the template: lexical vs. superlexical prefixes

This section evaluates the prediction that in root-nominals the prefix and the root form a single constituent over which the tri-moraic template scopes.

According to their semantic and syntactic features, Slavic prefixes are usually divided into two groups: lexical prefixes and superlexical prefixes. Svenonius (2004) argues that the different properties of LPs and SPs (for example, LPs

have idiosyncratic or spatial meaning while SPs have measure function, only LPs can affect the argument structure, only LPs can stack etc.), can be derived from their different position in the morpho-syntactic tree. Svenonius' decomposition of the verbal complex is depicted in (6): according to him a lexical prefix originates in a Result Phrase (RP), c-commanded by a VP where a verbal root is introduced; higher projections, namely vP and AspP then host a theme suffix and a superlexical prefix respectively. (I omit specifier projections which are irrelevant for the argumentation.)

(6)



From this structure where a theme suffix is generated between an LP and SP, a prefix theme dependency arises when the presence of a superlexical prefix supposes the presence of a theme; lexical prefixes, on the other hand, are theme-independent. A consequence of this is that root-nominals lacking theme suffixes can be prefixed only with lexical prefixes, while stem-nominals containing themes can take either lexical or superlexical prefixes and potentially both.

In Czech, SPs form a subset of LPs. Součková (2004) identifies three main SPs with distinctive measure functions: *po-* (with delimitative or distributive meaning), cumulative *na-* and perdurative *pro-*. And as examples (7b,d,f) illustrate, each of these prefixes can also express a particular spatial meaning.

(7) a. Pozměnil svůj plán.
PO-changed his plan
'He changed his plan a bit.'

b. Popsal celý papír.
PO-wrote whole paper
'He wrote all over the paper.'

c. Napekl koláče.
NA-baked cakes
'He baked a lot of cakes.'

d. Nalepil lino na podlahu.
NA-stuck lino on floor
'He stuck the lino on the floor.'

e. Prospal celý film.
PRO-slept whole movie
'He slept through a whole movie.'

f. Propálil koberec.
PRO-burnt carpet
'He burnt a hole into the carpet.'

The prediction that only stem-nominals can bear simultaneously an SP and LP is borne out: this is shown by the examples in (8) where roots are prefixed with two lexical prefixes, *vy-* or *za-*. In case the LP-root constituent is embedded

within a stem-nominal, it can be further prefixed either with a delimitative (8a) or a distributive (8b) *po-*, or with a cumulative *na-* (8c). In contrast, the double-prefixation of root-nominals produces ungrammatical results.[7]

(8)	a.	vy_{LP}-taž-e_{th}-n-í	po_{SP}-vy-taž-e_{th}-n-í	vs.	vý-tah	*po-vý-tah
	b.	za_{LP}-vír-$á_{th}$-n-í	po_{SP}-za-vír-$á_{th}$-n-í	vs.	zá-věr	*po-zá-věr
	c.	vy_{LP}-mýšl-e_{th}-n-í	na_{SP}-vy-mýšl-e_{th}-n-í	vs.	vý-mysl	*na-vý-mysl

To sum up this section, we can conclude that the decomposition of the verbal complex proposed by Svenonius (2004) provides morpho-syntactic support for Scheer's templatic analysis of V-final prefixes. The template that causes prefix lengthening in root-nominals supposes a prefix-root constituency which is independently needed by the morpho-syntax: root-nominals are prefixed only with lexical prefixes which always form constituents with their roots.

4. The morpho-syntactic context of the template: denominal verbs

In this section, I examine the second prediction of Scheer's analysis concerning the morpho-syntactic context of the template. Recall that Scheer claims that the prefix is long when occurring in a nominal structure, while it is short when appearing in a verbal structure. The fact that stem-nominals like *u-pad-nu-t-í* 'falling' have short prefixes shows that there is no relationship between the prefix quantity and the morpho-syntactic status of the whole word in which a given prefix appears (nouns may have short prefixes). In stem-nominals like *u-pad-nu-t-í* the prefix is short because the next constituent above the prefix-root constituent is headed by the verbal theme (in this case *-nu*). On the contrary, in nouns like *ú-pad-ek* 'decline' the prefix is long because the next higher constituent above the prefix-root constituent is headed by a nominal suffix (*-ek*).

Provided that only the next constituent above the prefix-root constituent is relevant for templatic lengthening, verbs with long prefixes should also exist. Their structure should be [[[LP-root]n]theme]. In other words, verbs with long prefixes will be derived from root-nominals. This prediction is indeed borne out, as may be seen in (9) where the theme suffixes of verbs are separated from the root by the nominal suffixes. All of these verbs display long prefixes, just as the nouns from which they are derived.

(9)	a. $ná_{LP}$-mit-k-ova_{th}-t 'to raise objections'	<	ná-mit-k-a 'objection'
	b. $ná_{LP}$-lep-k-ova_{th}-t 'to put strickers on'	<	ná-lep-k-a 'sticker'
	c. $ú_{LP}$-čin-k-ova_{th}-t 'to perform'	<	ú-čin-ek 'effect'

7 Glosses: (8a) pulling out, pulling out (a bit), extract; (8b) closing, closing (distr.), closing (part); (8c) thinking up, thinking up (a lot), invention.

The verbs listed in (9) are derived from prefixed nouns that contain the overt nominal suffix *-k*. However, root-nominals may also be derived by zero suffixes. Hence these zero-derived nouns should be able to be further verbalized. Relevant cases are shown in (10).

(10) a. ú-čt-ova-t ‘to invoice’ < ú-čet ‘invoice’
b. zá-vod-i-t ‘to race’ < zá-vod ‘race’
c. zá-loh-ova-t ‘to make a backup’ < zá-loh-a ‘backup’
d. vý-let-ova-t ‘to take a trip’ < vý-let ‘trip’
e. pří-zvuk-ova-t ‘to accentuate’ < pří-zvuk ‘accent’

In the five cases mentioned, linearly speaking, the roots are adjacent to the theme suffix: from the linear point of view there is no difference between the minimal pairs like *vý*$_{\text{LP}}$-√*let-ova*$_{\text{th}}$*-t* ‘to take a trip’ and *vy*$_{\text{LP}}$-√*let-ova*$_{\text{th}}$*-t* ‘to fly out of’, or *pří*$_{\text{LP}}$-√*zvuk-ova*$_{\text{th}}$*-t* ‘to accentuate’ and *při*$_{\text{LP}}$-√*zvuk-ova*$_{\text{th}}$*-t* ‘to nod (with agreement)’ that only differ in prefix length. However, if length is not distributed arbitrarily, there must be a morpho-syntactic difference. From the morpho-syntactic point of view the root and the theme of verbs like *vy-letovat* or *při-zvukovat* with short prefixes are adjacent: [[vy-let]ova], [[při-zvuk]ova], while in verbs like *vý-letovat* or *pří-zvukovat* with long prefixes the root and the theme belong to two non-adjacent constituents (they are separated by a zero nominal suffix): [[[vý-let]Ø]ova], [[[při-zvuk]Ø]ova]. This morpho-syntactic difference is also proved by semantics: as the glosses under (10d-e) show, the meaning of the verbs with long prefixes is compositional with respect of the meaning of the corresponding root-nominals. The meaning of their short cousins, however, is either based on the spatial meaning of a given lexical prefix (compare *let-ě-t* ‘to fly’ and *vy-let-ova-t* ‘to fly out of’) or it is completely idiosyncratic (compare *zvuč-e-t* ‘resonate’ and *při-zvuk-ova-t* ‘to nod (with agreement)’). This is why we can conclude that verbs with long prefixes are derived from root-nominals: the crucial fact is that the nominal suffix intervening between an LP-root constituent and the theme can be phonological zero.

Let us now summarize the generalizations about the scope of the template and its morpho-syntactic context, as well as their consequences. Only lexical prefixes form a constituent with roots, thus only lexical prefixes are in the scope of the template. If the next constituent above the LP-root constituent is headed by a nominal suffix, the template is activated and prefix lengthening is triggered (if the root is short). In case the next constituent above the LP-root constituent is headed by a verbal suffix (theme), the template is not activated and nothing happens phonologically, that is the prefix remains short. As a consequence, long prefixes occur in root-nominals (*ná-lep-k-a*) and verbs built on them (*ná-lep-k-ova-t*), while short prefixes are found in verbs (*na-lep-i-t*) and

stem-nominals (*na-lep-e-n-í*). In the following section I show how these generalizations can be formalized within a theory of the syntax-phonology interface.

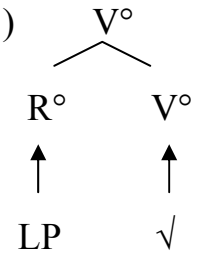
5. The template at the syntax-phonology interface

5.1 Complex verbal heads within root-nominals

The analysis of prefix lengthening that I present below is based on three main assumptions about how the morpho-syntactic and morpho-phonological structure of words is derived. First, I adopt the core assumption of a theory of Distributed Morphology that the internal structure of words is created by two syntactic operations, Merge and Move (e.g. Marantz 1997). I also assume that no additional structure mediates between the syntax and the phonology (Scheer 2010). Finally, I follow the idea that templates are lexical items whose insertion is triggered by particular nodes of the morpho-syntactic structure, both terminal and non-terminal (Caha & Scheer 2008).

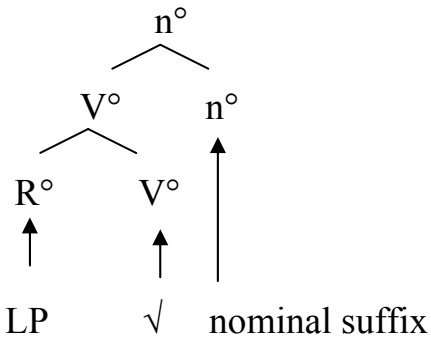
Having defined the main principles of our analysis, let us now return to the verbal decomposition proposed by Svenonius (2004). Recall that according to Svenonius, lexical prefixes are inserted into a head of a result phrase (RP), which is c-commanded by a VP where a verbal root is inserted. In order to derive the correct linear order where the prefix precedes the root, Svenonius proposes two solutions: either a head-movement (the prefix moves to VP where it adjoins to its head, i.e. to the verbal root) or a phrasal-movement (the whole RP headed by a prefix moves to the specifier of AspP): (11) shows the structure of the LP-root constituent created by head movement (upward arrows denote the spell-out of the structure).

(11)



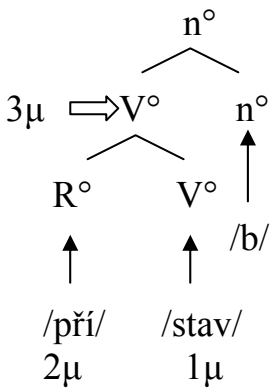
We have already observed that the LP-root constituent is subject to the templatic constraint (which causes lengthening of the prefix), but only if it is followed immediately by a nominal suffix. The translation of the statement "followed immediately by a nominal suffix" is shown in (12). This diagram depicts the structure of a root-nominal where an LP-root constituent is adjoined to a little *n* head that spells out a nominalizing suffix.

(12)



The movement of the LP-root constituent to the nominalizing head then derives a structure to which the template is associated: the template which counts vocalic items inside the LP-root constituent is triggered when this constituent adjoins to the little *n* head. As a consequence, a root-nominal with a long prefix is derived. This is illustrated in (13) where the structure of the root-nominal *pří-stav-b-a* 'extension' is shown: a complex verbal head, made of the LP and the verbal root, is the target of the tri-moraic constraint because it has been adjoined to the nominalizing little *n* head.

(13)



The template is thus activated automatically whenever a complex verbal head made of an LP and a root adjoins to a nominal head little *n.* This analysis explains both why stem-nominals show short prefixes and why some verbs, on the other hand, take long prefixes. In stem-nominals the complex verbal head in question is not adjoined to a little *n*, but to a little *v* (where a stem-building theme suffix is spelled out). Hence the template is not triggered.

The distribution of prefix length in verbs follows from two main assumptions: templates are stored in the lexicon and spell-out, during which all lexical material is inserted into particular nodes that are ordered by the syntax, proceeds from the most to the least embedded node. In section 4 it was shown that verbs with long prefixes contain the subtree depicted in (12). During their spell-out the template that controls prefix lengthening is thus inserted into a complex verbal head V° made of an LP and a root.

5.2 Verbal vs. non-verbal roots

The phonological behaviour of Czech prefixes provides a strong argument against one of the key ideas of Distributed Morphology: DM holds that roots do not possess any category-defining features; cf. Marantz (1997) or Embick & Noyer (2007).

In Czech, two classes of prefixes can be identified according to whether they occur in verbs or not. Czech has four monosyllabic prefixes ending in a low vowel: *za-, na-, pra-, pa-*, from which only the first two appear in verbs; the latter two, *pra-* and *pa-*, occur only in nominals (e.g. *pra-les* 'primeval forest', *pra-děd* 'great grandfather'; *pa-kůň* 'gnu', *pa-nožka* 'proleg'). This distinction is also reflected in their phonological behaviour: *za-, na-* have long allomorphs which occur in root-nominals (e.g. *zá-tah* 'tug', *ná-klad* 'load'), whereas the low vowel of *pra-* and *pa-* is always short.

If we adopt Scheer's templatic account to prefix length and translate it into Svenonius' decomposition of the verbal complex, the phonological difference of the vowel-final prefixes can be explained. The template which controls prefix lengthening scopes just over roots that are spelled out in a complex V head. Hence the vowel-final prefixes *pra-*, *pa-*, which never form complex verbal heads, never lengthen. Were roots not equipped with any syntactic features which determine their lexical insertion into a certain morpho-syntactic node, both prefixed root-nominals like *zá-tah* and prefixed "genuine" nominals like *pra-les* would be structurally identical: in both cases, a prefix merges with a bare root and only this constituent is further categorized by merging with a little *n* head. In this case, the prefix lengthening would have to be an idiosyncratic feature of a given prefix, rather than a consequence of the morpho-syntactic structure in which it is embedded. Hence the Czech evidence tells us that noun- and verbhood are not always derivable from the morpho-syntactic construction: languages may make a lexical difference between nominal and verbal roots.[8]

8 The difference between derived nominals that are based on verbal roots and "genuine" nominals that are based on nominal roots, which is reflected in the behaviour of prefixes, could also be expressed in terms of gender. One can assume that in "genuine" nominals gender is a diacritic feature connected lexically to the root while the gender of derived nominals is projected syntactically, in a little *n* head; for the possibility that gender features may occur in different morpho-syntactic nodes see Aquaviva (2009). From this perspective, the template in prefixed "genuine" nominals like *pra-les* is not triggered because the little *n* head does not contain any gender features; see also the following section where the relationship between gender and template allomorphy is discussed.

6. Phonology of the template

6.1 Template allomorphy

Up to now we have considered only one phonological type of root-nominals in which the LP-root constituent obeys a tri-moraic constraint: a long, i.e. bi-moraic, prefix plus a short, i.e. mono-moraic, root. However, as Scheer (2001) shows there is yet another way in which the templatic constraint can be satisfied: a short prefix plus a long root; compare [*zá-pad*$_{3\mu}$]-*k-a* 'latch' (VV-V type) with [*za-vář*$_{3\mu}$]-*k-a* 'garnish' (V-VV type).[9] If templates have the status of the lexical items whose insertion is triggered during spell-out, then the existence of the two templatic types can be treated as template allomorphy.

At first sight, an analysis of the distribution of length within an LP-root constituent is straightforward: prefixes lengthen only if they are attached to short roots. When the same prefix takes a bi-moraic root, i.e. a root containing a long vowel, it does not need to lengthen in order to meet the templatic restriction. Scheer (2001:46) even draws a parallel between the distribution of prefix length in Czech and the distribution of suffix length in Slovak. The interaction between the vowel quantity of the root and the suffix in Slovak is known as the Rhytmic Law (e.g. Rubach 1993). It states that long suffixes shorten when attached to a long root; compare e.g. the allomorphy of the diminutive suffix in *chleb-ík* 'bread' and *džbán-ik* 'jar'. According to Scheer, the distribution of length in the prefix-root domain in Czech also fits the Rhytmic Law when it is viewed from the perspective of the morphological constituency: in both Slovak and Czech it is the root that determines the quantity of the affix, i.e. the suffix in Slovak and the prefix in Czech, not the other way round.

However, Scheer's analysis of the template allomorphy in the prefixed root-nominals does not take into account that the roots themselves may also show short and long allomorphs. In table (14) below, several examples appear where root-nominals share both the root and the prefix, but fall into two different template types.[10]

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9 One further prediction concerning roots with syllabic consonants arises from the fact that LP-root constituents that are embedded in a root-nominal are in the scope of the tri-moraic template. Syllabic consonants have the same phonological status as vowels (they can be stressed etc.) but unlike vowels they do not have long cousins in Czech. The prediction that root-nominals based on roots containing syllabic consonants thus should be of the VV-V templatic type is really borne out; cf. *zá-mlk-a* 'pause', *vý-plň* 'filling', *zá-vrt* 'sink-hole', *ná-vrh* 'suggestion' etc.

10 Line by line glosses: impact, injury, expression, allusion, insolence, rash; load, base, interpretation, loading, foundation, unloading; broth, weld, boiling, garnish.

(14) VV-V	V-VV
ná-raz, ú-raz, vý-raz	na-ráž-k-a, u-ráž-k-a, vy-ráž-k-a
ná-klad, zá-klad, vý-klad	na-klád-k-a, za-klád-k-a, vy-klád-k-a
vý-var, zá-var	vy-vář-k-a, za-vář-k-a

These cases indicate that that template allomorphy is in fact conditioned by gender: root-nominals of the VV-V type are masculine while root-nominals of the V-VV type are feminine. Since gender is associated with a little *n* head (cf. Lowenstamm 2008; Aquaviva 2009), the template allomorphy is conditioned by the feature content of the head that triggers the templatic restriction. This is in accordance with a generally accepted idea about the locally determined allomorphy (cf. Embick 2003).

A problem however is that besides the feminine root-nominals with short prefixes and long roots, there are also feminine root-nominals with long prefixes; cf. *pří-poj-k-a* 'connection', *vý-stav-b-a* 'construction', *ú-prav-a* 'modification', *ná-mit-k-a* 'objection', *zá-klop-k-a* 'valve' etc. Masculine root-nominals, on the other hand, have only long prefixes. To sum up the observations regarding template allomorphy, we can conclude that the presence of the masculine feature in the little *n* head triggers the VV-V allomorph. In the case the nominal head contains a feminine feature, both the VV-V and the V-VV allomorph can be activated.

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6.2 Exceptions to the template

The templatic analysis presented in this paper identifies two strong predictions concerning the phonological makeup of root-nominals. First, root-nominals should not be derived from roots that weigh more than two morae. Second, if a root-nominal is derived from a mono-moraic root, its prefix must be bi-moraic.

The first prediction is borne out because verbal roots in Czech are maximally bi-moraic: they contain either one short vowel (or a syllabic liquid) or one long vowel.[11] Roots that weigh more than two morae are nominal roots that are typically verbalized by the theme suffix *-ova*; cf. verbs containing tri-moraic roots like *telefon-ova-t* 'to telephone' or *portrét-ova-t* 'to portray'. Since these verbs are nominalized only by stem-nominals, they never violate the tri-moraic constraint on a LP-root constituent when they take vowel-final prefixes.

By contrast, the prediction that mono-moraic roots never take mono-moraic prefixes falls out of the record when prefixes ending in mid vowels are considered. Czech has five prefixes with final mid vowels: *pře-, po-, do-, pro-, o-* whose lengthening is sensitive to both the quality of their vowels (the prefix *pře-*

11 Other logical possibilities, i.e. bi-moraic verbal roots with two short vowels or one short vowel plus a syllabic liquid, do not occur in Czech.

ending in a front mid *e* does not lengthen at all) and their syllable structure (the mono-segmental prefix *o-* does not lengthen as well). Hence root-nominals with just a bi-moraic LP-root constituent, where an LP is *pře-* or *o-*, exist; cf. [*pře-stav*$_{2\mu}$]*-b-a* 'rebuilding', [*pře-lom*$_{2\mu}$] 'turning point', [*o-pal*$_{2\mu}$] 'singe', [*o-toč*$_{2\mu}$]*-k-a* 'twist'. The three remaining prefixes, i.e. *po-, do-, pro*, lengthen (recall that *o* lengthens to [u:] "ů"), but rather irregularly. The irregular behaviour of these prefixes can be illustrated by nominals sharing the same root like *prů-běh* 'progress' with a long prefix as compared to *do-běh* 'finish' with a short prefix or by doublets like *prů-kmit*/*pro-kmit* 'flash through' or *prů-hmat/pro-hmat* 'palpation'.

7. Conclusion

The templatic account to the prefix length proposed by Scheer (2001) has a number of consequences concerning the morpho-syntax of prefixes and more generally the syntax-phonology interface. Scheer's analysis supposes that the prefix and the root form a single constituent (over which the template scopes). I have shown that this prediction is independently supported by morpho-syntactic evidence: lexical prefixes form complex verbal heads with their roots. I have also proposed that the template is associated with a particular morpho-syntactic tree. From this two things follow: the template is activated only when this tree is present within a given word (this is the reason why stem-nominals do not show long prefixes) and *vice versa*, whenever this tree is embedded within a word structure, the template is triggered (this is the reason why denominal verbs can display long prefixes).

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