Licensing of Vowel Length in Czech

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Markéta Ziková

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The Syntax–Phonology Interface

PETER LANG

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Motto: *Une théorie inexacte amène une rectification, tandis que l'absence de théorie n'amène rien.*

Maurice Grammont

Content

1. Introduction

Czech has a simple vowel system and each of the vowels has a distinctive length—it is either short or long, as illustrated in the minimal pairs in table (1).[1]

(1)								
	[i]	–	[iː]	*vir*	[vir]	*vír*	[viːr]	'virus, eddy'
	[u]	–	[uː]	*kur*	[kur]	*kůr*	[kuːr]	'fowl, choir'
	[e]	–	[eː]	*pero*	[pero]	*péro*	[peːro]	'pen, (spiral) spring'
	[o]	–	[oː]	*lože*	[loʒe]	*lóže*	[loːʒe]	'bed, loge'
	[a]	–	[aː]	*lak*	[lak]	*lák*	[laːk]	'lacquer, brine'

In the literature, e.g. Kučera (1961), Petr et al. (1986), Palková (1994), *inter alia*, Czech short and long vowels are analyzed as having free distribution. This is usually supported by the following claims: (i) vocalic length does not depend on a word stress: long vowels can appear in both stressed and unstressed syllables, (ii) long vowels can appear in any position; in particular, adjacent syllables with long vowels are possible.

As for the relationship between length and stress, it is a widespread phenomenon that long vowels tend to appear under stress, while the appearance of short vowels is stress-independent. In Czech, however, word stress always falls on the first syllable, which can be either long or short. This leads Hayes (1995:102) to claim that Czech is a "quantity-disrespecting syllabic trochee language" (together with, for example, Finno-Ugric languages like Hungarian, Finnish or Estonian). Either short or long vowels are legitimate in unstressed syllables as well. The stress-free distribution of vocalic length can be illustrated by disyllables sharing the same stress profile, i.e., $(\text{ˈσσ})_{\text{PW}}$ (PW stands for "prosodic word"). In table

1 In Czech orthography, vowel length is marked by an acute accent or by a superscript circle over the vowel. The relevant sound-grapheme correspondences are as follows: [aː] = <á>, [iː] = <í,ý>, [uː] = <ú,ů>, [eː] = <é>, [oː] = <ó>.
Throughout this book, examples are presented as follows: *orthographic* forms are in *italics*, [square brackets] and /slash brackets/ denote [phonetic] and /phonological/ form respectively; morpheme boundaries are marked by hyphen-s and glosses are enclosed by 'single quotation marks'. Should the need arise to distinguish between lexically stored underlying forms and those arising from phonological computation, the former are marked by //double slashes//. For phonetic transcription, I use the standard IPA symbols: segmental length is marked by a triangular colon [ː], primary stress by a high vertical line before the syllable [ˈ] and inter-syllable boundaries are indicated by dots [.].

(2), I summarize the four logically possible combinations of long (VV) and short (V) vowels within prosodic words of the type $(\text{'}\sigma\sigma)_{\text{PW}}$. To show that morphology plays absolutely no role in the distribution of short/long vowels, the patterns are further divided into two groups according to whether the particular combination is tautomorphemic or heteromorphemic. What we see is that all of the four patterns are readily attested in Czech.[2]

(2)		tautomorphemic		heteromorphemic		
	('VV.V)PW	*rákos*	['ra:.kos]	*rán-a*	['ra:.na]	'reed, wound'
	('V.VV)PW	*talár*	['ta.la:r]	*ran-á*	['ra.na:]	'robe, early (fem.)'
	('V.V)PW	*jasan*	['ja.san]	*pat*-a	['pa.ta]	'ash tree, heel'
	('VV.VV)PW	*sárí*	['sa:.ri:]	*pát-á*	['pa:.ta:]	'saree, fifth (fem.)'

The last row in table (2) illustrates another property traditionally attributed to long vowels in Czech: not only are they stress-independent, they are also position-independent. As a consequence, there are words with two (and even three or four) adjacent long syllables. Some examples of such patterns are shown below.[3]

(3)	3 VV	*b[i:]d[a:]k[u:]v*	*pl[a:]šť[i:]k[u:]*
		'scoundrel's'	'of mantelets'
	4 VV	*zař[i:]k[a:]v[a:]n[i:]*	*vypoč[i:]t[a:]v[a:]n[i:]*
		'invocation'	'calculation'

As a matter of fact, stress-independence and position-independence are indeed two separate issues, as illustrated in Slovak. In Slovak—like in Czech—stress always falls on the first syllable, which can be either long or short. But unlike Czech, Slovak restricts the distribution of long vowels in adjacent syllables; this vocalic-length-restriction is known as *Rhythmic Law*; see e.g. Peciar (1946). Table (4) shows the effects of this rule. There are four third-person singular present forms, each containing a root followed by the so-called theme suffix. We can see that the quantity

2 Note that the distribution of individual vowels across the patterns varies considerably; see Bičan (2015) for discussion on frequency of vocalic segments.

3 In fact, the pattern with two tautomorphemic long vowels is restricted to a small group of borrowed nouns including *vádí* [va:di:] 'wadi', *vúdú* [vu:du:] 'voodoo', *týpí* [ti:pi:] 'tepee' or propria, as *Rádžív* [ra:dʒi:f] or *Kádár* [ka:da:r]. The heteromorphemic patterns, on the other hand, are relatively frequent, because long vowels are productive inflectional markers.

of the suffix depends on the quantity of the root: if the root is short, the theme is long—and *vice versa*: long roots are followed by short variants of the themes.

(4)	short root – long theme		long root – short theme	
	hl'[a]d-[aː]	's/he finds'	*v[iː]t-[a]*	's/he invites'
	k[a]l-[iː]	's/he muddies'	*kr[aː]t-[i]*	's/he finds'

Yet another restriction on vocalic length (known from many languages) is related to syllable structure: vowel length often correlates with the syllable being open. Closed syllables, on the other hand, tend to be short; see e.g. Odden (2011:466). In Czech, however, no such restriction exists: table (5) demonstrates that closed syllables can be long, both word-finally and word-internally. Moreover, the examples in the second and in the fourth row demonstrate that long vowels appear even in super-heavy syllables, i.e., those closed by two consonants.

(5)	VVC#	*dr[aː]p*	'claw'	*l[eː]k*	'medicine'
	VVCC#	*n[aː]rt*	'instep'	*dvan[aː]ct*	'twelve'
	VVC.C	*b[oː]j.ka*	'small buoy'	*sc[eː]n.ka*	'small scene'
	VVCC.C	*č[aː]st.ka*	'amount'	*ř[iː]ms.ka*	'small cornice'

Finally, long vowels are known to be sensitive to segmental context. For a wide range of languages, vowel length is licensed only before voiced consonants; see e.g. Maddieson (1997). Czech—again—displays no sensitivity to consonantal voice, as demonstrated in the table below.

(6)	$VVC_{[+voiced]}$	*m[iːz]a*	'lymph'	*k[oːd]a*	'coda'	*s[aːg]a*	'saga'
	$VVC_{[-voiced]}$	*m[iːs]a*	'bowl'	*k[oːt]a*	'dimension'	*p[aːk]a*	'lever'

Summing up: in Czech, vocalic length is distinctive and does not follow any phonological restrictions described in the literature cross-linguistically.

Even more strikingly, Czech sometimes seems to behave against all the phonologically plausible patterns. An example of what we might call an "antiphonological" distribution of length is shown in table (7). The table contains three monosyllabic roots, i.e., 'frost', 'salt', 'house', whose vowels alternate in length.

(7)	V.CV		VVC#		VC#	
	mraz-u	[mra.zu]	*mráz*	[mraːs]	*mraz*	[mras]
	sol-i	[so.li]	*sůl*	[suːl]	*sol*	[sol]
	dom-u	[do.ma]	*dům*	[duːm]	*dom*	[dom]

From the phonological point of view, the distribution of length across this paradigm is "weird" for two reasons. First, long vowels occur only in closed syllables. Second, both long and short vowels appear in the same phonological context, yielding minimal pairs *mr[aː]z* 'a frost' – *mr[a]z* 'freeze!', *s[uː]l* 'a salt' – *s[o]l* 'salt!' and *d[uː]m* 'house' – *d[o]m* 'home'. Given these facts, we may be tempted to consider the appearance of the long vowels in the second column of table (7) as purely accidental. It is quite likely that if we were to consider just these minimal pairs from a purely phonological perspective, we might get that picture. However, that would be an oversimplification. We cannot conclude that just because the length in these roots is not controlled by pure phonology, it is random. If we consider the distribution of long and short vowels with morphosyntactic information in mind, the emerging picture is far from accidental. For the cases under discussion, for instance, the forms with long vowels are all nominative/accusative singular forms—and that, as I am going to argue, is ultimately the reason why they are long.

The main goal of this book is thus to develop a morphosyntactic account of vowel length in contemporary Czech. I will build on work by Scheer (2001, 2003, 2004a), Bethin (2003), Caha & Scheer (2008), Ziková (2012, 2016), and Caha & Ziková (2016) who all propose that there is a connection between the morphosyntax and the phonology, such that certain morphosyntactic categories regulate the distribution of vowel length in Czech. In particular, I provide a thorough analysis of two morphological categories, hypocoristics and diminutives, which connects their morphosyntactic and phonological properties.

The book is organized as follows. Chapter 2 introduces the framework for distinguishing different phonological types of vowel length alternations in contemporary Czech. Using analytical tools of two autosegmental theories, Strict CV (Lowenstamm 1996, Scheer 2004) and Element Theory (Harris & Lindsey 1995, Backley 2011), I argue that length alternations can be modelled as arising from prosodic affixes of various phonological shapes. The next two chapters provide case studies on hypocoristics and diminutives. Following the central ideas of the theory of Nanosyntax (Caha 2009, Starke 2009), I decompose these two morphological categories into hierarchically ordered syntactic projections. Then, I argue that some of these projections are spelled out by prosodic affixes which are responsible for lengthening in hypocoristic and diminutive stems.

2. Vowels Autosegmentalized

2.1 Vowel System of Czech[4]

Czech vocalic inventory is traditionally described as consisting of five short vowels, five long vowels and three diphthongs (e.g. Kučera 1961, Petr et al. 1986, Palková 1994, among many others):

(1)	short monophthongs	[i u a e o]
	long monophthongs	[i: u: a: e: o:]
	diphthongs	[ou au eu]

At a first sight, the system seems to be symmetrical: (i) each of the short vowels has a long counterpart, (ii) all three diphthongs are of the falling type and exhibit an identical final segment, i.e., [u]. However, if we focus on the distribution of particular segments, we soon discover a clear unbalance in the system.

Starting with the diphthongs, there is a dividing line between [au] and [eu] on the one hand and [ou] on the other. The diphthong [ou] is involved in length alternations: it alternates with a short [u] (as, for example, in a root 'buy': *k[ou]p-it* 'to buy' – *k[u]p-ovat* 'to buy repeatedly'). By contrast, diphthongs [au] and [eu] never alternate with any short monophthongs, i.e., neither with [u] nor with [a] or [e]. Moreover, the non-alternating diphthongs are limited to loans (especially to loans of the Latin and Greek origin such as *k[au]ce* 'bail' or *n[eu]ron* 'neuron'), as opposed to [ou]; the diphthong [ou] is distributed across both the native (e.g. *k[ou]t* 'corner' of Common Slavic origin) and non-native vocabulary (e.g. *k[ou]č* 'coach, trainer', an English borrowing).

Among the monophthongs, it is the long mid back [o:] that has a special status. First of all, it is noticeably less frequent than the other vowels. This might be easily ascribed to the fact that [o:] is not a part of any inflectional marker. In this, it contrasts with its short cousin [o] on the one hand—and the rest of the long monophthongs on the other: they are all involved in inflectional endings. Roots with [o:] are typically loans (e.g. *t[o:]n* 'tone' or *šapit[o:]* 'circus tent') and, in

4 The present-day Czech has two main sociolinguistic varieties, Literary Czech ("spisovná čeština") and Common Czech ("obecná čeština"), and also several territorial dialects with slightly different vowel systems. In this book, I focus mainly on Literary Czech (henceforth Czech) which is an established norm.

addition, they tend to occur in expressive reduplicative structures such as *č[oː]-ro m[oː]ro* 'mess-up' and *hal[oː] hal[oː]* 'attention please, attention please!'. However, for us, the most important point is that [oː] shows a peculiar behavior with respect to alternations, a fact I turn to immediately below.

In Czech, long monophthongs often alternate with their short counterparts. Length alternations occur, for example, in bisyllabic truncations, including hypocoristics and expressive common nouns (typical for Colloquial Czech), as illustrated in table (2). Here, we have a set of female first names (in the left part of the table) and a set of common nouns (in the right part). Each set then consists of five pairs of nouns, in which the first member is always a full form of the noun and the second is its truncated form. What we see is that the truncation is typically accompanied by a lengthening of the root vowel. And with respect to the lengthening, all monophthongs—including the mid back one—are treated alike. Specifically, lengthening under truncation does not involve a vowel-quality change: [o] simply lengthens to [oː]—just as [e] lengthens to [eː], [a] to [aː] and so on.

(2)

	truncated first names			truncated common nouns			
i~iː	*J[i]tka*	–	*J[iː]ťa*	*v[i]svědčení*	–	*v[iː]zo*	'certificate'
u~uː	*L[u]cie*	–	*L[uː]ca*	*[u]čitelka*	–	*[uː]ča*	'female teacher'
e~eː	*P[e]tra*	–	*P[eː]ťa*	*v[e]čeře*	–	*v[eː]ča*	'dinner'
o~oː	*B[o]žena*	–	*B[oː]ža*	*k[o]čka*	–	*k[oː]ča*	'cutie'
a~aː	*M[a]rie*	–	*M[aː]ja*	*sv[a]čina*	–	*sv[aː]ča*	'snack'

Alternations between short and long vowels of the same quality occur also in contexts other than truncations. Two of them are shown in (3). In (3a), masculine roots alternate in length in the diminutive context. Verbal pairs in (3b) illustrate an alternation between short and long root forms depending on their aspectual context.

(3)

a.	*hř[i]b*	*hř[iː]b-ek*	'boletus, small boletus'
	hr[a]d	*hr[aː]d-ek*	'castle, small castle'
b.	*vy-kl[i]d-it*	*vy-kl[iː]z-et*	'to clean out (once), to clean out (repeatedly)'
	vy-tr[a]t-it	*vy-tr[aː]c-et*	'to fade out (once), to fade out (repeatedly)'

The fact that the alternation [o]~[oː] is missing from the table above, however, does not mean that the mid back vowel fails to alternate in these morphosyntactic contexts altogether: it does alternate between the short and long variant,

analogically to [a] and [i], as illustrated in (4). In this case, however, the length alternation involves also a change in the vowel quality: in the pair *pl[o]t – pl[uː]t-ek* [o] alternates with a long [uː] and in the aspectual pair *vy-t[o]č-it – vy-t[aː]-č-et*, it alternates with a long [aː].

(4)	a.	*pl[o]t*	*pl[uː]t-ek*	'fence, small fence'
	b.	*vy-t[o]č-it*	*vy-t[aː]č-et*	'to dial (once), to dial (repeatedly)'

To sum up: [oː] functions as a long counterpart to [o] only in truncations. In other contexts (in which length alternations are triggered), [o] is replaced by either [uː] or [aː]. In what follows, I am going to argue that this three-way behavior of [o] with respect to length alternations can be best captured by using the tools of Element Theory based on monovalent melodic primes.

2.2 Decomposing Vowels: Element Theory

In Element Theory (ET), segments are represented by privative melodic primes, called *elements* (Kaye et al. 1985, Harris 1990, Harris & Lindsey 1995, Backley 2011, *inter alia*).[5] Elements, as autosegmental entities, are structurally independent which entails at least two things. First, any element can be, in principle, embedded in any prosodic structure: a single element can thus be dominated either by a V-slot or by a C-slot which constitute the prosodic structure. As a consequence, vocalic and consonantal segments share pieces of their melodic structure. This is shown in table (5): each of the so-called resonance elements—I, U and A—defines classes of both vocalic and consonantal segments (according to their aperture/color features and place of articulation, respectively).[6]

5 Historically, ET is connected with Government Phonology (Kaye et al. 1985, 1990) and its radical version called Strict CV (Lowenstamm 1996, Scheer 2004). However, as Backley (2011:xii) points out "there is no necessary connection between Government Phonology and elements. In fact, elements can be traced back to similar units that were being used in other theories including Dependency Phonology and Particle Phonology, both of which predate Government Phonology."

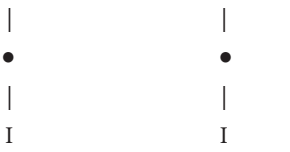
6 In fact, in different versions of the theory, the number of elements varies. The three resonance elements are, however, shared among all of them. Other elements—employed to define phonological segments—are, for example, L or N: they represent vocalic tonality and nasality, respectively. Since these non-resonance elements are not relevant for our discussion at the moment, they are not listed in table (5).

(5) Resonance elements and classes of segments (adapted from Nasukawa 2014)

element	V-dominated	C-dominated
I	front vowels	dentals, palatals
U	rounded vowels	labials, velars
A	non-high vowels	uvulars, pharyngelars

The independence of melodic elements and prosodic positions is usually illustrated by the example in (6). There is an element I which is associated with a V-slot or a C-slot: the V-dominated structure corresponds to a high front vowel [i] (6a) and the C-dominated structure to a palatal glide [j] (6b). The symbol ● in the figures below marks a root node which serves as an "umbrella point" of melodic elements belonging to a single segment. I come back to it later.

(6) a. V ↔ [i] b. C ↔ [j]



Yet another thing results from the fact that elements as autosegmental objects live their own lives: they can freely combine to create complex segments. However, this possibility is not driven by their need to be spelled out, i.e., to be linked to a prosodic slot. From this perspective, vocalic segments (as defined by the three resonance elements listed in table (5) above), can be arranged on a scale according to their complexity. On this scale, one-element vowels are followed by two-element ones. All possible types of simplex and complex vocalic segments are summarized in (7). I also include corresponding sounds in the table. Note, however, that the mapping between phonological segments and sounds is not as straightforward as the table suggests. I will come back to this issue later. (Three-element structures are not involved in (7): they typically represent rounded non-back vowels which are missing in Czech.)[7]

7 The scale illustrates one of the main principles of ET, that is, non-recursiveness: a particular element can occur only once per segment; but see Nasukawa (2014) who argues for recursive elements. I should also mention that simple counting of elements is only one of the possible ways to measure a segmental complexity—though the most widespread one. In Pöchtrager's (2006) version of the theory, complexity is measured in terms of melodic projections inside a given segment. For example, fricatives are

(7)

simplex vowels			>	complex vowels		
/I/	↔	[i]		/I U/	↔	[y]
/U/	↔	[u]		/I A/	↔	[e]
/A/	↔	[a]		/U A/	↔	[o]

The notion of *segmental complexity* is an effective analytical tool for capturing typological generalizations about phonological processes; see e.g. Harris (1997). For example, there exists a bunch of non-assimilatory changes of consonants, such as spirantization (when stops change to fricatives) or glidization (when consonants turn to semivowels), covered by the term *lenition*. The word *lenition* means "weakening": lenited consonants weaken their articulation. If classes of segments differ in the degree of complexity, as is proposed in ET, then lenition processes can be treated in a uniform, even iconic, way: weakening of consonants is based on weakening of their internal structure, that is, outputs of lenition are less complex than the inputs.[8]

In a vocalic space, there is a parallel to lenition: reduction of vowels. In the Russian examples in (8), taken from Iosad (2012), a mid back vowel [o] is reduced to a low [ɐ] (8a) and a mid front vowel [e] is reduced to a high [ɪ] in an unstressed position. Given that mid vowels are complex segments, then both reduction processes, i.e., the *o*-to-*ɐ* lowering and the *e*-to-*ɪ* raising, can be represented as involving a decrease in complexity, as is illustrated in the right-most column of table (8).

(8)

a.	[ˈkot] – [kɐˈta]	'cat, Nsg, Gsg'	UA [o] > A [ɐ]
b.	[ˈlʲes] – [lʲɪsʲˈɲik]	'forest, forester'	IA [e] > I [ɪ]

generally taken to be less complex than stops: which means that they either lack an occlusive element ʔ contained in stops or, according to Pöchtrager (2006:63), they are one-projection-layer smaller than stops.

8 Moreover, it is well-known that lenition is related to the syllabic structure: consonants in codas and intervocalic onsets are typically prone to undergo weakening, as opposed to consonants in postcodas and initial onsets (both non-weak positions being covered by the term Coda Mirror); see Ségéral & Scheer (2005), Scheer & Ziková (2010). In Government Phonology, whose part ET is, the relationship between the segmental weakening and the syllabic structure is expressed via *licensing*: put it simply, both intervocalic onsets and codas appear under certain licensing conditions that differ from that for consonants in the Coda Mirror. And this is the reason why they are targets of different types of segmental changes.

However, it is not always the case that the decrease in vowel complexity is lenition. The raising of mid vowels—which involves element reduction—typically occurs under lengthening, which is not taken to be an instance of lenition. I will discuss the relevant examples from Czech in section 2.3.3.

2.2.1 The Basic Pattern /I/-/U/-/A/ and Its Phonetic Spell-Out

Furthermore, the term *segmental complexity* is going to be useful, as it expresses generalizations not only about the grammar, i.e., about the phonological processes, but also generalizations about the lexicon, i.e., about the segmental inventories. As for vowel systems—the prime interest of this book—the complexity scale in (7) can be assumed to be strongly one-way implicational. Given that the existence of complex vowels implies the existence of simplex ones, two things concerning typology of vocalic inventories are predicted. First, in languages with just three phonologically contrastive vowels, all of them will be simplex. Second, in systems with four vowels and more, three of the vowels will always be simplex.

The first prediction says that three-vowel inventories can be reduced to a single underlying pattern /I/-/U/-/A/ when each vowel is represented by just one of the three resonance elements. Provided that there are correspondences between the elements on the one hand and the classes of vocalic segments on the other (such as those proposed in table (5) above), then there should not exist three-vowel languages with either two front or two rounded vowels. This prediction seems to be borne out, as shown by the data in table (9). There are nine different three-vowel systems reported in Hyman (2008) and Backley (2011)—and none of them shows more than one rounded and one front vowel.[9]

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9 In fact, Hyman (2008) reports on two three-vowel inventories such that they lack either a front or a rounded vowel: the former case is represented by a triad /ə o ɐ/ found in Qawasqar, the latter by a triplet /i ɯ a/ appearing in Jaquaru. Both inventories are compatible with our prediction: none of the three-vowel systems includes two (or even three) rounded or front vowels, respectively. Provided that all three-vowel systems follow the underlying pattern /I/-/U/-/A/, then [ə] realizes the I-segment in Qawasqar and [ɯ] spells out the U-segment in Jaquaru, even if the former is not a front vowel and the latter is not a rounded vowel. However, such "clashes" between phonological features, i.e., elements, on the one hand—and corresponding sounds on the other are expected if phonology and phonetics are, indeed, two separate language modules. The fact that such phonology–phonetics conflicts are nevertheless not as common as one might have expected is discussed in Scheer (2014); Scheer's interpretation is presented below. Moreover, Hyman (2008) himself notes that the systems found in Qawasqar and Jaquaru are quite unique, especially as compared to the systems listed in table (9).

(9) Three-vowel inventories (Hyman 2008, Backley 2011)

/i u a/	Aleut
/ɪ ʊ a/	Bella Coola
/i ʊ a/	Haida
/ɪ ʊ ɐ/	Quechua
/i u ɐ/	Greenlandic
/i u æ/	Shilha
/i o a/	Pirahã
/i u ɜ/	Gadsup
/e o ɐ/	Amuesha

Furthermore, in the representative sample of three-vowel languages shown above, each of the I-segment and U-segment is realized by three different phonetic objects, i.e., [i ɪ e] and [u ʊ o], respectively. The A-segment has even four corresponding vocalic spell-outs: [a ɐ ɜ æ]. Such variation is, however, not surprising: although elements are assumed to be associated with certain phonetic features, primarily, they are cognitive categories and their principal function is to first, encode lexical contrasts among segments and, second, to identify natural classes of segments with respect to phonological processes (see Harris & Lindsey 1995).

From this perspective, phonology and phonetics are thus two separate linguistic modules and each operates with their own units. Phonology operates with segments made up from elements and phonetics acts on sounds associated with instructions to the auditory–articulatory system. A consequence of this view is—as pointed out by Scheer (2014)—the *arbitrariness* of the phonetic spell-out. Scheer draws a parallel between two interfaces phonology is involved in: the syntax–phonology interface and the phonology–phonetics interface. For both interfaces, there are lexicons and for their entries, we assume arbitrary pairings between syntactic and phonological objects (in the former case) – and phonological and phonetic objects, for phonology–phonetics interface. Scheer (2014:268f.) further proposes that the interface lexicons differ in the degree of arbitrariness: while "the relationship between morphosyntactic structure and its exponent phonological material is 100% arbitrary", the phonetic and phonological identities of lexical items at the phonology–phonetics interface are—more or less—closely related in "the overwhelming majority of cases". Scheer explains this situation via grammaticalization: "The output of the grammaticalization process that turns phonetic into phonological items is akin to the phonetic input,

and also uses the same broad categories. By contrast, the relationship between the items related by the upper spell-out is not one of grammaticalization: tense, person, number, etc., are not the grammaticalized versions of labial, occlusion, etc. Therefore, there is no way to even imagine any similarity."[10]

Of course, since the phonetic spell-out is arbitrary, phonological and phonetic features may be in conflict: in principle, each of the simple segments can be realized by whatever vocalic sound. And Scheer (2014:266), referring to Uffmann (2010), brings one example of such a "phonology–phonetics clash": in a South-East British sociolect of English, a front, unrounded sound [i] spells out the U-segment, which is realized by a high rounded vowel [u] in Standard English; for example the verb *do* is spelled out as [diː] in this sociolect. According to Scheer, the underlying U-identity of the [i]-sound is uncovered by observing its behavior, for example, with respect to external sandhi gliding: the [i] alternates with a labial glide [w] and, crucially, not with a palatal [j]—as would be expected, if [i] was really /I/ underlyingly. Thus, the verbal phrase *do it* is spelled out with [w] both in Standard English ([duː w it]) and the South-East British sociolect ([diː w it]). However, Scheer points out that the phonology-to-phonetics mapping of this type, i.e., /U/ ↔ [i] in this particular case, is rare and he attributes the rarity of such a mapping to the grammaticalization reasons mentioned above: U-segments are typically realized by rounded vowels, while a front vowel [i] typically spells out an I-segment.[11]

Summing up, the modular view on the phonology-to-phonetics mapping leads ultimately to the conjecture that homonymy might not be unique to the lexicon of the syntax–phonology interface, but it is also possible to observe it among the lexical items of the phonology–phonetics interface. In this interface,

10 Scheer's unified account to the phonology interfaces opens a door to a myriad of interesting questions on the other possible parallels between the interfaces. Could it be, for instance, that a matching procedure from syntax–phonology interface (known as *Subset/Superset Principle*) has a phonology-to-phonetics parallel? As fascinating as these questions might be (leave alone their consequences), I have to leave them open for further research.

11 Moreover, it seems to be rather uncontroversial that the most widespread triad among three-vowel inventories is the /i u a/ one; in Hyman's (2008) and Backley's (2011) surveys, thirteen languages in total have this inventory; the second most 'popular' one is the triad /ɪ ʊ a/ (in four languages). This indicates that the vowels [i u a]—the corners of the classical vocalic triangle—can be viewed as default spell-outs of a simplex I-, U- and A-segments.

homonymy arises among items that have a distinct elemental makeup—but they are spelled out by identical sounds.

2.3 Vowel Length Alternations

Having introduced the basic tools of the framework, let me now go back to the Czech length alternations. Highlighting of what there is to come, I will now investigate various options of capturing the facts using the tools at our disposal. I start with the discussion of the options that appear theoretically simplest, but I end up rejecting several of them for empirical reasons, before I arrive at a satisfactory solution.

2.3.1 Segmental Homonymy

The table below repeats the pattern of the length alternations with a mid rounded vowel [o]: it either simply lengthens to [oː] or the alternation involves raising [o]~[uː] or lowering [o]~[aː].

(10)				
	o~oː	*B[o]žen-a*	*B[oː]ž-a*	
	o~uː	*pl[o]t*	*pl[uː]t-ek*	'fence, small fence'
	o~aː	*vy-t[o]č-it*	*vy-t[aː]č-et*	'to dial (once), to dial (repeatedly)'

By applying the same logic as in the previous cases, we might be tempted to analyze these alternations in terms of homonymy. In other words, we might claim that the three-way behavior of the vowel [o] with respect to the length alternations indicates that this sound has a three-fold underlying identity. That is, the phonology-phonetics interface lexicon of Czech contains three homonymous items, but in each case, the mid rounded vowel is paired with a different phonological structure: /X/ ↔ [o], /Y/ ↔ [o] and /Z/ ↔ [o]. The evidence for the child to postulate these three distinct objects would be provided by the fact that each of them behaves differently under lengthening.[12]

As to the actual identity of X, Y and Z, the first possibility that comes to mind is that the phonological structure of the particular [o] is identical to the phonological structure of its long alternant. Thus, the [o] that alternates with a long [uː] is a spell-out of a simplex U-segment, the [o] alternating with a long [aː] is

12 The same logic is followed by, for example, Gussmann (2007) who proposes [ɛ]-homonymy for Polish. His homonymy analysis aims to capture the different behavior of a front mid vowel with respect to the two phonological processes generally associated with front vowels, i.e., palatalization and glidization.

a simplex A-segment. By contrast, mid vowels involved in [o]~[oː] alternations realize a complex segment made up from both U and A. In that case, three homonymous lexical items would be listed in the phonology–phonetics interface lexicon of Czech, as depicted in (11).

(11)

a. [o] alternating with [aː]	b. [o] alternating with [uː]	c. [o] alternating with [oː]
/V/ ↔ [o]	/V/ ↔ [o]	/V/ ↔ [o]
|	|	|
●	●	●
|	|	|
A	U	UA

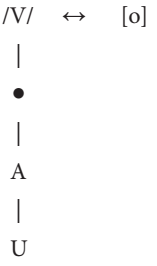
In (11), the three segments associated with the sound [o] differ both with respect to their complexity (the segments in (11a–b) are simplex, the one in (11c) is complex) and their elemental make-up: each of them is made up from different elements. This analysis, however, is inadequate. The reason is that there exist also sounds [a] and [u] in Czech that also realize the simplex A-segments and U-segments. This thus means that the phonology–phonetics interface would contain two pairs of lexical items, i.e., /A/ ↔ [o] and /A/ ↔ [a] on the one hand and /U/ ↔ [o] and /U/ ↔ [u] on the other, each involving a single segment that is spelled out by two distinct sounds. However, the spell-out is not predictable from phonotactics alone. To see this, consider, for instance, the roots *b[o]k* 'flank' and *b[u]k* 'beech': they are identical except for their vowel, which is either [o] or [u]. Since the mid vowel [o] of the root 'flank' alternates with the high vowel [uː] (as is proved by the diminutive *b[uː]č-ek*), it should correspond to the U-segment underlyingly (according to the proposal in (11b) above). From this, it follows that the roots 'flank' and 'beech' being both stored with the U-segment would have to be diacritically marked in order to be paired with the appropriate vocalic sounds.

Now, let me try to follow the same logic (postulating three different underlying objects), but in a way that will allow us to dispense with diacritic marking. So far, I have been considering segments to be unordered sets of elements. However, following Dependency Phonology (Anderson & Ewen 1987), ET assumes that segments are internally organized. Without going into details, the shared idea among different approaches to segment-internal structure (represented by Kaye 2001, Pöchtrager 2006 and Nasukawa 2014, *inter alia*) is that a single set of

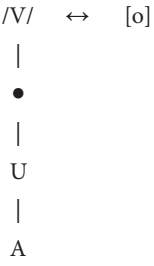
elements can be arranged in different ways to produce distinct segments of the same elemental make-up.

In this book, the internal structure of segments is going to be expressed in terms of *structural dependency*. From the dependency perspective, two elements X and Y can be merged in three different ways (and thus, they produce three different segments): either X is structurally dependent on Y (or *vice versa*), or both X and Y are structurally equal, i.e., mutually independent. Thus, if we take U and A to be the X and Y, we can derive three distinct complex segments from the elements U and A, as depicted in (12). The [o] that alternates with [aː] corresponds to an element U dependent on the element A (cf. U-dependent segment) (12a), and the [o] which alternates with [uː] is an A-dependent segment as in (12b). Finally, (12c) shows a structure of the [o] involved in a pure length alternation: in that case, neither of the elements A and U is dependent.

(12) a. [o] alternating with [aː]



b. [o] alternating with [uː]



c. [o] alternating with [oː]

The homonymy scenario in (12) thus dispenses with diacritic marking: all AU-segments—and only them—are realized by the sound [o]. This is a desirable result, but, unfortunately, still not empirically correct. (12) still fails to capture the distribution of the long alternants. If the underlying structure of the short alternant determines the form of its long cousin, we should not find "combined" length alternations. In other words, since each *o*-containing morpheme is stored with a particular *o*-segment in (12), we do not expect to see morphemes with more than one type of the length alternation. But that is what we find, as illustrated in table (13) below. In (13a), there are six triplets of words; each triplet is based on the same root which appears with both a long [uː] and long [aː]. The short root in (13b) also has two long forms, one with [oː] and the other with [aː].

(13)	a.	*kr[u:]č-ek*	*kr[a:]č-et*	*kr[o]k*
		'small step'	'to walk'	'a step'
		s-ch[u:]d-ek	*s-ch[a:]z-et*	*s-ch[o]d*
		'small stair'	'to step down'	'a step'
		po-kl[u:]p-ek	*vy-kl[a:]p-ět*	*po-kl[o]p*
		'small cover'	'to dump'	'a cover'
		tv[u:]r-ce	*vy-tv[a:]ř-et*	*vý-tv[o]r*
		'creator'	'to create'	'creation'
		str[u:]j-ce	*pře-str[a:]j-et*	*str[o]j-it*
		'originator'	'to dress up (repeatedly)'	'to dress up'
		kr[u:]p-ěj	*s-kr[a:]p-ět*	*kr[o]p-it*
		'drop'	'to spray (repeatedly)'	'to spray'
	b.	*t[o:]č-o*	*o-t[a:]č-et*	*t[o]k*
		'topsy-turvy'	'to turn'	'a flow'

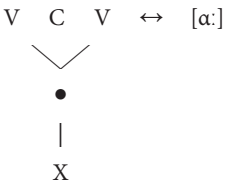
The examples above thus show that the form of the long alternant is not predictable from the underlying structure of the short vowel. Hence: the combined alternations—when a single morpheme has more than one long form—must be treated suppletively, and that, in turns, means that both long forms of the roots in (13) must be lexically stored. But if we were to subscribe to this analysis, we might have missed an important point. The thing is that the suppletive scenario misses a generalization: the long vowels in the roots are not distributed randomly, there is a clear pattern they follow. First, all root forms with a long [a:] appear in verbal forms with an iterative reading. Second, the word *t[o:]čo* built on the root with a long [o:] has an expressive meaning (and, as such, it is labeled as colloquial), literally 'a situation when things flow around in a chaotic manner'. It thus patterns with expressive truncations such as *k[o:]ča* (< *k[o]čka*) 'cutie' or *B[o:]ža* (< *B[o]žena*) 'first-name hypocoristic' mentioned in section 2.1.

To sum up, a short mid round vowel alternates with three distinct long vowels in Czech. There exist morphemes that are involved in more alternation patterns. This fact disqualifies the scenario according to which these patterns are associated with lexically different *o*-vowels. A key to understanding the three-way behavior of [o] is therefore the morphosyntactic distribution of long alternants. In other words, I propose that there is only a single *o*-segment underlyingly and it undergoes different types of lengthening because of its merger with phonologically different prosodic affixes that realize particular morphosyntactic features. The next sections elaborate on the phonological details of this proposal.

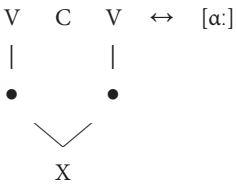
2.3.2 Pure vs. Qualitative Lengthening

Having established the ingredients of the melodic and the prosodic structures, let me proceed to vowel length and its representation. In the strict CV model, where the prosodic structure is made up from a linear sequence of C- and V-slots, the contrast between short and long vowels is represented by the long-vowel spanning over two V-slots (separated by an empty C-slot). Since I assume that melodic units are linked to prosodic slots via root nodes, it then follows that different subunits of vowel structure can be doubly-linked. In other words, either a root node, i.e., an entire segment can be doubly-linked—or just an individual element. These two possibilities are depicted in (14). In (14a), an element X is dominated by a single root node, which, in turn, is associated to two V-slots. In (14b), by contrast, there are two root nodes (and hence two V-slots) to which the element X is doubly-linked.

(14) a. doubly-linked root node

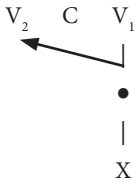


b. doubly-linked element

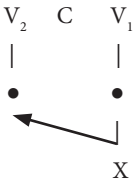


Suppose now that the representations in (14) arise from lengthening of underlyingly short vowels. Under the lengthening scenario, either the entire root node spreads to the adjacent V-slot, as in (15a), or an individual element does, as in (15b); spreading is marked by an arrow in (15) and throughout. Which type of spreading is chosen is dependent on the adjacent V-slot. In (15a), the absence of a root node in V_2 triggers the linking of the node from the V_1. By contrast, (15b) depicts the situation when the V_2 is provided with the root node. In this case, then, just an individual element spreads from the V_1 to the V_2.

(15) a. root-node spreading



b. element spreading



These two types of empty prosodic categories, i.e., with a root node and without it, are proposed by John (2014). He argues that each type is involved in different classes of local spreading processes such as vowel harmony, glide formation and lengthening of both consonants and vowels. John (2014:37) argues as follows: since the function of root nodes is to harbor melody, only the empty prosodic categories provided with root nodes can be targets for spreading of individual elements; "otherwise the individual element that spreads would have nowhere to dock."[13]

Furthermore, the figures in (15) indicate that spreading goes leftward. The reason is that *licensing* as a melody-supporting relation between two prosodic objects is leftward as well. Generally, there are two lateral relations that operate over C- and V-slots, i.e., *licensing* and *government*, and they define particular syllabic units and their configurations. For example, an intervocalic consonant, i.e., a syllable onset occurring after an open syllable, is identified as a segment dominated by a C-slot that is governed by the following V-slot. Both relations, then, have the same source and both operate regressively: only a V-slot can govern or license either a (preceding) V-slot or a (preceding) C-slot. The difference between the relations lies in the way they link to a melody: while *licensing* is a melody supporter, *government* is a melody inhibitor. From this it follows, among other things, that empty V-slots must always be governed to remain silenced, i.e., unassociated with any melody.[14]

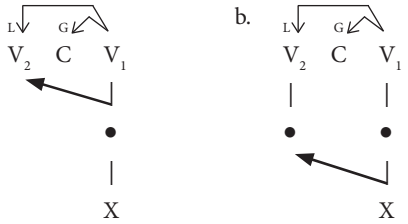
With this as a background, let me now look at the lengthening scenarios proposed in (15) above. Both are repeated in (16) below together with the government–licensing relations that hold among the relevant prosodic positions. In both cases, the underlying short vowel (V_1) serves as a self-licensor: it licenses the preceding empty V_2 that thus accommodates its melodic features; the result

13 Furthermore, John (2014) argues that the difference between these two types of empty categories is manifested not only in melody spreading, but also in melody insertion. According to him, insertion of what he calls *default segments*, i.e., insertion of schwas in empty nuclei and glottal stops in empty onsets or codas, is incumbent on the presence of a root node: only those empty categories that contain root nodes are capable of generating default melody. Notice, however, that it is a last-resort scenario: the empty root node receives a default melody only when spreading from the adjacent segments is, for some reasons, impossible.

14 The regressiveness issue is thoroughly discussed in Scheer (2004). He points to a contrast between relations holding among prosodic units, i.e., government and licensing, and those operating on the melodic level, such as melody spreading: the former are always regressive, while the latter can work in both directions. I probe this distinction further on when discussing syllable-sensitive alternations in vowel length.

is a doubly-linked vowel. Since V_1 as a full vowel is not only a proper licensor, but also a proper governor, it governs the preceding empty C-slot.

(16) a. b.



In both diagrams in (16), the short vowel (V_1) is preceded by two empty prosodic positions, hence, both the C and the V_2 can be—in principle—targeted by either licensing or government. In other words, if nothing was said about how both relations are distributed with respect to each other, licensing and government could work the other way around than it is proposed in (16). In that case, the V_1 would license its melody in the C-slot and the V_2 would be a target of government, which then means that it would have been silenced. As a consequence, we would not derive an alternation between a short and a long vowel, but between a short vowel and a consonant-vowel sequence. Thus, to get a long vowel, the scenario depicted in (16) is the only option.

Jubilation would be misplaced, though, as "We get what we wanted" is still but a claim, not an explanation. A question we should answer is whether the configurations in (16) follow from any general principle of the theory. And, lo and behold, there is a general principle: a government-over-licensing hierarchy proposed by Scheer & Ziková (2010) in order to distinguish among different types of strong and weak syllable positions. Applied to structures in (16), this principle says that if a full vowel is preceded by two empty prosodic positions, then the closest one, i.e., the C-slot, is governed and the more distant one, i.e., the V_2, is licensed.

Summing up, lengthening of short vowels involves licensing either of their entire melodic content, or just of its part, depending on whether the preceding empty V-slot lacks its own root node or whether it is provided with it. Let me now explore the consequences of this proposal.

First of all, I have to note that the contrast between the root-node spreading in (16a) and the individual-element spreading in (16b) is visible only in complex vowels. If the source of the spreading is a simplex vowel (made up from a single element), then both scenarios will yield the same effect; see also John (2014:37). In other words, if the V_1 is, for example, a short low vowel [a] (that is, a simplex A-segment), then its long cousin will be [aː] according to both possible

configurations in (16). Lengthening of two-element vowels, on the other hand, will produce differential results: pure lengthening is a result of the scenario in (16a) only; that is, the root node spreading induces pure lengthening, i.e., licensing of both elements of the underlying short vowel. But if the very same vowel is involved in the derivation depicted in (16b), only one of its elements can be licensed, then. The result is what I call qualitative lengthening.

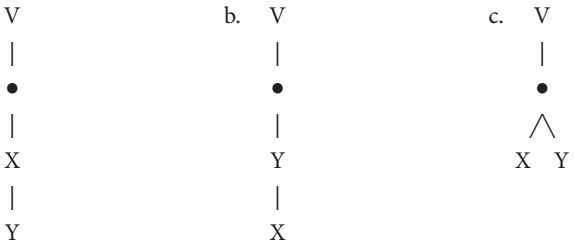
Let me now elaborate on the individual-element spreading scenario in (16b). Suppose that we deal with a complex vowel made up from elements X and Y, these elements enter the derivation. What we want to know is whether there are good reasons to decide which of these two elements will be licensed in the preceding empty V-slot. A common practice in the literature on Element Theory is to regulate melody-spreading via language-specific parameters such as "in a language L, an element E never spreads". For example, Charette & Göksel (1996) and Kaye (2001) analyze vowel harmony in Turkish (and other languages) along these lines. They assume that segments are internally organized, but, crucially, their behavior in melody spreading is not predictable from their internal structure alone. Instead, they propose the so-called *licensing constraints* that regulate element linking (and delinking) in the particular languages. A consequence of this account of segment internal structure is that *heads* and *operators* (i.e., cover terms for elements occupying different structural positions within segments) are both equally active in spreading.[15]

By contrast, under the dependency account of melodic level (that I use and develop in this book), behavior of complex segments is directly derivable from their internal structure. In particular, I assume that only structurally prominent melodic features, i.e., non-dependent elements in the proposed model, can spread individually to adjacent empty root nodes. What are the predictions of this proposal?

Figures in (17) repeat what I have already mentioned: two elements X and Y can be combined in three different ways (and thus deriving up to three different segments of the same melodic content). Either Y is structurally dependent on X (17a), or *vice versa*, X is embedded under Y (17b). Finally, the figure in (17c) shows the situation when neither of the elements is dependent on the other: both X and Y are associated directly with a root node.

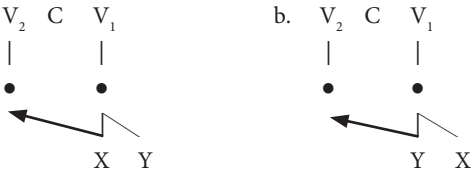
15 Moreover, elements can even change their roles: a head element can turn into an operator when spreading, and *vice versa*, operators can switch and become heads; cf. Kaye's (2001:260f.) analysis of vowel harmony in Finnish.

(17) a. b. c.



If the segment is represented as an unordered set of two elements (as in (17c)), then each of them can in principle spread into the preceding empty V-slot and associate with its root node. In that case, we expect to see a particular short vowel alternating freely with its two different long cousins. In other words, lengthening of the short vowel of the type (17c) can—in principle—create structures in both (18a) and (18b), where either X or Y, respectively, is doubly-linked.

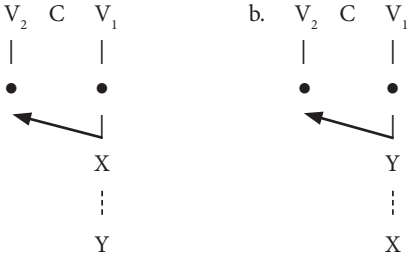
(18) a. b.



The configurations in (18) represent diphthongs whose members share a part of their melodic structure: the activated element is interpreted in both segments involved in a diphthong. For example, if the structure in (18) represents a mid rounded vowel [o], i.e., the UA-segment, then its lengthening can yield two *o*-final diphthongs: [uo] or [ao].

If the presence of a root node in an empty V-position triggers the spreading of the non-dependent element from the following vowel, the only possible scenarios for lengthening of the complex XY-segments in (17a) and (17b) are those depicted in (19a) and (19b), respectively.

(19) a. b.

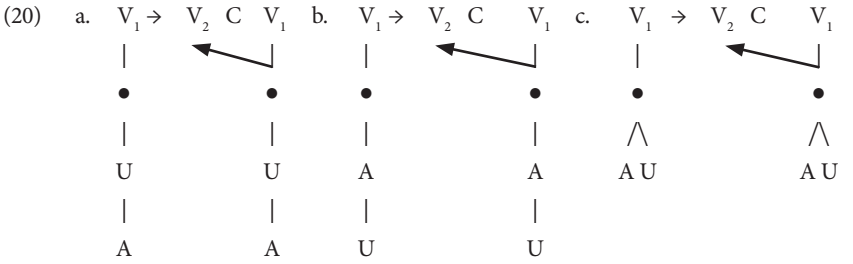


In fact, the derivations in (19) involve two reverse processes: both linking and delinking as well. Disconnecting of the bottom elements in (19) (indicated by dashed lines) follows from the dependence relation: since spreading of non-dependent elements entails spreading of those that are dependent on them, the embedded elements in (19) must be disconnected. As a consequence, lengthening of complex vowels goes hand in hand with a simplification of their melodic structure: thus, a change of their quality is expected.[16]

Summing up: differences among length alternations result from the underlying structures of particular vowels and/or the structure of the empty V-slots to which these vowels spread.

2.3.3 Mid-Vowel Length Alternations

How does the dependency model account for the morphemes that are involved in three different types of length alternations? From what has been said so far it follows that the pure lengthening of mid vowels (which are complex segments themselves) always includes the root-node spreading. Thus, in isolation, the pure lengthening of [o] to [oː] can be modelled in three different ways depicted in (20).



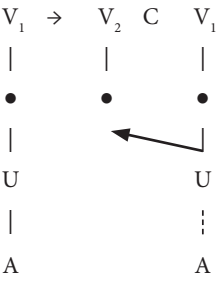
All possible scenarios for the *o*-to-*ó* lengthening in (20) are based on the same mechanism: the root node—a complex of two elements A and U—spreads to the preceding empty V-slot (V_2). The difference is in how these two elements are organized. Thus, it is either the A-dependent (20a) or the U-dependent segment that spreads (20b), or, finally, what spreads is a segment in which neither of the elements is dependent on the other, as in (20c). The result is always the same: regardless of a lexical structure associated with the mid vowel [o], the lexical

16 Note that there are also other approaches to melody dependency; see Ewen (1995) for an overview.

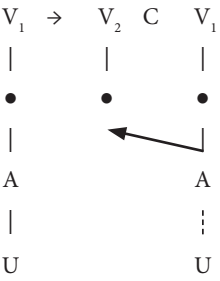
structure gets always preserved under the root-node spreading and the result is [o:]. In sum, the pure lengthening does neither indicate, nor exclude any underlying structure of the short vowel. The actual structure is only revealed in that qualitative lengthening, which involves spreading of individual, i.e., non-dependent elements.

Given the dependency relations between its elements A and U, there are two types of qualitative lengthening of [o] and both of them are shown in (21): the short mid back vowel [o] either raises to [u:] in (21a), or it lowers to [a:], as shown in(21b).

(21) a. [o] > [u:]



b. [o] > [a:]



(21) suggests a direct correspondence between the type of qualitative lengthening and the lexical structure of a particular vowel: the A-dependent mid vowel [o] lengthens to [u:], while the U-dependent mid vowel lengthens to [a:]. Moreover, both of them can lengthen to [o:]: in case the V-slot (the target of the melody-spreading) lacks its own root node; see (20a) and (20b) above. In sum, the proposed model derives the contrast between morphemes showing the alternations [o]~[u:] and [o]~[o:] on the one hand and those showing the alternations [o]~[a:] and [o]~[o:] on the other.

Let me now turn back to the examples introduced in (13a) (repeated below in (22)): a single morpheme—the root, in this case—is involved in both types of the qualitative length alternations with [o].

(22)	*kr[u:]č-ek*	*kr[a:]č-et*	*kr[o]k*
	'small step'	'to walk'	'a step'
	s-ch[u:]d-ek	*s-ch[a:]z-et*	*s-ch[o]d*
	'small stair'	'to step down'	'a step'

po-kl[uː]p-ek	*vy-kl[aː]p-ět*	*po-kl[o]p*
'small hatch'	'to dump'	'hatch'
tv[uː]r-ce	*vy-tv[aː]ř-et*	*vý-tv[o]r*
'creator'	'to create'	'creation'
str[uː]j-ce	*pře-str[aː]j-et*	*str[o]j-it*
'originator'	'to dress up (repeatedly)'	'to dress up'
kr[uː]p-ěj	*s-kr[aː]p-ět*	*kr[o]p-it*
'drop'	'to spray'	'to spray' (repeatedly)

So far I have been assuming that the qualitative lengthening yields different results depending on the lexical structure of the particular mid vowel. From this perspective, however, only one of the two long variants of the roots in (22) can be a result of phonological computation; the other one must be lexically stored. How to decide which of the two alternants, i.e., the raised [uː] or the lowered [aː], is lexically stored and which is derived?

A strong argument for the derivational account of the alternation [o]~[uː] is its distribution across different types of morphological contexts: the [o]~[uː] alternation is seen in roots (23a), in suffixes (23b) and in prefixes as well (23c). Thus, we can conclude that the underlying identity of a short mid back vowel [o] in Czech is a complex segment, in which A depends on U.

(23)	a.	*chob[o]t*	*chob[uː]t-ek*	'trunk, small trunk'
	b.	*muž-[o]v-a*	*muž-[uː]v*	'man's, Gsg, Nsg'
	c.	*pr[o]-nik-nout*	*pr[uː]-nik*	'to penetrate, a penetration'

Compared to [o]~[uː], the alternation [o]~[aː] is restricted only to a closed set of monosyllabic roots. This by itself might be an indicator of the lack of active phonological process in Czech that lowers (and lengthens) [o] to [aː]. Therefore, the long variants of the roots that show a low vowel [aː]—as in (22)—must thus be stored as independent lexical items. This conclusion complies precisely with our suggestion that all *o*'s in Czech are A-dependent segments. It, however, does not account for the fact that the low-vowel alternants are not distributed randomly, but follow a clear pattern. In particular, the appearance of the lengthened and lowered vowel [aː] in the root correlates with the iterative reading of that root. It is, therefore, possible to assume that both the length alternations, i.e., [o]~[uː] and [o]~[aː], result from phonological computation. Since the short vowel [o]

is an A-dependent segment, an additional mechanism needs to be invoked to derive the long [aː], a simplex A-segment. In what follows I propose that this additional mechanism might be a prosodic template.

In fact, to spell-out the iterative morphosyntactic structure as a result of a prosodic template has already been proposed by Scheer (2001, 2003, 2004a). Without going into details, the core idea of Scheer's proposal is that there is an iterative template comprising two morphological units, i.e., the verbal root and the so-called thematic suffix. This template, in turn, regulates the distribution of vowel length. In particular, monomoraic thematic suffixes, i.e., those consisting of a single short vowel, need to merge with bimoraic roots to satisfy the iterative-template restriction. Hence: if a verbal root such as /krok/ (and the others listed in (22)) contains a single short vowel, it has to lengthen when it merges with a short thematic vowel in the iterative context (i.e., with the *-e* in the case at hand). Suppose now, that the iterative template cares not only about the length of the vowels (as proposed by Scheer), but also about their quality, which, in turn, means that the *o*-to-*á* lowering is triggered by the insertion of the template into the morphosyntactic structure. The claim that the iterative template is responsible also for the vowel-quality change is supported by the fact that both vowels included in the templatic domain, i.e., the root vowel and the thematic vowel, change their articulation. This is illustrated by aspectual pairs in (24). The perfective verbs in the left-hand column contain roots showing a short mid vowel [o] followed by a high-vowel theme [i]. In their iterative cousins (on the right), long low vowels [aː] are followed by a short mid vowels [e].

(24)	perfective	iterative	
	po-kl[o]p-[i]-t	*po-kl[aː]p-[e]-t*	'to tilt'
	vy-tv[o]ř-[i]-t	*vy-tv[aː]ř-[e]-t*	'to create'
	o-t[o]č-[i]-t	*o-t[aː]č-[e]-t*	'to turn'
	s-kr[o]p-[i]-t	*s-kr[aː]p-[e]-t*	'to spray'
	pře-str[o]j-[i]-t	*pře-str[aː]j-[e]-t*	'to dress up'

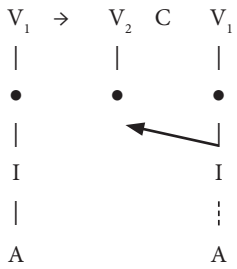
Both vowels in the iterative domain share a piece of their internal structure, i.e., an A-element. From this perspective, the perfectives differ from the iteratives: the root vowel [o], corresponding to a complex UA-segment, and the theme vowel [i], corresponding to a simplex I-segment, do not share any element. The iterative template thus might be seen as a vowel-harmony domain with an extension of the A-element. In particular, the contrast between UA-segment in the perfective root and A-segment in its iterative cousin might be taken as strengthening

of the A-element in the iterative context. And, similarly, the contrast between the perfective and the iterative theme, i.e., I-segment and IA-segment, respectively, might be interpreted as the addition of an A-segment.[17] I leave the implementation of this idea for future research. For our purposes, it is important to note that there is a systematic connection between particular types of vowel length alternations and morphosyntactic contexts, in which they participate. And that these cases of length alternations can arise from a phonological computation.

I established that the mid back vowel [o] alternates with a long [uː] and this alternation is a default. This, in turn, means that [o] corresponds to a complex segment, in which A is dependent on U. Since the mid front vowel [e] alternates typically with [iː], as illustrated in (25), we might want to apply the same logic as in the previous case and claim that [e] corresponds to a complex segment, in which A is dependent on I. The *e*-to-*í* lengthening is depicted in (26).[18]

(25)	a.	*parap[e]t*	*parap[iː]t-ek*	'a sill, a small sill'
	b.	*uči-t[e]l*	*uči-t[iː]l-ek*	'a teacher, a small teacher'

(26) [e] > [iː]



To conclude: I align differences in length alternations to three different sources (and their combinations): (i) the underlying structures of particular vowels (only non-dependent melodic elements can spread individually), (ii) the structure of the empty V-slots, to which these vowels spread (the individual-element

17 Note that Cyran (2010) identifies a similar kind of interaction between root vowels and thematic vowels in Polish. In particular, Cyran shows that a short mid vowel [o] alternates with a short low vowel [a], if a verbal root is merged with a low-vowel theme. Also he explains this pattern as arising from a prosodic template.

18 The assumption that the mid front vowel is an A-dependent segment is further supported by the fact that lexically long *e*'s often change to long *i*'s in the colloquial speech. For example, *ml[eː]ko* 'milk' is spelled as *ml[iː]ko* and so on.

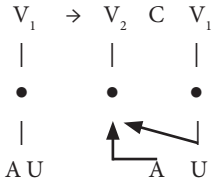
spreading targets only root nodes), (iii) the phonological structure of the lexical item, which the particular morpheme is merged with (the *o*-to-*á* lowering is triggered by the merger with the iterative template). Before discussing morphemic length alternations in more detail, we turn to *u*-to-*ou* diphthongization that we identify as a special subtype of the qualitative lengthening.

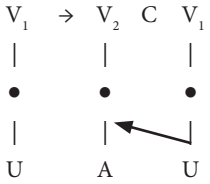
2.3.4 Diphthongal Length Alternations

As I have already mentioned, the high back vowel [u] has two long counterparts: [u:] and [ou]. The long [u:] is a simplex vowel, similarly as to its short cousin. It might be represented either as in (27a) or as in (27b). The falling diphthong [ou], on the other hand, is more complex melodically. Its structure is shown in (27c): the element U is shared by both segments of the diphthong and, in addition, the first segment has an extra A-element. As a consequence, the U-element is interpreted twice in (27c): in the V_1—where it corresponds to [u]—and in the V_2 (that precedes it), in which it is merged with the A-element and the merger of U and A corresponds to a mid vowel [o].

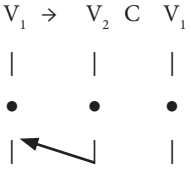
(27) a. V_2 C V_1 ↔ [u:] b. V_2 C V_1 ↔ [u:] c. V_2 C V_1 ↔ [ou]

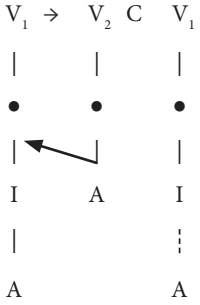
If the diphthong [ou] has the structure as in (27c), then the *u*-to-*ou* lengthening, seen for example in the diminutive context (cf. *kl[u]k – kl[ou]č-ek* 'boy, small boy'), must involve linking of two elements, i.e., U and A. There are two possibilities of how to interpret the linking of the A-element: it is either a part of the short vowel [u] or it belongs to the V-slot, which this vowel spreads to. The first scenario is depicted in (28a): the short vowel [u] is a complex UA-segment lexically, but only one of the two elements (i.e., U) is lexically associated with the root node. The lengthening, then, involves a spreading of both the lexically associated U-element and the lexically floating A-element. The second possible scenario in (28b) suggests that the A-element is a part of the V-slot, to which the simplex U-segment spreads.

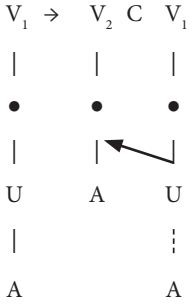
(28) a. 

b. 

To decide which of the two approaches to the *u*-to-*ou* diphthongization is more plausible, we have to consider the identity of the V-slot, to which the short vowel spreads. In what follows, I argue that lengthening of base vowels in diminutives is induced by a prosodic affix. Under this assumption, the target of the melody spreading, i.e., the V_2 in (28), and the short vowel (V_1) belong to two distinct lexical items. If the *u*-to-*ou* lengthening follows the derivation in (28b), the diminutive prosodic affix must be an A-segment underlyingly. In (29), I apply the proposal to a high front vowel [i] and mid vowels [e] and [o].

(29) a. 

b. 

c. 

Triggered by the insertion of the diminutive A-segment, the lengthening of the front vowels, i.e., the high [i] and the mid [e], yields a falling diphthong [ei] in (29a) and (29b). In (29c), the mid back vowel [o] undergoes a diphthongization as well: the result is [ou]. However, only bases containing the high back [u] diphthongize in the diminutive context: bases with [i] undergo pure lengthening and those with mid vowels undergo raising in diminutives, as illustrated in the table below.

(30)	a.	*hř[i]b*	*hř[iː]b-ek*	'boletus'
	b.	*žl[e]b*	*žl[iː]b-e*k	'valley'
	c.	*hr[o]b*	*hr[uː]b-e*k	'grave'

In sum, the V-slot involved in the diminutive prosodic affix is melodically empty. It is provided with a root node and the root node then accommodates non-dependent elements of a particular short vowel. Since the short high back vowel [u] contains two such elements, i.e., the lexically associated U and floating A, both of them are linked to the preceding V-slot. As a consequence, the falling diphthong [ou] is derived.

Furthermore, the length alternations with the high back vowel, i.e., [u]~[ou] and [u]~[u:], do not overlap (as opposed to the alternations with [o] discussed above): I am not aware of any morpheme that shows both of the alternations. The contrast between *u*'s that alternate with [u:] and that alternating with the diphthong thus can be encoded lexically: the former are stored as simplex U-segments, the latter are stored with a floating A-element in addition.

The next section elaborates on the idea that vowel-length alternations can be induced by prosodic affixes and that these prosodic affixes are parts of the morphosyntactic structure.

2.4 Morphemic Length Alternations: Prosodic Affixes

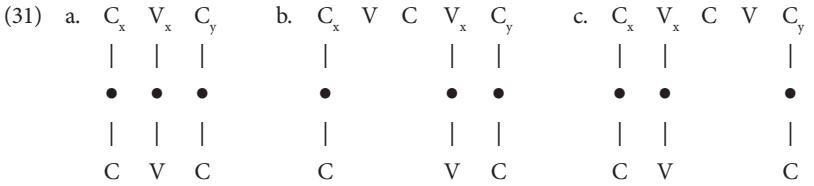
As has been argued in the literature, e.g. Davis & Ueda (2002), Bye & Svenonius (2012), Trommer & Zimmermann (2014), *inter alia*, morphosyntactically determined manipulation with prosodic features such as vowel length or tone can be effectively reduced to affixation of phonologically incomplete lexical items; that is items whose phonological representation consists of floating segmental features or empty pieces of prosodic structure. Then, phonetic interpretability of such items depends on their integration into the phonological structure of morphemes to which they concatenate. Building on this general idea, I argue that also some instances of vowel-length manipulation in Czech arise from the prosodic affixation when an empty V-slot is inserted next to a lexically short vowel in order to spell out a part of the morphosyntactic structure. Before developing an analysis of particular cases of the prosodic affixation in chapters 3 and 4, let me first show how the lexical shape of the prosodic affix determines its merger with the underlying short vowel.

Up to now, I have been assuming that derivation of long vowels involves leftward spreading of either individual elements or entire root nodes. However, as I have already mentioned, processes operating on the melodic level can in general work in both directions (as opposed to government and licensing, i.e., relations holding among prosodic units, that work only regressively). The null hypothesis is that this also holds for melody spreading. As a consequence, right-branching long vowels are expected to exist, where targets of spreading follow the source.

Given that lexically short vowels can lengthen to both directions, prosodic affixes of two shapes, i.e., VC and CV, can exist. This prediction is depicted in (31).

There is a root in (31a) whose phonological structure is made of three segments: a short vowel and two consonants and these segments are arranged into the CVC-shape. In (31b), the root is merged with a VC-affix (shaded in the diagram), which actually means that the prosodic structure in the left-hand side of root's vowel is extended. By contrast, the merger of a CV-affix in (31c) leads to the prosodic extension to the right of the root vowel. In sum, the VC-affix in (31a) induces leftward spreading of the short vowel (V_X) and the CV-affix its rightward spreading (31b). (Note that the prosodic affixes of both prosodic shapes can further differ in their content: they are either provided with root nodes or not, and/or they can contain floating melodic features.)

(31)



Let me now explore two predictions of the proposal above. The first prediction concerns the way how prosodic affixes are integrated into the phonological structure of morphemes which they merge with. Since prosodic structure is represented as a sequence of alternating C-slots and V-slots, then the lexical shape of the prosodic affix determines unambiguously its position with respect to the short vowel: VC-affixes are "prefixed" to it, CV-affixes, on the other hand, are "suffixed". This is an advantage of the Strict CV approach to vowel lengthening compared to a moraic one (see e.g. Hayes 1989): a mora as a prosodic unit has no underlying structure, and, thus, moraic affixes that trigger lengthening of short vowels, are in general ambiguous between suffixes and prefixes. To avoid the prefix—suffix ambiguity of moraic morphemes, diacritic marks are typically used in their representation; for example Trommer & Zimmermann (2014) represent suffixal and prefixal moras as /-μ/ and /μ-/ respectively, using traditional hyphens as diacritics, thus, without a phonological content *per se*.

In the proposed model, the position of prosodic affixes with respect to affected short vowels is fully predictable from their *phonological* structure. At the same time, the phonological difference between VC- and CV-affixes itself does not indicate their position within polysyllabic strings. In other words, if a morpheme

to which a lengthening affix is concatenated contains several short vowels, we need to specify to which of them it should be prefixed or suffixed.

The idea that position of affixes with respect to their morphological bases can be phonologically unpredictable, is elaborated in Yu (2003). He analyzes infixation from a cross-linguistic perspective and develops a typology of phonological positions to which infixes can be associated. These prosodic anchors typically include peripheral or prosodically prominent segments of morphological bases that undergo infixation. However, Yu (2003) shows rather convincingly that in many cases, a particular connection between an affix and its anchor simply cannot be predicted from the general phonological properties of a given language, and, thus, it must be lexically encoded.

The existence of affix-specific prosodic anchors can be illustrated in an illuminating way in the following example from Czech. There is a bisyllabic root 'stone' and both its vowels alternate in length. The first vowel of the root is long only in the nominative/accusative singular context, as shown in the upper part of the leftmost column in table (32); in all other appearances, including the rest of the declensional paradigm and the derivatives of various types (the third column of the table), the first vowel is a short [a]. The second vowel of the root is a short [e], except in the diminutive form, in which it is replaced by its long cousin [iː], i.e., *kam[iː]n-ek*.

(32)

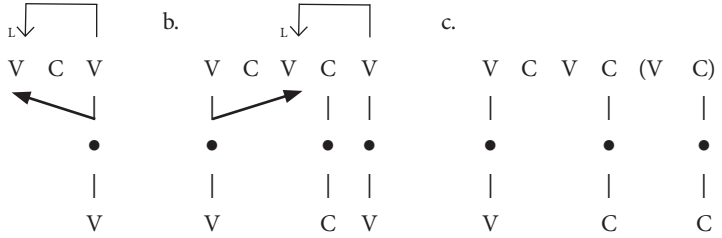
	Sg	Pl		
N	*k[aː]men*	*k[a]men-y*	*k[a]men-í*	'mass of stones'
A	*k[aː]men*	*k[a]men-y*	*k[a]men-ný*	'stony'
G	*k[a]men-e*	*k[a]men-ů*	*k[a]men-ík*	'stonemason'
D	*k[a]men-i*	*k[a]men-ům*	*k[a]men-olom*	'quarry'
L	*k[a]men-i*	*k[a]men-ech*		
I	*k[a]men-em*	*k[a]men-y*	*k[a]m[iː]n-ek*	'small stone'

Given the morphosyntactic distribution of the long variants of the root, it is plausible to assume that they arise from the merger of two lexically distinct prosodic affixes, each being associated with a particular piece of the morphosyntactic structure. Further arguments supporting this assumption are provided in chapter 4, which primarily focuses on length alternations in diminutives. What is relevant at this point is that the "inflectional" affix and the "diminutive" affix must be lexically specified for different prosodic anchors to ensure that the first one induces lengthening of the first syllable, while the second one the second syllable of the root.

The second prediction of the contrast between VC-affixes on the one hand and CV-affixes on the other concerns the phonological behavior of long vowels derived by them. In particular, lengthening induced by the merger of CV-affixes is predicted to be sensitive to the phonological context to the right of the given short vowel. By contrast, insertion of the VC-affix provokes lengthening of a short vowel, irrespective of its phonological context. This prediction stems from the claim that short vowels (or to be more precise, their individual elements or entire root nodes) can spread only to licensed V-slots.

When a VC-affix is merged, a short vowel itself licenses the inserted V-slot, which actually means that the vowel automatically lengthens; this scenario is depicted in (33a). The merger of a CV-affix, on the other hand, calls for external licensing (because it operates only regressively). In (33b), the licensing comes from the V-slot that immediately follows the inserted prosodic affix and that is associated with a melodic level. If there is no such a V-slot available, as in (33c), affix's empty V-position is not licensed and the short vowel therefore does not lengthen. Put it in more conventional terms, insertion of the CV-affix leads to vowel lengthening in open syllables (33b), but not in closed syllables (33c).

(33)



Both types of long vowels, i.e., left-branching and right-branching, have already been proposed by Scheer (2004:267f.).[19] In Scheer's model, however, the direction of branching distinguishes between non-alternating lexically long vowels and those that are involved in length alternations: left-branching vowels, being self-licensors, are invariably long—as opposed to their right-branching cousins that alternate between long and short, depending whether they are followed by proper licensors or not.

At the first sight, Scheer's account to vowel length seems to contradict the model proposed here when also left-branching long vowels can arise from

19 Note that in Scheer's terminology *left-branching* and *right-branching* vowels are called *head-final* and *head-initial*, respectively.

phonological computation, i.e., from lengthening of lexically short vowels, based on melody-spreading to the licensed position. By contrast, in Scheer's model, left-branching structures represent long vowels that have been already stored in the lexicon. However, Scheer in fact also assumes that left-branching representations involve melody-spreading. The only difference between Scheer's proposal and my proposal is the origin of the V-slot targeted by the leftward spreading. In other words, if both the licensor and the licensee are part of the same lexical entry, then leftward melody-spreading is established already in the lexicon—and that actually means that the morpheme in hand shows a long vowel when inserted into a syntactic structure. On the other hand, if the licensor and the licensee belong to two separate morphemes, then the leftward melody-spreading is triggered only *after* the merger of the two lexical items and then, the licensor is a lexically short vowel, while the licensee is an empty V-slot.

It should be noted that Scheer (2004:251) explicitly states that he does not deal with those cases, in which the vowel length has a morphemic status. Nevertheless, he suggests a solution somewhat similar to my proposal: the right-hand V-slot can either be lexically present—or not. The presence of the right-hand licensee in the lexical representation of a given morpheme differentiates between two length-manipulating processes: *closed syllable shortening* and *tonic lengthening* (the latter targets stressed vowels in open syllables). Thus, in Scheer's model, there is a single mechanism underlying both of these (rather opposite) processes—a spreading of vowel melody onto the licensed V-slot. The only difference is the origin of the licensee: the empty V-slot either originates due to stress (in tonic lengthening) or it is already present in the lexical entry (in closed syllable shortening). In both cases, the lexically associated vowel spreads to an empty V-slot. This empty prosodic position, then, either materializes as stress—in this case, its presence arises from an insertion in the phonological component—or the empty prosodic position lexically encodes a vowel that alternates in length depending on the syllabic context to its right. (Note that viewed from this perspective, the term *closed syllable shortening* is rather misleading because *shortening* of long vowels normally involves *delinking* of one of their two prosodic positions: however, as we can see in (33c), derivation of the short vowel alternant does not involve melody delinking, but rather "melody non-spreading").

Summing up, I propose that vowel lengthening can work in two directions which distinguish between syllable-sensitive length alternations and those that are independent of the syllable context: the latter involve leftward lengthening, the former the rightward one. I furthermore propose that both types can arise from merger of prosodic affixes. This, in turn, means that the lexical shape of the

prosodic affix itself, i.e., VC vs. CV, determines whether the short vowel, which the particular affix is concatenated to, would lengthen automatically or depending on its syllable environment. In next two chapters I argue that both types of prosodic affixes, hence both types of morphemic lengthening, exist in Czech.

3. Length in Hypocoristics

This chapter is devoted to derivation of hypocoristics. There are two formal processes involved in their derivation: truncation of a base to one syllable and lengthening of its vowel. I argue that both processes have morphemic status: each realizes a certain part of the hypocoristic morphosyntactic structure. Following the central ideas of the theory of Nanosyntax (Caha 2009, Starke 2009), I propose that the two components of the hypocoristic meaning identified in the literature, i.e., familiarity and closeness, are encoded syntactically as two hierarchically ordered projections. Each of them has its own spell-out: the familiarity projection is spelled out as a prosodic template that triggers truncation when applied to a root; the closeness projection, on the other hand, is spelled out by a prosodic affix inserted into the root, so that its insertion lengthens the root's vowel. Using Strict CV phonological representations (introduced in the previous chapters), I argue that the prosodic affix is of the VC-shape, and that moreover, the VC-affix is empty of the root node: that then means that the whole base-vowel melody spreads. As a consequence, hypocoristics expressing closeness have lengthened vowels whose quality does not differ from their short cousins.

3.1 The Basic Phonological Pattern

Let us start with data in table (1). The table compares hypocoristic forms of masculine first names (in the right part of the table) with their basic, i.e., "pragmatically-neutral", forms (on the left). Ignoring the ending of the hypocoristics for now, two processes manipulating phonological structure can be identified: truncation and—last but not least—the process which is of prime interest to us, i.e. vowel lengthening. The hypocoristics have no special suffix, since the final vowel [a] found across all hypocoristics is an inflectional marker expressing case and number features. I will return to this morpheme later when discussing Bethin's (2003) templatic analysis of *a*-final hypocoristics in Czech. Because of the lack of a suffix, I will call this group suffix-less hypocoristics.

(1)		first name	hypocoristic form
	i > iː	*F[i]lip*	*F[iː]l-a*
	u > uː	*D[u]šan*	*D[uː]š-a*
	e > eː	*Kl[e]ment*	*Kl[eː]m-a*
	o > oː	*Br[o]nislav*	*Br[oː]ň-a*
	a > aː	*J[a]roslav*	*J[aː]r-a*

From the perspective of the proposed account of vowel length, in which lengthening is induced by extension of the prosodic structure in close proximity of the affected vowel, we need to find answers to the three following questions: 1. What type of an empty V-slot is inserted in hypocoristics? 2. Is it inserted to the left of the root vowel or to its right? 3. What is the origin of the inserted material? In other words, does the vowel length in hypocoristics have a morphemic status?

The answer to the first question comes out clearly from the first column in table (1): the mid vowels do not undergo raising when lengthened. More examples illustrating this are provided in (2).

(2)		first name	hypocoristic form
	a.	*P[e]tr*	*P[eː]ť-a*
		Bř[e]tislav	*Bř[eː]ť-a*
		M[e]toděj	*M[eː]ť-a*
	b.	*B[o]humil*	*B[oː]ž-a*
		Ant[o]nín	*T[oː]ň-a*
		M[o]nik-a	*M[oː]ň-a*

Given the examples above, we can conclude that the lengthening in the hypocoristics involves the spreading of the entire root node while the whole internal structure of the lengthened segment is preserved, i.e., all its elements and also dependency relations still hold among them. As a consequence, neither raising nor other vowel-quality changing processes are triggered. To sum up: the V-slot, inserted during hypocoristic derivation, which is a target of the root-node spreading, is empty of any prosodic structure lexically.[20]

Let me now turn to the other two abovementioned questions concerning vowel length in hypocoristics. These can only be answered on basis of a closer examination of their morphological properties.

Recall that if an empty V-slot were to be inserted to the right of the given vowel, the lengthening should be syllable-sensitive. At the first sight, this is exactly

20 Originally, mid vowels rose to high even in hypocoristics; see e.g. Svoboda (1964). Synchronically, the raised forms like *T[uː]m-a* (from *T[o]máš*) or *Kl[iː]m-a* (from *Kl[e]ment*) are not hypocoristics, but serve as official surnames. In the proposed model, the diachronic change from qualitative change to pure lengthening is the change in the lexical representation of the prosodic morpheme which realizes a given part of the hypocoristic structure. In particular, the change consists of simplification of the prosodic structure which loses the root-node in the empty V-slot.

what we see in (3), where a new type of hypocoristic is introduced. This new type is given in the last column and it exhibits the suffix *-d*. In the middle column, there is the old type of suffix-less hypocoristics, and in the first column the bases are listed. There are thus five pairs of hypocoristics, each derived from the same first name.

(3)	full name	lengthened hypocoristic	*d*-suffixed hypocoristic
	M[i]lan	*M[iː]l-a*	*M[i]l-d-a*
	J[u]lius	*J[uː]l-a*	*J[u]l-d-a*
	Př[e]mysl	*Př[eː]m-a*	*Př[e]m-d-a*
	Ant[o]nín	*T[oː]ň-a*	*T[o]n-d-a*
	J[a]roslav	*J[aː]r-a*	*J[a]r-d-a*

The table reveals a striking pattern: lengthening is triggered only when the case marking vowel [a] is adjacent to the truncated root; if these two morphemes are separated by a consonantal suffix *-d*, the root vowel remains short. In other words, quantity of the root vowel seems to be dependent on a number of consonants that follow it: presence of one consonant correlates with vowel length, presence of two consonants with its shortness.

In sum, lengthening seems to be triggered only in open syllables (*Já.ra*); in closed syllables, i.e., when the suffix *-d* appears after the root, it is blocked (*Jar.da*).

3.2 Bethin's (2003) Templatic Analysis

Bethin (2003) analyzes the patterns shown above within an Optimality Theory framework. Her main claim links vowel length alternation in hypocoristics to a set of size-restricting prosodic constraints associated with hypocoristics as a particular morphosyntactic category. Hence, these constraints derive (what we might call) a "hypocoristic template".

In hypocoristics (still following Bethin 2003), a prosodic word must completely coincide with a metrical foot, which, by force, is bisyllabic. This is a reason why polysyllabic bases such as *Jaroslav* are truncated to a single syllable. The second syllable, required by the hypocoristic template, is added by the vocalic suffix *-a*. Furthermore, to capture the complementary distribution of vowel length and the consonantal suffix, Bethin (2003) postulates a weight-restricting constraint: one of the two syllables must be heavy, i.e., bimoraic. In the *d*-suffixed forms, the first syllable is heavy due to a weight-by-position: the first syllable in *Jar.da* (and other hypocoristics of this type, as shown in the right-most column in table (3)) is closed by a coda consonant contributing to the syllable weight,

hence, the first syllable counts as moraic. By contrast, in forms like *Já.ra* (those without the consonantal suffix), both syllables are open: thus, by lengthening the stem vowel, a required heavy syllable is created (under the generally accepted assumption that long vowels are prosodically heavy by default). In other words, the first syllable of both the suffix-less and the *d*-suffixed hypocoristic is heavy: it is heavy due to the vowel length ($Já_{\mu\mu}.ra$) or due to the coda ($Ja_{\mu}r_{\mu}.da$).[21]

Hence, Czech follows the cross-linguistically strong trend for hypocoristics: a fixed prosodic size. Therefore, truncation of morphological bases seems to be a rather common way languages use to fit a given prosodic template, as illustrated in table (4) by examples from English and Japanese.[22]

(4) Hypocoristic truncation in English and Japanese (Akasaka & Tateishi 2001)

	base	hypocoristic
English	*Pamela*	*Pam*
	Elisabeth	*Beth*
	Jeffrey	*Jeff*
Japanese	*Saburo*	*Saa-chan, Sabu-chan*
	Haruka	*Haa-chan, Haru-chan*
	Hiroshi	*Hii-san, Hiro-san*

The Japanese examples show that templatic restrictions can control also prosodic size of proper morphological subparts of hypocoristics. As pointed out by Akasaka & Tateishi (2001:12), the vocative suffixes *-chan* and *-san* stand outside the templatic domain; hence it is only the prosodic size of the root that is restricted. As we can see in (4), the full first names are truncated either to one syllable—or two; in the former case, vowel lengthening is triggered in order to satisfy the bimoraic template.

In sum, hypocoristic formation in Japanese involves the same phonological processes that we have seen in Czech: truncation and vowel lengthening. Both of these processes have been interpreted as a consequence of the weight-restricting constraints associated with this particular morphosyntactic category. The

21 One can, of course, ask why it is the first syllable—and not the second one—that gets always lengthened. Bethin (2003) explains it by pointing to a general Czech tendency to trochaic feet.

22 As pointed out by Alber & Arndt-Lappe (2012), this output-oriented truncation must be distinguished from what is usually called *subtractive morphology*: it refers to a phenomenon, when a deleted phonological material is of the fixed prosodic structure.

variable, then, is the size of the morphological domain to which these constrains should be applied. According to Akasaka & Tateishi (2001), in Japanese, this domain is just the root and its weight must be exactly two moras. By contrast, Bethin's (2003) analysis of Czech considers the templatic domain to be the root plus all suffixes that follow it.

What remains rather problematic is that the root-following suffixes include inflectional markers, specifically portmanteau morphemes of case and number. For instance, the suffix *-a*—seen both in the suffix-less forms (*Jár-a*) and the *d*-suffixed forms (*Jard-a*)—is an inflectional marker for features denoting nominative case and singular number. If it contributes to the templatic domain (Bethin's crucial assumption), then root-vowel lengthening required to create a bimoraic syllable, should be triggered only in the context of prosodically light endings, i.e., only before short vowels. In other words, under Bethin's analysis, root length alternations are expected to occur when the suffix is *-a* (the nominative singular suffix [a] is light, hence, the root vowel lengthens), but not when the suffix is *-ů* (the genitive plural suffix [uː] is heavy, hence, the short root vowel). But as is illustrated in table (5), this prediction is wrong: all inflectional forms of hypocoristics have lengthened roots—regardless of the prosodic size of the ending. Notice, in particular, the two middle columns: the lengthening occurs even before diphthongal and long-vowel endings, both of which are bimoraic. Moreover, nominative plural forms (in the right-most column, ending in *-ov-é*), violate systematically everything Bethin (2003) postulates: not only is the one-heavy-syllable constraint violated, but so is the bisyllabic one.

(5)	VV-[a] (Nsg)	VV-[ou] (Isg)	VV-[uː] (Gpl)	VV-ov-[eː] (Npl)
	M[iː]l-a	*M[iː]l-ou*	*M[iː]l-ů*	*M[iː]l-ov-é*
	J[uː]l-a	*J[uː]l-ou*	*J[uː]l-ů*	*J[uː]l-ov-é*
	Př[eː]m-a	*Př[eː]m-ou*	*Př[eː]m-ů*	*Př[eː]m-ov-é*
	T[oː]ň-a	*T[oː]ň-ou*	*T[oː]ň-ů*	*T[oː]ň-ov-é*
	J[aː]r-a	*J[aː]r-ou*	*J[aː]r-ů*	*J[aː]r-ov-é*

To conclude: Bethin's analysis of hypocoristics based on the prosodic constraints that count both the number of syllables and their weight, works only for inflected forms derived by one-short-vowel endings. But in reality, only five out of the twelve paradigm cells (i.e., combinations of six cases and two numbers) contain a single short vowel; in other words, most of the hypocoristic forms predicted as ungrammatical by Bethin (2003) are in fact perfectly natural (and clearly grammatical).

Furthermore, Bethin (2003) ascribes the absence of lengthening in *d*-suffixed forms to the presence of root-final (moraic) codas. It is well-known from the literature that weight-by-position has a parametric character (cf. Hayes 1989, Rosenthall & van der Hulst 1999, *inter alia*). However, even according to Bethin (2003:64), treating codas as weight-bearing is "something which is otherwise not characteristics of Czech phonology". Moreover, the moraicity of codas is claimed to be sensitive to phonological properties rather than to morphological categories: the relevant factors cross-linguistically are the quality of the coda consonant (sonorant vs. obstruent) or its position within a string (internal vs. final coda); on the other hand, information about the codas' morphological context does not seem to play any role at all; it is of no consequence whether the codas appear in a hypocoristic or, for example, a present tense context.

However, even if we admit that the weight-by-position is applied selectively to hypocoristics (as claimed by Bethin 2003), the crucial problem is that codas should be moraic not only in the *d*-suffixed forms, but also in suffix-less hypocoristics with roots ending in a cluster. In other words, the weight-based approach predicts that lengthening does not take place in such forms, and consequently, it cannot explain the existence of forms such as those listed in (6): here, the lengthening is triggered before root-internal codas and, thus, trimoraic initial syllables are produced.[23]

(6)	full name	hypocoristic
	[a]rtur	*[aː]$_{\mu\mu}$r$_{\mu}$.ťa*
	B[a]rtoloměj	*B[aː]$_{\mu\mu}$r$_{\mu}$.ťa*
	M[a]rtin	*M[aː]$_{\mu\mu}$r$_{\mu}$.ťa*

Summing up: the data presented in table (5) suggest that the templatic domain does not cover the whole hypocoristic morphological structure—but only a subpart of it (similarly to Japanese). I elaborate on this idea in the next section: specifically, I argue that the hypocoristic template scopes just over the root and its main goal is to make it monosyllabic. Furthermore, I argue that the root-vowel length is not templatic, as suggested by the data in (6). Rather, I claim that length arises from insertion of a prosodic VC-affix, a part of the hypocoristic meaning.

23 It is fair to say that some suffix-less hypocoristics may exhibit length variation. For instance, *Martin* has two hypocoristic forms: a long *M[aː]rťa* and a short *M[a]rťa*. Such variation is discussed further on.

Thus, the complementary distribution between lengthening and segmental suffixation is a consequence of their distinct morphosyntactic structures.

3.3 Decomposing the Hypocoristics

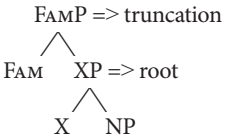
Alber & Arndt-Lappe (2012), following Schneider (2003), identify two main pragmatic functions of hypocoristics: one is to mark the speaker's familiarity with the referent, the other is to signal a close relationship between the speech-act participants. They argue that in English, these two pragmatic functions are marked by different means: monosyllabic truncations such as *Tom* (from *Thomas*) express just familiarity, bisyllabic [i]-ending truncations such as *Tommy*, on the other hand, are signal a particularly close relationship.[24]

Following a cartographic approach (Cinque & Rizzi 2009), I assume that the two formally identifiable components of the hypocoristic meaning correspond to two syntactic features, i.e., FAM (= familiarity) and CLS (= closeness), which (rather than bundled together) are organized in an implicational hierarchy. Specifically, there is a containment relation between the two hypocoristic forms: the bisyllabic truncation *Tomm-y* contains the monosyllabic one *Tom*. By the logic of the cartographic approach, I take the containment of the forms to indicate an actual containment in terms of the syntactic structure, which leads to the hierarchy CLS>FAM. This hierarchy, a part of the hypocoristic functional sequence, says that the familiarity meaning (encoded syntactically in the FAM-head) is present in both the familiarity-expressing hypocoristics and those expressing closeness.

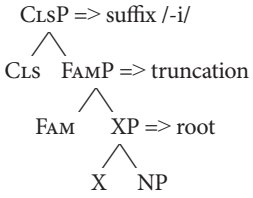
The proposal is depicted in (7) below. Here I show the syntactic structures of both types of hypocoristics, i.e., the *Tom*-type in (7a) and the *Tommy*-type in (7b). In describing the structures, I am ignoring the arrows for the time being, and I come back to their meaning later. Both structures contain an XP, which is a complement of the FAM-head in (7). The XP stands for a sequence of projections included in the syntactic structure of the first name, all of it bottoming out in a nominal-root phrase (NP). The internal structure of the XP (or, to be more precise, its highest part encoding gender features), is discussed later on, when we focus on the morphosyntactic properties of different types of hypocoristics in Czech. Both forms also contain a FAM-head, and the hypocoristic expressing a close relationship has in addition (the closeness-expressing) CLS-head on top of the FAM-head.

24 Note that the doubling of the root-final consonant is of no phonological relevance here.

(7) a. *Tom*-type hypocoristic



b. *Tommy*-type hypocoristic



The double arrows in the figures in (7) represent spell-out. Both the familiarity-expressing form *Tom* and the closeness-expressing *Tommy* involve truncation of the full root to a single syllable. This, then, indicates that the truncation is triggered during the spell-out of the FamP, the projection of the "familiarity" feature. The arrow is placed at the phrasal node (rather than at the terminal), which indicates that the truncation applies to the material contained in this phrasal node (i.e., *Thomas*); I come back to this in some detail later. The "closeness" feature, present in the hypocoristic *Tommy*, is spelled out by the suffix /-i/, then.

Summing up, the proposal in (7) says that both of the formal processes involved in derivation of hypocoristics in English, i.e., truncation and suffixation, have morphemic status—each spells out a particular part of the morphosyntactic structure.

Let us now take a closer look at the spell-out mechanism, only roughly sketched in (7). Technically speaking, spell-out is nothing else than insertion of an appropriate lexical material into the syntactic structure. I use the term "appropriate" in the sense of the theory of Nanosyntax: a given lexical item can spell out the syntactic structure equal to the size of that item—or smaller than it; the procedure that "matches" the sizes of the syntactic structure stored in lexical items and those generated by the grammar is known as the Superset Principle (Caha 2009, Starke 2009, 2014). In other words, lexical items realize syntactic constituents of various sizes provided that the syntactic tree is contained inside the lexical item. From this perspective, the particular double arrows in (7) indicate spell-out by the following three lexical entries.

(8) a. </tɒməs/, [$_{XP}$ X ...[$_{NP}$ N]]>

b. </CVC/, [$_{FamP}$ Fam [$_{XP}$ X ...[$_{NP}$ N]]]>

c. </-i/, [$_{ClsP}$ Cls]>

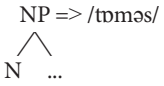
The lexical entry for the first-name root /tɒməs/ in (8a) is an ordered pair that puts together the relevant phonology with the sequence of projections that start

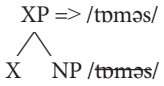
from the nominal root projection, i.e., the NP, and end in the XP; recall that XP stands for a sequence of projections included in the first-name syntactic structure. (According to the Superset Principle, the form /tɒməs/ can spell out either the NP alone, or the entire structure comprised by the NP and the XP—and, also, any syntactic subconstituent of the XP.) (8c) is a lexical entry for the suffix /-i/ that marks the closeness feature; this morpheme is added to the truncated root. The root will have to extract to the left from within the ClsP, movement that is ignored in (7b). After the movement, ClsP contains only the feature ClsP, and so there is a perfect match between that structure and (8c).

The entry in (8b) differs phonologically from the two others. It represents a morpheme which is responsible for the truncation of the bisyllabic form /tɒməs/ to the monosyllabic form /tom/. This "truncating" morpheme is lexically associated with the syntactic constituent of the FamP (and all the other projections dominated by it) which actually means that the truncation is applied to the form which spells out a sister of the Fam-node. On the phonological side, the entry in (8b) contains an empty CVC-string. This representation expresses the fact that the hypocoristic truncation is an output-oriented phonological process: hypocoristic roots fit the CVC-template. Such "materialization" of morphologically triggered phonological processes is one of the main contributions of autosegmental phonology since McCarthy's (1979) dissertation on Semitic templates. In this particular case, the truncation is "materialized" as an empty prosodic template which expresses the familiarity meaning. Furthermore, the lexical entry in (8b) is in accordance with the hypothesis that morphological units relevant to templatic domains correspond to particular constituents of the morphosyntactic structure; see e.g. Hyman & Inkelas (1997) or Inkelas & Zoll (2005).

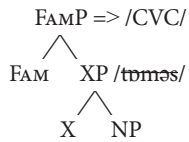
Let us now put the pieces in (7) and (8) together. Before doing it, we must emphasize one important aspect of Nanosyntax: spell-out proceeds both cyclically and from the bottom up. Cyclicity means that each syntactic Merge triggers a search in the lexicon for an appropriate lexical item (in the sense of the Superset Principle). If such an item is found, the particular phrasal node is spelled out, i.e., it receives the phonological information encoded in the given lexical entry. In the next step, Merge creates a one-feature bigger syntactic constituent and, subsequently, the lexicon is consulted again. If an appropriate item is found (i.e., a lexical item whose syntactic structure includes the structure of this newly created constituent), the (new) phonological material is inserted and this newly inserted phonological material then overwrites the phonological material inserted in the previous Merge-and-spell-out step.

To illustrate the cyclic nature of the spell-out, let us go back to the two possible syntactic structures of hypocoristic in (7) and their corresponding lexical entries in (8). After the Merge of the NP, the spell-out is triggered and /tɒməs/ is inserted, as depicted in (9a).[25] In the next step, the XP matching the syntactic structure in the entry in (8a) is created by Merge; the form /tɒməs/ is thus re-inserted, as in (9b) (technically speaking, the form /tɒməs/ inserted in the NP is overwritten by the form /tɒməs/ inserted during the spell-out of the XP).

(9) a. 

b. 

Once the XP has been built in (9b), FAMP is built in the next step. Since the lexicon contains the entry (8b) and since the syntactic structure of that entry matches the structure of the FAMP, the previous spell-out is overwritten: the form /tɒməs/ inserted in the preceding step is replaced by the relevant form of the lexical entry in (8b). But, once it is replaced, we are facing a rather strange result: the familiarity expressing hypocoristic of the first name *Thomas* is spelled out as a CVC-template, which is, moreover, empty of any melodic content. This scenario is depicted in (10).

(10) 

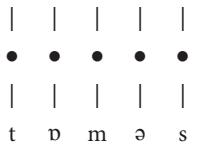
Taking the "overwriting" proposal seriously, the lexical entries in (8a) and (8b) apparently derive a non-existing alternation between [tɒməs]—the full form of the first name—and phonetically "nothing" which, however, should correspond to the hypocoristic form of the very name [tɒməs]. This is, however, a wrong result, so we better think again about the representations both on the phonological and the syntactic side.

25 Generally speaking, any nominal root can be inserted into the NP. The idea is that an insertion of a particular root depends fully on the speaker's choice. However, once the choice is made, the root—or, to be more precise, its semantic and syntactic features—is kept through the derivation until another root node is merged.

3.3.1 The Templatic Morpheme: Rewriting of Prosodic Structure

On the phonological side, the contrast between the root morpheme and the templatic morpheme is that the former is a fully-fledged phonological object, but the latter is phonologically incomplete. In Strict CV, a phonological model used in this book, fully-fledged phonological representations include both prosodic and melodic structure and they are interconnected via association lines. The phonological part of the lexical entry for the root /tɒməs/ thus looks as in (11a). The figure in (11b) shows the representation of the templatic morpheme.

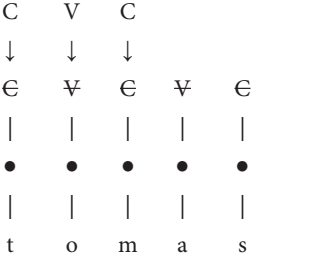
(11) a. // C V C V C //



b. // C V C //

From the perspective of the representations above, the spell-out of the FAMP involves what we might call a "partial overwriting": only a particular part of the phonological representation of the earlier spell-out is overwritten. The proposal is given in (12). The insertion of the templatic morpheme triggers deletion of the prosodic structure of the root, which is then replaced by the template prosodic structure. Since the root prosodic structure (i.e., CVCVC) is bigger than the template prosodic structure (CVC), two of the root's segments remain unassociated prosodically, which actually means that they do not receive any phonetic interpretation: hence, the form /tɒməs/ is truncated to the /tom/ as a consequence.

(12)



Note, that the matching procedure between the template and the root is only sketched here rather roughly—and so are also the lexical representations in (11). First of all, the melodic part of the lexical entry in (11a) should be further decomposed into hierarchically organized elements (as we proposed in chapter 2).

Second, to ensure that the root /tɒməs/ is truncated to /tɒm/ rather than to /məs/ (or even /tɒs/ or /təs/), the information that the CVC-template is aligned with the left edge of the root must also be involved in the spell-out.[26]

Note at this point that the overwriting mechanism actually provides an answer to the question why the morpheme in (11b) is not simply affixed to the root. Its phonological incompleteness, i.e., a fact that it does not contain any melodic features, cannot be the reason: as we already saw, affixes which are empty prosodic strings also exist. In other words, we need to tell apart two types of prosodic morphemes: prosodic affixes whose insertion leads to the *extension* of the prosodic structure of adjacent morphemes and prosodic templates whose insertion triggers its *overwriting*. Since morphemes are pairings of phonological and syntactic representations, the contrast between the two types of prosodic morphemes can logically be encoded either in their phonological part or in their syntactic part.

Up to now, we have been looking at the picture in (12) from above, i.e., from the perspective of the template which overwrites root's prosodic structure. Taken from the opposite perspective, what we see in (12) is that the root provides the templatic morpheme with melodic features and, in this way, it makes it phonetically interpretable. More generally, (12) depicts a situation when one lexical item feeds phonologically the other.

In the Nanosyntactic literature, such "feeding" among lexical items has already been identified in idioms (Starke 2009, 2014). For example, an idiom for 'die' *kick the bucket* is made up from three lexical items: a verb /kɪk/, a determiner /ðə/, and a noun /bʌkɪt/. To capture a fact that these forms exist independently of the idiom, Starke (2009, 2014) proposes that idiom's lexical entry does not contain any phonological information and it acquires its form from other lexical

26 The left-to-right association algorithm between segments and prosodic positions provided by the template is proposed to be universal (Goldsmith 1976). It can explain the truncation of /tɒməs/ to /tɒm/, but it cannot explain that in other cases, it is either final (*Ɨsaac* → *Zac*) or middle parts (*El~~i~~s~~a~~beth* → *Liz*) of the first-name roots that are retained in the truncated forms; see Lappe (2003) for a detailed overview. In an Optimality Theory framework, such a variation is derived by a set of violable constraints (McCarthy & Prince 1999). However, we face the problem of how to account for this fact within the framework, in which prosodic templates are assumed to be lexical items similar to "ordinary" roots or affixes, in other words, we want to propose a sustainable theory of pairing phonological and syntactic representations. A template allomorphy seems like the only tenable answer at this point. I leave this issue open for further research, but see Faust & Torres-Tamarit (2017) for combining Strict CV representations and Optimality Theory violable constraints.

entries. Technically speaking, the lexical entry for the idiom *kick the bucket* includes so-called *pointers* which occupy particular syntactic nodes of a lexical entry and refer to other lexical entries: concretely, there is a pointer in the VP-node that refers to the lexical entry for the verb /kɪk/, the pointers in the DP-node and the NP-node "point" to the entries for the determiner /ðə/ and the noun /bʌkɪt/, respectively. These three entries thus provide idiom's entry with appropriate forms (though their semantics is overwritten).

From this perspective, the templatic morpheme discussed above (recall, it is the one responsible for truncation in the FamP-node in hypocoristics), has certain aspects in common with multiword idioms of the *kick the bucket* type: the CVC-template points to the first-name root which provides it with melodic features. Despite this similarity with idioms, the templatic morpheme is special in two ways.

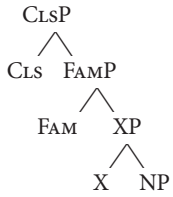
First, it is not completely phonologically empty. It contains a piece of the prosodic structure which triggers what we called *partial overwriting* of the phonological structure of the pointed item. Second, there is the truncation of the first name and the first names can be of various types: in general, truncated hypocoristic can be derived from virtually any first name, that is, first names of various morphological properties; for example, *Tom* is a truncated masculine name, while *Liz* is a truncated feminine. Moreover, the same type of truncation, i.e., truncation expressing speaker's familiarity with the denotee, is applied productively also to other nouns than to the first names; cf. e.g. *bro~~ther~~* > *bro* or *mo~~ment~~* > *mo*. To describe this observation properly, we have to say that pointers can "point" not only to particular lexical entries (as in the case of a multiword idiom *kick the bucket*), but also to their sets. In this particular case, the FamP-node—a part of the template syntactic tree—points to a set of structurally defined items, or, to be more precise, to a set of subtrees shared among more lexical items. I leave an exact implementation of this idea for further research, but let me note, that variables in lexical entries might be used.

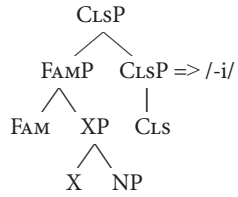
Summing up our proposal: hypocoristic truncation is triggered by the spell-out of a particular node of the syntactic tree shared between both types of hypocoristics, i.e., familiarity-expressing ones as well as the ones expressing closeness. Truncating morpheme is lexically represented as a prosodic template which points to other lexical items. It is the pointer what makes difference between prosodic templates on the one hand and prosodic affixes on the other. Phonologically, they are both represented as empty pieces of prosodic structure, but by pointing to other forms, the hypocoristic template causes overwriting of their prosodic structure.

3.3.2 The Morphosyntactic Hierarchy: Closeness over Familiarity

Now, let us look at one-projection bigger hypocoristics, those expressing closeness: there is going to be an extra spell-out step in their derivation. Recall that closeness-expressing hypocoristics of the *Tommy*-type are derived from the truncated roots by the /i/-suffix. Both pieces relevant to their spell-out are repeated below: (13a) repeats the lexical entry for the closeness-marking suffix, (13b) reproduces the syntactic structure of a closeness-expressing hypocoristic. After ClsP has been created in syntax, the lexicon is searched through to find an appropriate lexical entry. At the first sight, the lexical entry in (13a) seems to be a relevant candidate for insertion—it contains the ClsP projection after all. However, the ClsP in the tree in (13b) contains other subconstituents, i.e., the FamP and the other projections dominated by it—and these are not present in the lexical entry of the suffix /-i/ in (13a). In other words, the entry in (13a) does not match the structure of the closeness phrase in (13b). Should the ClsP be—indeed—spelled out by the suffix /-i/, its structure must match the syntactic structure in (13b)—and the way to achieve it is to move its complement, i.e., the FamP away. This, then, leads to the so-called spell-out-driven-movement depicted in (13c): the FamP moves to the left of the ClsP and, as a consequence, the ClsP matches the syntactic tree of the lexical entry of the suffix /-i/ in (13a). Thus: the ClsP is spelled out as /-i/.[27]

27 Starke (to appear) defines spell-out-driven movement as a procedure that is not strictly speaking driven by a particular shape of lexical entries. Rather, it is defined as a series of ordered operations that happen automatically every time there is no matching entry. The definitions are as follows:
(i) Insert feature and spell out.
(ii) If fail, try a cyclic (spec-to-spec) movement of the node inserted at the previous cycle and spell out.
(iii) If fail, try a snowball movement of the complement of the newly inserted feature and spell out.
I will ignore here the mechanical steps required by the procedure, and show instead directly how the structure is transformed so that it matches the lexical entries as proposed. For instance, in (13c), it is only the movement type (iii) what delivers the correct configuration, but I will not discuss here the failed attempts (as this is not my primary interest here) and jump directly to the option that works.

(13) a. </-i/, [$_{\text{ClsP}}$ Cls]> b. 

c. 

In this section, we have established that hypocoristics in English fall into two main types: monosyllabic ones and bisyllabic ones derived by the /i/-suffix. Both types are based on truncated roots and I propose that their formal similarity stems from the shared syntactic structure. This idea was implemented using the Nanosyntactic framework: I argue that truncation is triggered by the templatic morpheme that spells out the FamP, a syntactic projection shared among all types of hypocoristics. The /i/-suffixed hypocoristics are syntactically bigger: the suffix spells out the ClsP and the ClsP projection is the consequence of the merge of Cls-feature with the FamP. This analysis is in line with the claims by Schneider (2003) and Alber & Arndt-Lappe (2012): they notice that hypocoristic meaning has two components, namely the familiarity component and the closeness component. I, in addition, propose that these two components are in a hierarchical relation and I added the way to derive them systematically. From this perspective, let us now examine phonological and morphosyntactic properties of hypocoristics in Czech.

3.4 Closeness-Expressing Hypocoristics

As in English, the derivation of hypocoristics in Czech involves (as an ingredient) the truncation of polysyllabic roots to a single syllable. Table (14) shows (again) the data from section 3.1; they illustrate that truncated roots are the base for both suffix-less as well as suffixed hypocoristics. (Recall, that the final *a* is an inflectional ending which is marked by enclosing it in brackets.) As in English, I will analyze the templatic morpheme (responsible for the truncation) as the spell-out of the FamP, which is shared across all types of hypocoristics, both in English and in Czech.

(14)	full name	suffix-less form	*d*-suffixed form
	M[i]loslav	*M[iː]l(-a)*	*M[i]l-d(-a)*
	J[u]lius	*J[uː]l(-a)*	*J[u]l-d(-a)*
	Př[e]mysl	*Př[eː]m(-a)*	*Př[e]m-d(-a)*
	Ant[o]nín	*T[oː]ň(-a)*	*T[o]n-d(-a)*
	J[a]roslav	*J[aː]r(-a)*	*J[a]r-d(-a)*

In Czech, the truncated roots further undergo lengthening and suffixation. As the examples in (14) show, these two processes are in complementary distribution; notice, however, that it is the very same (shortened) root that is either lengthened, or receives the suffix *-d*. I take this complementarity of lengthening and suffixation—and the fact that the root is always the same, regardless of the type of the morphological process—to indicate that lengthening and suffixation are not allomorphs, but rather realizations of different morphosyntactic structures. What is then the difference between the two types?

3.4.1 The Gender Pattern

As is illustrated in (15), lengthened suffix-less hypocoristics show different morphosyntactic behavior than the *d*-suffixed ones. The lengthened hypocoristics (in the leftmost column) are ambiguous between masculine (M) and feminine (F) gender; in this, they pattern with the corresponding full-names (in the middle column), which are gender-ambiguous as well. By contrast, the *d*-suffixed forms (in the rightmost column) are gender-specific: these are only masculine.

(15)	lengthened form	full name	suffixed form
	M[iː]l(-a) (M, F)	*M[i]loslav* (M)	*M[i]l-d(-a)* (M)
		M[i]loslav(-a) (F)	
	J[aː]r(-a) (M, F)	*J[a]roslav* (M)	*J[a]r-d(-a)* (M)
		J[a]roslav(-a) (F)	
	D[aː]ň(-a) (M, F)	*D[a]niel* (M)	*D[a]n-d(-a)* (M)
		D[a]niel(-a) (F)	

Notice that the only difference between the gender-ambiguous full names and the gender-ambiguous lengthened forms is their declension pattern, as illustrated in (16). (I.e., there is no apparent derivational suffix in either the masculine or the feminine form.) In the left-hand part of the table, the singular case markers for full names follow the typical masculine and feminine case paradigms.

Hypocoristic paradigms, on the other hand, as shown in the right-hand part of the table, are mostly syncretic for both genders (though notice the exceptions in the dative and locative cases). Stating the obvious: it seems that the root itself is genuinely ambiguous between masculine and feminine gender, and the suffixes reflect this ambiguity both in the full form and in the hypocoristic form.

(16)	full name (M)	full name (F)	hypocoristic (M)	hypocoristic (F)
N	*Miloslav-Ø*	*Miloslav-a*	*Míl-a*	*Míl-a*
A	*Miloslav-a*	*Miloslav-u*	*Míl-u*	*Míl-u*
G	*Miloslav-a*	*Miloslav-y*	*Míl-y*	*Míl-y*
D/L	*Miloslav-ov-i*	*Miloslav-ě*	*Míl-ov-i*	*Míl-e*
I	*Miloslav-em*	*Miloslav-ou*	*Míl-ou*	*Míl-ou*

To deal with the gender specific denotation of the *d*-suffixed form described above, we might simply assume that the first-name roots in (15) are not lexically specified for any gender features, while the suffix *-d* is specified for spelling out the masculine feature. Being gender-less, the roots can thus appear in both masculine and feminine nouns, depending on their syntactic context. Simply speaking, the root can be syntactically merged with a masculine feature yielding a masculine name or with a feminine feature yielding a feminine name. This scenario would be consistent with the hypothesis that in the lexicon, roots are totally underspecified for syntactic features, which is one of the core ideas of Distributed Morphology (Harley 2014). A problem is, however, that there exist first names that are actually gender-specific: names in (17a) are only masculine and those in (17b) are only feminine. If we adopt the idea that all roots lack any syntactic features, including the gender ones, the three-way gender behavior of first names seen in Czech cannot be explained in a systematic way. In other words, if the first-name roots /miroslav/, /mojmiːr/ or /barbor/ are lexically equal, as is assumed in the Distributed Morphology framework, we cannot explain why only the first one derives names of both genders, while the latter two can be involved only in masculine and feminine names, respectively.

(17)		full name	*d*-suffixed hypocoristic
	a.	*Přemysl* (M)	*Přem-d(-a)*
		Cyril (M)	*Cyr-d(-a)*
		Mojmír (M)	*Moj-d(-a)*
	b.	*Monik(-a)* (F)	**Mon-d(-a)*
		Barbor(-a) (F)	**Bar-d(-a)*
		Nel(-a) (F)	**Nel-d(-a)*

Furthermore, the gender-less approach to nominal roots cannot capture even the behavior of the suffix *-d*. As the data in tables (15) and (17) demonstrate, the suffix *-d* concatenates with either gender-ambiguous or masculine names, but not with feminine names. Again, if *all* roots are unspecified for the gender context (Distributed Morphology's crucial assumption), *d*-suffixed forms derived from feminine names should not be ruled out. However, as shown in (18), the non-existence of hypocoristics like **Mon-d(-a)* and the others in (18b) is far from being accidental.

Instead, hypocoristic feminines are derived by a suffix *-č* [ʧ]: it combines with either feminine names (18b) or gender-ambiguous names (18c), but not with those that are masculine (18a). (Note as well that when the *-č* attaches to such ambiguous names, the resulting hypocoristic refers to females only.)

(18)		full name	*d*-suffixed hypocoristic (M)	*č*-suffixed hypocoristic (F)
	a.	*Přemysl* (M)	*Přem-d(-a)*	**Přem-č(-a)*
		Cyril (M)	*Cyr-d(-a)*	**Cyr-č(-a)*
		Mojmír (M)	*Moj-d(-a)*	**Moj-č(-a)*
	b.	*Monik(-a)* (F)	**Mon-d(-a)*	*Mon-č(-a)*
		Barbor(-a) (F)	**Bar-d(-a)*	*Bar-č(-a)*
		Nel(-a) (F)	**Nel-d(-a)*	*Nel-č(-a)*
	c.	*Miloslav*($-Ø_M/-a_F$)	*Mil-d(-a)*	*Mil-č(-a)*
		Jaroslav($-Ø_M/-a_F$)	*Jar-d(-a)*	*Jar-č(-a)*
		Daniel($-Ø_M/-a_F$)	*Dan-d(-a)*	*Dan-č(-a)*

To complete the pattern, I must add that gender-specific names produce also gender-specific lengthened hypocoristics which show no overt suffix. A couple of relevant examples is given in the table below.

(19)		full name	lengthened form
	a.	*Př[e]mysl* (M)	*Př[eː]m(-a)*
		C[i]ril (M)	*C[iː]r(-a)*
	b.	*M[o]nik(-a)* (F)	*M[oː]ň(-a)*
		B[a]rbor(-a) (F)	*B[aː]r(-a)*

To sum up the gender pattern: lengthened hypocoristics without an overt suffix can be either gender-ambiguous (*M[iː]l(-a)*$_{M/F}$) or gender-specific (*C[iː]r(-a)*$_M$, *M[oː]ň(-a)*$_F$), depending on the gender features of their corresponding full

names. Hypocoristic forms derived by the suffixes, on the other hand, are only gender-specific: *d*-suffixed forms are masculine, *č*-suffixed ones are feminine. The gender of the hypocoristic suffixes matches the gender of names they concatenate with: the masculine suffix *-d* concatenates with masculines ($C[i]ril_{M}$ > $C[i]r\text{-}d(\text{-}a)_{M}$), the feminine *-č* attaches to feminines ($M[o]nika_{F}$ > $M[o]n\text{-}č(\text{-}a)_{F}$), and not *vice versa*. If the first name is gender-ambiguous, both of the suffixes can be attached yielding either a *d*-suffixed masculine ($M[i]l\text{-}d(\text{-}a)_{M}$) or a *č*-suffixed feminine ($M[i]l\text{-}č(\text{-}a)_{F}$).

In what follows I argue, that the described pattern can be explained only under the assumption that both root morphemes and suffixes are specified for gender features already in the lexicon (which does not prevent gender from being a separate projection in syntax). This assumption is consistent with the Nanosyntactic approach to spell-out which, as we already saw, involves matching of syntactic trees stored in lexical entries with syntactic trees generated by the syntax. In particular, I propose that in syntax, there is a part of the functional sequence which is dedicated to gender. The specific gender subtree I am proposing here is $[_{\text{FemP}}$ Fem $[_{\text{MascP}}$ Masc$]]$, in which FemP dominates MascP. The syntactic structure of masculine nouns contains only the lower gender projection MascP, while feminines are one-projection bigger—they involve the whole gender subtree. The different behavior of particular roots—some of them occur simultaneously in both masculine and feminine names, some of them appear only in masculines or only in feminines—arises from the fact that the roots are lexically stored with gender subtrees of different sizes.[28] And the similar proposal will be made for the hypocoristic suffixes *-d* and *-č*.

3.4.2 Hypocoristics as Syntactic Compounds

In a hypocoristic form *C[i]r-d(-a)*, the *masculine* suffix *-d* is attached to a truncated *masculine* noun; recall that the first name *C[i]ril* does not have a feminine counterpart *C[i]ril(-a)*. From this, it inevitably follows that the *masculine* feature is present twice in the structure of the noun *C[i]r-d(-a)* (once in the root, and once in the suffix).

A similar reasoning leads to the conclusion that also other features are present twice in the structure. Consider, for instance, the fact that the suffix *-d* appears

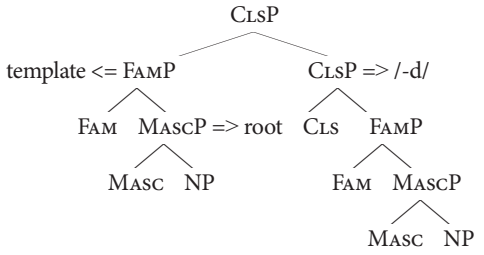
28 Note that also some versions of Distributed Morphology try to accommodate that gender features are a prototypical root-dependent property of nouns. For example, Acquaviva (2009) or Kramer (2015) propose that gender is encoded in a categorial head *n* which merges directly with a root.

specifically in hypocoristics and only in them: there are no other morphological types of masculine nouns derived by *-d*. This suffix thus spells out the hypocoristic meaning which, I proposed, is encoded in two syntactic projections: a lower FamP and a higher ClsP. However, the same two projections must also be spelled out by the root. To see that, recall the proposal that the familiarity-encoding projection (FamP) is spelled out by a templatic morpheme which is responsible for the truncation of polysyllabic roots. Since *C[i]r-d(-a)* and the other *d*-suffixed forms in (18) are built on truncated roots, we can conclude that not only the gender feature, but also the familiarity feature is placed twice in these hypocoristic nouns.

To account for this systematic "feature doubling", I propose that *d*-suffixed hypocoristics are complex structures made up from two fully-fledged nominal trees that are joined together in a structure that is similar to compounding. Having two fully-fledged nominal projections is a logical consequence of the cartographic approach to the grammar where the functional sequence, i.e., the set of hierarchically organized syntactic features, cannot be recursive—not even in principle, if we assume that X cannot dominate X, see e.g. Starke (2004).

The binominal proposal is depicted in (20). Here, the suffix *-d* spells out the fully-fledged nominal tree with a NP phrase at the bottom; higher up, there is a masculine gender phrase (MascP) dominating the NP and these two are dominated by the hypocoristic projections. The *d*-suffix tree is adjoined to the truncated root yielding a construction dominated by the higher hypocoristic projection, i.e., ClsP. As a consequence, there are two ClsP-nodes in the structure from which only the lower one receives spell-out (it is realized by the suffix). The reason is that these two ClsP are created by different means: the lower ClsP arises from featural Merge, when a closeness feature is merged with FamP. By contrast, the higher ClsP in (20) results from phrasal Merge which does not trigger cyclic spell-out. To sum up: the structure in (20) captures the observation that the *d*-suffixed forms like *C[i]r-d(-a)* are masculine hypocoristics derived from truncated masculine nouns.

(20)



The only difference between the two nouns in (20) is their "morphological" status: while the left-hand noun is realized by a root morpheme, the right-hand one by a morpheme that would traditionally be classified as an affix. The proposal that affixes can realize fully-fledged nominal structures (which include a root projection at the bottom) is not completely new—it has already appeared in the literature; see e.g. Bachrach & Wagner (2007), De Belder (2011) or Lowenstamm (2014) who have proposed something similar within a Distributed Morphology framework. In principle, both separate noun projections in (20) can be realized by (what a traditional morphologist would analyze as) a root morpheme, so that we obtain so-called coordinative compounds; these (two-rooted) hypocoristic compounds are not found in Czech, but they appear in, for example, English, e.g. *Billy Boy*, *Eddie Baby* or *pussycat*. The Czech forms receive here an analysis that is analogous in terms of the syntactic structure attributed to them, but differs in that the second noun is phonologically reduced and patterns with affixes in this regard. (To rule out the third logical possibility (not encounter in any language, as far as I know), i.e., that both nouns are realized by affixes, an additional spell-out filtering mechanism must be invoked.)

To conclude this section, let me summarize the lexical entries for the three morphemes involved in the derivation of the masculine hypocoristic *C[i]r-d(-a)*. The entry for the root /ciril/ in (21a) contains the masculine-gender projection. Such a representation explains why this root produces only a masculine first name *C[i]ril* and not a feminine one **C[i]ril(-a)*. The entry for the prosodic template, which is responsible for the truncation of /ciril/ to /cir/, is in (21b). As I proposed in section 3.3.1, it spells out the familiarity meaning. This prosodic morpheme contains a pointer, marked as ➢, which refers to a set of structurally defined nouns whose prosodic structure is overwritten by the prosodic template. The entry for the masculine suffix *-d* is represented in (21c): the suffix is lexically associated with the fully-fledged nominal tree which comprises the masculine gender feature and both hypocoristic projections. Simply speaking, the representation in (21c) says that the *d*-suffixed forms are closeness-expressing masculines.

(21) a. </ciril/, [$_{\text{MascP}}$ Masc [$_{\text{NP}}$ N]]>

b. </CVC/, [$_{\text{FamP}}$ Fam ➢[$_{\text{XP}}$ X ...[$_{\text{NP}}$ N]]]>

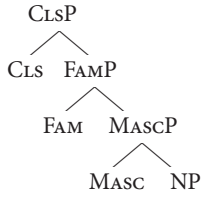
c. </-d/, [$_{\text{ClsP}}$ Cls [$_{\text{FamP}}$ Fam [$_{\text{MascP}}$ Masc [$_{\text{NP}}$ N]]]]>

3.4.3 Lengthened Forms

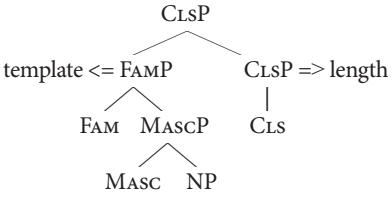
Truncated masculine names undergo either *d*-suffixation or lengthening: it holds for the name *C[i]ril* which has two hypocoristic forms *C[i]r-d(-a)* and *C[iː]r(-a)*. The fact that these two processes are complementary to each other might lead us to consider them to be allomorphs. In that case, the *d*-suffixed hypocoristic *C[i]r-d(-a)* and the lengthened hypocoristic *C[iː]r(-a)* would be structurally equal and both hypocoristic affixes, i.e., the prosodic VC-affix which triggers lengthening of the root vowel and the segmental suffix /-d/, would be lexically specified for spelling out the same syntactic tree.

This proposal is, however, unable to explain the observation made above that the *d*-suffixed forms are always masculine, while the lengthened forms can be potentially both masculine and feminine (simply copying the gender of the base). This latter fact indicates that (unlike the *d*-suffix) the prosodic affix itself does not carry any gender features. To express this gender pattern, I thus propose that the closeness-expressing hypocoristics are of two different syntactic types. The *d*-suffixed forms are binominal structures with structures as given in (20), where the gender is encoded twice: both in the root (which spells out the left-hand nominal tree) and in the suffix (realizing the right-hand noun). A crucial point is that since this is a coordinative compound, where a given individual satisfies the denotation of each part, these two genders have to match: the suffix *-d* derives masculine hypocoristics only from masculine names. In the lengthened forms in (22a), on the other hand, there is only one gender-encoding subtree.

(22) a.



b.



The closeness-hypocoristic structure in (22a) is the same as that proposed for the /i/-ending hypocoristics in English: the FamP is spelled out by the templatic morpheme in both languages. The only difference is that the closeness meaning (encoded syntactically in ClsP) is realized by a segmental suffix in English, but

in Czech it is spelled out by a prosodic affix which is responsible for lengthening of the root vowel. In both cases, however, the spell-out-driven movement of the FamP to the left must be postulated, which is depicted in (22b). This enables the ClsP to be realized either segmentally or prosodically, depending on the available lexical items: the first option is instantiated in English because its lexicon contains the entry </-i/, [$_{\text{CLSP}}$ Cls]>. The Czech lexicon stores the prosodic entry </VC/, [$_{\text{CLSP}}$ Cls]>, hence the closeness feature is realized as vowel length in this language.

The three morphemes involved in the derivation of the closeness-expressing hypocoristic *C[i:]r(-a)* are summarized in (23); two of them are identical to the morphemes participating in the derivation of the *d*-suffixed form *C[i]r-d(-a)* discussed in the previous section.

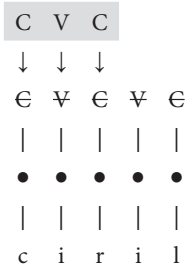
(23) a. </ciril/, [$_{\text{MASCP}}$ Masc [$_{\text{NP}}$ N]]>
b. </CVC/, [$_{\text{FAMP}}$ Fam ➢[$_{\text{XP}}$ X ...[$_{\text{NP}}$ N]]]>
c. </VC/, [$_{\text{CLSP}}$ Cls]>

Taken from the phonological perspective, both hypocoristic morphemes in (23b) and (23c) differ substantially from the root morpheme in (23a): only the latter is a fully-fledged phonological object, which is lexically represented on both a prosodic and a melodic level. The two hypocoristic morphemes are prosodic affixes which, however, have different phonological impact on the root: the templatic morpheme overwrites root's prosodic structure (so the root fits the CVC-shape), while the prosodic affix expands the prosodic space of the root (so the root-vowel spreads its melody). As I have already proposed, this difference follows from presence of the pointer in the templatic-morpheme lexical entry in (23b): by pointing to other lexical items, the CVC-template overwrites their prosodic structure. But the prosodic affix in (23c) must also be stored together with additional phonological information. In particular, the entry for the prosodic affix must contain information about the specific point of insertion in the CVC tier, that is, the fact that it is inserted next to the root vowel—and, say, not suffixed to the root-final consonant. The insertion to the left of the vowel, when the vowel serves as a melody self-licensor, follows automatically from the prosodic morpheme's VC-shape.[29]

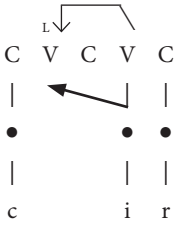
29 There is yet another phonological process involved in hypocoristic formation: palatalization. In particular, alveolars [d t n] turn to palatals [ɟ c ɲ] (*R[ad]oslav > R[aːɟ](-a)*, *P[et]r > P[eːc](-a)*, *M[on]ik(-a) > M[oːɲ](-a)*) and [x h] change to [ʃ ʒ] (*R[ix]ard > R[iːʃ](-a)*, *B[oh]dan > B[oːʒ](-a)*). Kochetov & Alderete (2011) analyze the palatalization patterns

The phonological effects of these prosodic morphemes are illustrated in (24) below. The figure in (24a) depicts truncation of a bi-syllabic root /ciril/ to /cir/ induced by the template (marked by shadowing). (24b), then, illustrates lengthening of this truncated form to /ciːr/ triggered by the empty VC-affix being inserted into the phonological structure of the truncated root.

(24) a.



b.



3.4.4 Decomposing Gender: Gender-Ambiguous Names

Let us now turn to closeness-expressing hypocoristics of the *M[iː]l(-a)* type that are ambiguous between a masculine and a feminine. I follow the idea that *phi*-features are decomposable into privative units (e.g. Harley & Ritter 2002) and propose that masculine and feminine gender features are encoded as two

in hypocoristics from the cross-linguistic perspective and argue that this so-called "expressive palatalization" is a "phonologically unmotivated process", i.e., a process without (a clear) phonological trigger. Czech data, however, go against this assumption. If palatalization were associated with hypocoristics as an "expressive" morphological category (as proposed by Kochetov & Alderete 2011), then we might expect that it would be applied across-the-board. In reality, however, only root-final consonants—and not consonants involved in hypocoristic suffixes—are targets of palatalization: in hypocoristics like *[aːɟ](-a)*, *R[aːɟ](-a)* and *B[eːɟ](-a)*, that are derived from *[ad]am*, *R[ad]oslav* and *B[ed]řich*, [d] palatalizes to [ɟ]; in suffixed forms like *Ton-[d](-a)*, on the other hand, there is no palatalization. Thus, it seems that palatalization in hypocoristics goes hand in hand with lengthening (but not with segmental suffixation). Strikingly, if the root is lexically monosyllabic, these two processes (lengthening and palatalization) are the only hypocoristic markers; see e.g. the full name-hypocoristic pairs like *D[it](-a) – D[iːc](-a)*, *H[an](-a) – H[aːɲ](-a)* or *J[an](-a) – J[aːɲ](-a)*. To account for this, we have to assume that the lexical entry for the lengthening affix includes also a palatal feature that triggers palatalization. Derivation of the palatalization patterns in Czech (even in hypocoristics) is beyond the scope of this book; let us only notice that the palatalization trigger might be represented as a lexically floating I-element, which docks in the root-final consonant.

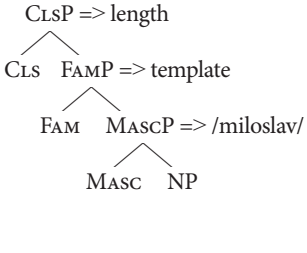
separate syntactic heads: a MASC-head and a FEM-head. Furthermore, there is a cross-linguistic observation: in many languages, feminine animate nouns are built formally on masculine ones. This holds also for Czech: female-denoting nouns are productively derived by attaching a suffix to masculine nouns, as illustrated by gender pairs like *žák – žák-yn(-ě)* 'pupil$_{MASC}$ – pupil$_{FEM}$' or *soused – soused-k(-a)* 'neighbor$_{MASC}$ – neighbor$_{FEM}$'. Following the same logic as in the case of truncated roots that are shared among hypocoristics of various types, I take the containment of the gender forms mentioned above to indicate a gender hierarchy: FEM>MASC.

From the perspective of this hierarchy, roots that produce gender-ambiguous names are those that are lexically specified for the whole gender subtree. This proposal is shown in (25). Specifically, the table (25) compares two lexical entries for two roots that show different gender behavior. The entry for the root /ciril/ in (25a) contains only a lower gender projection, i.e., MASCP, which expresses the fact that it can only be used as a masculine name (recall that there is no feminine first name **Cyril(-a)*). The root /miloslav/, on the other hand, appears in both masculine (*Miloslav*) and feminine names (*Miloslav(-a)*): this is the reason why its lexical representation in (25b) contains both gender projections.

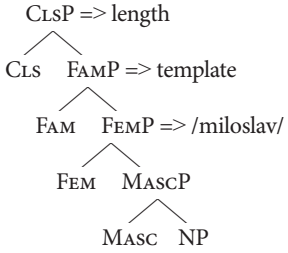
(25) a. </ciril/, [$_{MASCP}$ MASC [$_{NP}$ N]]>
b. </miloslav/, [$_{FEMP}$ FEM [$_{MASCP}$ MASC [$_{NP}$ N]]]>

Given the Superset Principle, the entry in (25b) can spell out both a feminine noun (syntactic structure of which matches the lexical tree exactly) and a masculine noun (whose syntactic structure lacks FEMP, so it matches the lexical subconstituent [$_{MASCP}$ MASC [$_{NP}$ N]]). This is illustrated in (26) which depicts syntactic structures of a masculine (26a) and a feminine (26b) version of the closeness-expressing hypocoristic *M[i:]l(-a)*.

(26) a.



b.



From the perspective of the analysis presented above, labelling full names like *M[i]loslav(-Ø/-a)* and their lengthened hypocoristic forms *M[i:]l(-a)* as

gender-ambiguous is a bit misleading. Syntactically, there is no ambiguity: masculine and feminine versions of these nouns have different syntactic structures. In fact, the masculine *M[iː]l(-a)* and the feminine *M[iː]l(-a)* are two *syncretic* hypocoristic forms. This, in turn, means that they are derived from a single lexical representation, i.e., from a single root /miloslav/, which is stored with the full gender subtree. In other words, *gender-ambiguous* can be roots in the lexicon, but not syntactically derived nouns; these can be *gender-syncretic*.

Finally, note that this approach allows us to neatly distinguish two different types of homophony. One type of homophony (presented above) arises due to lexical relatedness (i.e., syncretism) where a gender-ambiguous base (spelling out different sizes of structure) leads to ambiguous hypocoristics (derived from bases of various sizes). In addition, there are also homonymous forms, which, crucially, are derived from two separate lexical items and end up homophonous because of how truncation works. For example, *Ád'(-a)* is a lengthened hypocoristic both for the masculine name *Adam* and for the feminine name *Adél(-a)*.

3.4.5 Feminine Hypocoristics

In the previous two sections I proposed that the contrast between gender-syncretic nouns (*Miloslav(-Ø/-a)*) and gender-specific masculines (*Cyril*) arises from lexical representations of their roots. Roots deriving gender-syncretic nouns are lexically stored with both gender features: this enable them to spell out either the full gender subtree [$_{\text{FemP}}$ Fem [$_{\text{MascP}}$ Masc]] which syntactically identifies a feminine noun, or just its proper constituent [$_{\text{MascP}}$ Masc] (in masculine nouns). If a root appears only in masculine nouns, it is because its lexical entry does not contain the FemP. The same logic can be applied to the suffix *-d*: it lacks the FemP, hence it can derive only masculine hypocoristics.

Let us now consider gender-specific feminines. Since feminine nouns are syntactically defined as [$_{\text{FemP}}$ Fem [$_{\text{MascP}}$ Masc]], roots such as /monik/ in (27c), producing exclusively feminines (recall that a feminine first name *Monik(-a)* has no masculine counterpart **Monik*) must be lexically specified for the whole subtree.

(27) a. </ciril/, [$_{\text{MascP}}$ Masc [$_{\text{NP}}$ N]]>
b. </miloslav/, [$_{\text{FemP}}$ Fem [$_{\text{MascP}}$ Masc [$_{\text{NP}}$ N]]]>
c. </monik/, [$_{\text{FemP}}$ Fem [$_{\text{MascP}}$ Masc [$_{\text{NP}}$ N]]]>

Comparing the entries in (27b) and (27c) we can see that there is no lexical difference between roots producing gender-syncretic names and those producing

only feminines: both roots /miloslav/ and /monik/ are specified for the full gender subtree. Within Nanosyntax, the problem is technically that feminine roots would be expected to "shrink" to express the masculine, but they never do. In other words, while /miloslav/ can actually spell out either gender-feature structure (FEM and MASC together—or just the lower MASC-feature), the form /monik/ always spells out both the gender features together. In other words, it behaves like a strict portmanteau morpheme. Such "unshrinkable" lexical items have already been identified in the Nanosyntactic literature, see Starke (2009:9) on French indefinites and Dékány (2011:117) on prepositions in Hungarian. Note, however, that the exact representation of "unshrinkability" of a structure of a lexical item is still far from clear (and subject to further research).

However, there exist not only gender-specific feminine roots but also a feminine hypocoristic suffix *-č*. Recall that it attaches either to feminine truncated forms (*M[o]nik(-a) > M[o]n-č(-a)*) or gender-syncretic forms (*M[i]loslav(-a) > M[i]l-č(-a)*), in which case the result is always a feminine hypocoristic. To explain this distribution, I propose that *č*-suffixed hypocoristics (like *d*-suffixed ones) are binominal structures (a coordinative compound), where the two nominal projections match in gender, very much like in (20), but with the FEM-feature in both parts of the compound. The right-hand extended NP is spelled out by the suffix. Since this tree contains the FEM-feature, the suffix *-č* must be lexically specified for it. Now recall that *-č* only derives feminine hypocoristics, so on the face of it, it looks like we must simply draw a parallel between this gender-specific suffix and the gender-specific root /monik/ and propose that both are lexically stored as portmanteau morphemes associated with the full gender tree [FEMP FEM [MASCP MASC]]. However, in this case, a more attractive possibility is to take the feminine suffix *-č* to be a feminine version of the masculine suffix *-d*. This relationship can be expressed by using a pointer: in the entry for the feminine suffix *-č* in (28b), the pointer directs to the entry for the masculine suffix *-d* in (28a).

(28) a. </-d/, [$_{\text{CLSP}}$ CLS [$_{\text{FAMP}}$ FAM [$_{\text{MASCP}}$ MASC [$_{\text{NP}}$ N]]]]>

b. </-č/, [$_{\text{CLSP}}$ CLS [$_{\text{FAMP}}$ FAM [$_{\text{FEM}}$ FEM ➢</-d/>]]]>

The representation in (28b) says that the suffix *-č* is just a suppletive form of the suffix *-d*. This representation captures the intuition that these two suffixes differ only in their gender. In simple terms, the suffix *-č* is just a feminine version of the suffix *-d*. Crucially, this pair of lexical entries delivers also the fact that *-č* can never derive masculine hypocoristics, for in that context, the suffix *-d* is a better match. As a result, no problem with shrinking arises: the entry can shrink, but

when it does, its pronunciation is [d]. Whether this approach can be extended to the case of "unshrinkable" first-name roots remains to be seen.

3.4.6 Interim Summary

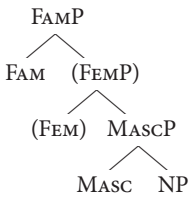
Both lengthened and suffixed hypocoristics contain the full hypocoristic subtree ClsP>FamP. Yet, they differ in how this subtree is integrated into the syntactic structure (and this, in turn, impacts the spell-out). In the lengthened forms, the hypocoristic subtree dominates the gender subtree and each node is spelled out by a separate lexical item: the FamP is spelled out by a templatic morpheme (which truncates polysyllabic roots) and the ClsP is realized by a prosodic VC-affix (which triggers root-vowel lengthening). In the suffixed forms (which are binominal structures morphosyntactically), the FamP is present twice: on the one hand, it dominates the gender subtree of the full-name root, and, on the other, it is a part of the full hypocoristic subtree. In the former case, it is spelled out by a templatic morpheme (applied to the root), in the latter, it is realized together with the dominating ClsP by the hypocoristic suffix (either *-d* or *-č*, depending on the gender features). All the four lexical items relevant for hypocoristic formation are summarized in (29).

(29) a. <CVC, [$_{\text{FamP}}$ Fam ➢[$_{\text{XP}}$ X ...[$_{\text{NP}}$ N]]]>
b. <VC, [$_{\text{ClsP}}$ Cls]>
c. </-d/, [$_{\text{ClsP}}$ Cls [$_{\text{FamP}}$ Fam [$_{\text{MascP}}$ Masc [$_{\text{NP}}$ N]]]]>
d. </-č/, [$_{\text{ClsP}}$ Cls [$_{\text{FamP}}$ Fam [$_{\text{FemP}}$ Fem ➢</-d/>]]]>

3.5 Familiarity-Expressing Hypocoristics

So far, we have only seen cases where hypocoristics always have both hypocoristic projections, i.e., FamP and ClsP. However, given the implicational hierarchy ClsP>FamP, we should not be surprised to find hypocoristics without the (higher) ClsP level; in that case, they should have the following structure.

(30)



Given the structure in (30), what are the expected phonological and morphological properties of such hypocoristics? First, we expect that the FamP is going to be spelled out by the templatic morpheme, but no lengthening (and palatalization) will occur, since these only apply at the spell-out of ClsP. In sum, we expect that familiarity expressing hypocoristics (based on the bare FamP) should be bare truncations, they should have short vowels, and they should not palatalize the root-final consonants (as these two features are linked to the ClsP).

Note as well that nothing in the structure (30) prevents gender-ambiguous roots, hence, gender-syncretic hypocoristic forms are expected.

The examples in (31) below show that all of these predictions are, indeed, correct. For instance, let us start from the gender-ambiguous root /daniel/, seen the first column in (31). Its simple truncation produces the form in the middle column. This truncated form can be further lengthened and yields the form in the last column.

These two truncated forms differ in the pragmatic context in which they can be used. Specifically, the contexts in which the lengthened (and palatalized) truncated form *D[aː]ň(-a)* can be used form a subset of contexts, in which the non-lengthened (and non-palatalized) form *D[a]n(-Ø/-a)* is used. Quite informally, the lengthened variant is used only when the hearer/referee is a child or an old friend. The non-lengthened variant, on the other hand, signals that the speaker is familiar with the hearer/referee. Moreover, it is true that many of the non-lengthened (and non-palatalized) truncations became regular first names; see e.g. *Max* (< *Maxmilián*), *Ed(-a)* (< *Eduard*), these are masculine, or feminines *Dor(-a)* (< *Dorot(-a)*), *El(-a)* (< *Eleonor(-a)*).[30]

30 It should be noted that are also truncations with palatalization, but, crucially, without lengthening, as, for example, *P[e]ť(-a)* (< *P[e]tr*), *P[a]ť(-a)* (< *P[a]trik*), *St[a]ň(-a)* (< *St[a]nislav*) or *L[a]ď(-a)* (< *L[a]dislav*). At the first blush, it might seem as if these examples violate our claim that lengthening and palatalization are triggered by a single lexical entry. However, these short forms also have lengthened cousins, i.e., *P[eː]ť(-a), P[aː]ť(-a), St[aː]ň(-a)*, *L[aː]ď(-a)*. Quite generally, such variation in length is strictly dialectal and, moreover, it strongly correlates with vowel length variation in other morphological categories. So, a speaker using a short hypocoristic *P[e]ť(-a)* would also typically use a short version of the monosyllabic infinitives like *sp[a]t* 'to sleep' and/or a short version of a feminine noun of *a*-declension like *ž[a]ba* 'frog'. The dialectal variation goes in the other direction as well, so speakers that use the lengthened hypocoristic *P[eː]ť-a* tend to use long versions of both the infinitive *sp[aː]t* and the feminine noun *ž[aː]ba*.

(31)	full form	familiarity form	closeness form
	D[a]niel(-$Ø_M$/-a_F)	*D[a]n*(-$Ø_M$/-a_F)	*D[aː]ň*(-$a_{M/F}$)

To state the obvious: the middle form in (31) represents an expected case where only the lower hypocoristic projection is present. Both the meaning (familiarity) and the phonological properties (simple truncation) clearly confirm the existence of an intermediate step in the derivation of the closeness hypocoristics. This intermediate step in the derivation of the closeness hypocoristic is a constitutive feature of the present account, and contrasts with Bethin's (2003) approach, where closeness-expressing hypocoristics are derived in a single step.

3.6 Suppletive Forms

Hypocoristics are also involved in suppletion. For example, a masculine hypocoristic *Pep(-a)* corresponds to a masculine first name *Jozef*. This, then, means that the lexical entry with the form /pep/ (32a) points to the lexical entry with the form /jozef/ in (32b). The entries in (32c) and (32d) derive a suppletive pair *Ludmil(-a) – Líd(-a)* where both names are feminines.

(32) a. </pep/, [$_{ClsP}$ Cls [$_{FamP}$ Fam ➢</jozef/>]]>
b. </jozef/, [$_{MascP}$ Masc [$_{NP}$ N]]>
c. </liːd/, [$_{ClsP}$ Cls [$_{FamP}$ Fam ➢</ludmil/>]]>
d. </ludmil/, [$_{FemP}$ Fem [$_{MascP}$ Masc [$_{NP}$ N]]]>

Finally, the forms in (33)—examples of a hypocoristic suppletion—provide an argument for splitting hypocoristic and gender features syntactically. The gender-ambiguous root /jan/ has a suppletive form /jen/; and it is the form /jen/ that appears in both the lengthened and the suffixed hypocoristic of the masculine gender. However, the feminine hypocoristics of both types show no suppletion at all: they are built on the form /jan/, as can be seen in the right-most column of the table in (33).

(33)	first name	masculine hypocoristics	feminine hypocoristics
	J[a]n(-$Ø_M$/-a_F)	lengthened: *J[eː]ň(-a)*	lengthened: *J[aː]ň(-a)*
		suffixed: *J[e]n-d(-a)*	suffixed: *J[a]n-č(-a)*

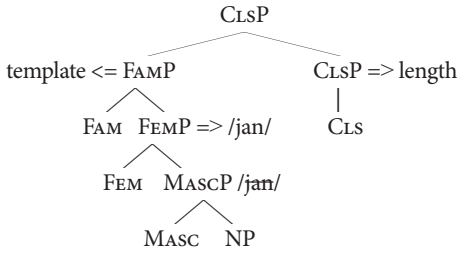
The lexical entries for both root forms are given in (34). The entry for /jan/ in (34a) contains the full gender tree and this way, its gender-ambiguity is encoded

(and preserved). (34b) shows the entry for /jen/: FamP dominates MascP and the whole structure points to the lexical entry for the root /jan/.

(34) a. </jan/, [$_{FemP}$ Fem [$_{MascP}$ Masc [$_{NP}$ N]]]>
b. </jen/, [$_{FamP}$ Fam [$_{MascP}$ Masc ➢</jan/>]]>

The figure in (35) illustrates the derivation of the feminine form *J[aː]ň(-a)*, the lexical items used in the derivation are shown in (36). The spell-out proceeds in the manner described above for other bi-gender forms. So, after the FemP was created, the item that matches the full gender tree overwrites the previous spell-out. In the next step, the FamP is spelled out by the one-syllable template; its association with the one-syllable root has no overt effect. Finally, after the merger of ClsP, its complement undergoes leftward movement, so that the ClsP matches the entry in (36c) and it can thus spell it out.

(35)

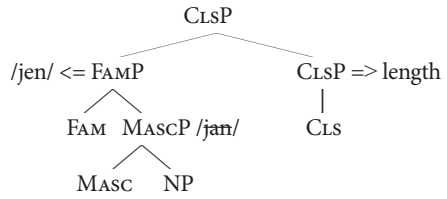


(36) a. </jan/, [$_{FemP}$ Fem [$_{MascP}$ Masc [$_{NP}$ N]]]>
b. <CVC, [$_{FamP}$ Fam ➢[$_{XP}$ X ...[$_{NP}$ N]]]>
c. <VC, [$_{ClsP}$ Cls]>

Let us proceed to derivation of the masculine form *J[eː]ň(-a)*, built, recall, on the suppletive root. In (37), there are two lexical items that can, in principle, spell out FamP: both the item for the template in (36b) and the item for the suppletive root in (34b) match the tree dominated by the FamP. In this competition, the suppletive root wins—and, consequently, the previous spell-out /jan/ is overwritten by the form /jen/. The derivation in (37) illustrates the well-known *Elsewhere Principle* (also sometimes called *Minimize Junk* in Nanosyntax; see Starke 2009); according to the Elsewhere Principle, from a set of spell-out candidates, the most specific candidate "wins". In the case discussed here, the lexical entry for the suppletive root in (34b) contains two syntactic nodes (FamP and MascP) and the pointer to the entry in (34a), it is thus more specific then the entry for

the template in (36b), as this includes just one node (FamP) and the pointer to a structurally defined set of entries. Hence, the suppletive root is more specific than the template (it can be used in less syntactic contexts) and, thus, it "wins".[31]

(37)



It is worth pointing out that once again, these suppletive forms nicely illustrate the need for the intermediate step in the derivation of closeness hypocoristics. Specifically, what we see is that both of the forms *J[e:]ň(-a)* and *J[e]n-d(-a)* show the regular ingredients of a hypocoristic: lengthening in the first case, and *d*-suffixation in the second case. So, this part of the formation is fully regular. The only irregular thing is that the base is not the expected *Jan*, but instead a suppletive base *Jen*. What that shows is that there is a need for the notion of a "base" that is different from the actual name, and which (as I argue) corresponds to FamP.

3.7 Summary

This chapter was devoted to hypocoristics. I proposed that there are two components of the hypocoristic meaning, as identified in the literature, i.e., familiarity and closeness, and that these components correspond to two hierarchically ordered syntactic projections. In Czech, these two projections, in turn, are spelled out by different means, namely by the truncation of the root to one syllable, and by pure lengthening of (the root's) vowel or a consonantal suffix. I argued that the truncation (shared by all types of hypocoristics) is induced by a prosodic template; it spells out the lower hypocoristic projection, the one encoding the familiarity meaning. The complementary distribution between the two other formal processes (lengthening and suffixation) follows from the rather different

31 There exists yet another hypocoristic form associated to the first name *Jan*, i.e., *Honz(-a)* (borrowed from German *Hans*). Since it is a familiarity-expressing masculine, its lexical entry should look like that for the root /jen/ in (31b). In that case, the roots /jen/ and /honz/ would be absolute synonyms, which means that they should be interchangeable in all syntactic contexts. This is, however, not the case: only the root /jen/ occurs in the context of the ClsP. I leave the solution of this synonymy problem for further research.

syntactic structures I proposed for lengthened and suffixed hypocoristics. In particular, I proposed that suffixed hypocoristics are binominal constructions in which the left-hand noun corresponds to a truncated first-name root and the right-hand one is realized by a hypocoristic suffix (which is either *-d* or *-č* depending on the gender).

4. Length in Diminutives

This chapter is devoted to diminutives whose formation is based on the two formal processes: segmental suffixation and lengthening of base-final vowels. Both processes are illustrated in (1). The table compares diminutive forms of masculine first names with their basic forms: the diminutives (in the right part of the table) all end in the suffix *-ek* which is concatenated with the lengthened base.

(1)	base	*ek*-diminutive
	Fil[i]p	*Fil[iː]p-ek*
	Jak[u]b	*Jak[ou]b-ek*
	Joz[e]f	*Joz[iː]f-ek*
	Vikt[o]r	*Vikt[uː]r-ek*
	Ad[a]m	*Ad[aː]m-ek*

In the previous chapter, I discussed hypocoristic forms in which suffixation and lengthening were complementary. Recall that affixation of the masculine hypocoristic suffix *-d* is never accompanied by lengthening of the preceding vowel (*F[i]lip* > *F[i]l-d(-a)* / **F[i:]l-d-a*); base vowels, on the other hand, lengthen only in suffix-less forms (*F[i]lip* > *F[iː]l(-a)*). I explained this pattern as resulting from different morphosyntactic structures of these two types of hypocoristics. In particular, I proposed that they share a single head spelled out either by a prosodic affix (inducing base-vowel lengthening)—or by the suffix *-d*, and that the spell-out really depends on the position of this head in the morphosyntactic tree.

From this perspective, the co-occurrence of lengthening and suffixation—as seen in diminutives in (1) above—can be interpreted in two ways. First, we can consider lengthening to be a by-product of suffixation (i.e., a kind of readjustment rule). In the spell-out model used in this book, it translates to the requirement that both the formal processes must be introduced in a single spell-out step. Under this scenario, the prosodic affix (responsible for lengthening) and the segmental suffix *-ek* are nothing else but two parts of a single lexical entry. The second possibility is to follow the same logic as applied to hypocoristics and thus claim that each of the affixes represents a separate lexical item. In such a case, diminutives are by necessity derived in two steps, and that, in turn, means that they span over several syntactic projections (as do hypocoristics). In what follows, I argue in favor of the latter scenario. Before developing it in the Nanosyntactic

framework, the next section reviews an alternative, a template-based approach to the diminutive length, proposed by Scheer (2003, 2004).

4.1 Scheer's (2003, 2004) Templatic Analysis

Table (1) lists diminutives derived exclusively by the suffix *-ek*. However, there are also those ending in *-ík*. Moreover, sometimes can either of these suffixes attach to the same root, as illustrated by the three pairs of diminutive forms in (2).

(2)	base	VV-*ek*	V-*ík*	
	sl[o]n	*sl[uː]n-ek*	*sl[o]n-ík*	'elephant'
	kl[u]k	*kl[ou]č-ek*	*kl[u]č-ík*	'boy'
	sr[a]b	*sr[aː]b-ek*	*sr[a]b-ík*	'piker'

The examples above follow a clear distributional pattern: base-vowel lengthening occurs only before the short diminutive suffix *-ek*. If a diminutive is formed by the long suffix *-ík*, the base-vowel remains short.

Such a vowel-length pattern (i.e., lengthening is triggered only before a short suffix) led Scheer (2003, 2004) to claim that the diminutive formation is of a templatic nature. In his view, then, there is a diminutive template, which involves the base and the diminutive suffix. Crucially, vowels in this templatic domain must weigh exactly three moras. (Recall that short vowels are monomoraic, while long vowels and diphthongs are bimoraic.) This is the reason why a short, (i.e., monomoraic) suffix *-ek* triggers the lengthening of a short, i.e., monomoraic base: *sra*$_{\mu}$*b* > *srá*$_{\mu\mu}$*b-e*$_{\mu}$*k*. Merger of a short base and a long suffix *-ík* produces a required, trimoraic result, hence, no lengthening needs to occur in *ík*-forms: *sra*$_{\mu}$*b* > *sra*$_{\mu}$*b-í*$_{\mu\mu}$*k*.

Moreover, Scheer (2003:100, 2004:229) strives to show that the base-vowel length is manipulated not only by the *ek*-diminutives, but by the *ík*-diminutives as well. To illustrate the point, he cites the following six examples of *ík*-formed diminutives apparently accompanied by base-vowel shortening: *hl[iː]n(-a) – hl[i]n-ík* 'earth, aluminium', *vr[aː]n(-a) – vr[a]n-ík* 'crow, black horse', *chl[eː]b – chl[e]b-ík* 'bread, small bread', *citr[oː]n – citr[o]n-ík* 'lemon, lemon tree', *k[iː]bl – k[i]bl-ík* 'bucket, small bucket', *t[aː]t(-a) – t[a]t-ík* 'father, fogey'. These examples—according to Scheer—prove existence of the diminutive template; in this instance, bimoraic bases shorten their vowels before the bimoraic suffix *-ík* to satisfy the trimoraic template.

However, I now set to show that Scheer's templatic analysis of the length pattern illustrated in (2) is problematic—and is such for a number of reasons. First

of all, not all diminutive forms fit the trimoraic template, as is illustrated in (3). The *ík*-forms such as *plá*$_{\mu\mu}$*št-í*$_{\mu\mu}$*k* (and the others in the left part of the table) are one-mora too big. On the other hand, the *ek*-forms such as *sva*$_{\mu}$*l-e*$_{\mu}$*k* (and the others on the right), are one-mora too small—they are only bimoraic. And let me also add that such quadrimoraic and/or bimoraic forms are not rare at all.

(3)	base	VV-*ík*		base	V-*ek*	
	pl[aː]šť	*pl[aː]št-ík*	'coat'	*sv[a]l*	*sv[a]l-ek*	'muscle'
	š[eː]f	*š[eː]f-ík*	'boss'	*bl[o]k*	*bl[o]č-ek*	'notepad'
	čm[ou]d	*čm[ou]d-ík*	'smoke'	*čl[u]n*	*čl[u]n-ek*	'boat'

Furthermore, the evidence for diminutive shortening (Scheer's main argument for the trimoraic template), is rather questionable. Since the six bases mentioned above alternate in length also in other contexts than just diminutives, it is natural to ask whether the *ík*-forms really involve shortening of lexically long vowels. In other words, there is no clear evidence that the roots that—according to Scheer—involve "shortening" are lexically stored with long vowels; let us consider the facts below.

Looking at the roots *hl[iː]n(-a)* 'earth' and *vr[aː]n(-a)* 'crow' first, notice that these roots appear short not only in the *ík*-diminutives, but also in *ek*-derivatives (*hl[i]n-k(-a)* 'loess', *vr[a]n-k(-a)* 'small crow') and in adjectives (*hl[i]n-ěn(-ý)* 'earthen', *vr[a]n(-ý)* 'black'). In fact, these two roots show long vowels only when concatenated with case markers, e.g. with the nominative singular marker *-a* (*vr[aː]n-a, hl[iː]n-a*) or the instrumental singular marker *-ou* (*vr[aː]n-ou*, *hl[iː]n-ou*). Given this peculiar distribution, it seems difficult to maintain that the derivation of the *ík*-forms involves shortening of the lexically long roots. Rather, it is not unthinkable to claim that the length alternants of the roots are suppletive and stored separately, rather than derived by a regular process.[32]

32 Moreover, it is doubtful that these forms are diminutives to begin with. To see that, consider the common observation that Czech belongs to languages where diminutive formation preserves the gender of the base; Czech, thus, is in stark contrast to, for example, German where both masculine and feminine bases produce diminutive of neuter gender (see e.g. Wiltschko & Steriopolo 2007). From this perspective, it is striking that the masculines *hlin-ík* and *vran-ík* are derived by the suffix *-ík* from the feminines *hlín(-a)* and *vrán(-a)*. Therefore, it is doubtful that they can be considered as genuine diminutive forms (as Scheer assumes). By contrast, the *ek*-forms *hlin-k(-a)* and *vran-k(-a)* preserve the feminine gender of the bases.

Also in the other pair reported by Scheer, i.e., *chl[eː]b – chl[e]b-ík*, the long variant of the root has restricted distribution. It occurs only in a nominative/accusative singular for, that is in forms that lack an overt ending. In all other environments, including, for example, the nominative plural form *chl[e]b-y* or the adjectival form *chl[e]b-ov(-ý)*, the root is short. The highly restricted distribution of the long alternant thus indicates that the root is lexically short and it lengthens only in certain case-number contexts—and not the other way around.[33]

As for the pair *citr[oː]n – citr[o]n-ík*, a long <ó> alternates with a short <o> in both the base (*citr<ó/o>n*) and the *ík*-form (*citr<ó/o>ník*), these two forms are orthographic (and orthoepic) variants. Furthermore, an *ek*-form shows orthographic doublets as well: *citr<ó>n-ek* and *citr<o>n-ek*. Such a variation suggests that the root 'lemon' (borrowed from Italian), can be stored with either a long or a short vowel. Hence, there is no evidence supporting the claim that the *ík*-derivation involves shortening of [oː] to [o].

Another root cited by Scheer is 'bucket' (this time borrowed from German). Also in this case we cannot unequivocally say that this root is lexically stored as long. First, there is an orthographic variation between *k<y>bl-ík* and *k<ý>bl-ík*. Moreover, the root has a variant *kbel*, with an initial consonant cluster followed by a short epenthetic vowel, which also produces the *ík*-form, i.e., *kbel-ík*.

The final member of the "shortening" set not only has an *ík*-form *t[a]t-ík*, there is also an *ek*-form *t[a]ť-k(-a)* (not mentioned by Scheer). Since both forms contain a short variant of the root, one can conclude that the short form is selected precisely by the evaluative context. This assumption is further supported by an endearment form *t[a]t-i*, with a short variant of the root: it is used in vocative speech acts where it stands in contrast to the pragmatically-neutral form *t[aː]t-o* built on the long root.

To conclude, none of the six examples offered by Scheer (2003, 2004) shows convincingly that *ík*-suffixation involves shortening of lexically long roots and, thus, the existence of the diminutive template fails to be proven.

There is an additional—and complicating—issue for the templatic analysis: vowel-zero alternations. The initial vowel of the short diminutive suffix *-ek* alternates with zero. The alternation is predictable, it happens whenever the suffix is

33 There are other nominal roots with the same alternating pattern as *chléb*, incidentally not mentioned by Scheer (2003, 2004): 'horse' *k[uː]ň – k[o]n-ě – k[o]n-ík* 'Nsg, Npl, dimin.', 'tallow' *l[uː]j – l[o]j-e – l[o]j-ík* 'Nsg, Npl, dimin.', 'carriage' *v[uː]z – v[o]z-y – v[o]z-ík* 'Nsg, Npl, dimin.', 'rain' *d[eː]šť – d[e]št-ě – d[e]št-ík* 'Nsg, Npl, dimin.', 'frost' *mr[aː]z – mr[a]z-y – mr[a]z-ík* 'Nsg, Npl, dimin.'. Such (allegedly) shortening roots are analyzed in section 4.3.2.

followed by another vowel. However, any such form with the vowel-less version of the suffix violates the trimoraic templatic restriction. For example, a short root *vt[i]p* 'joke' lengthens to *vt[iː]p* in the diminutive context, producing the nominative singular form *vt[iː]p-ek*; this form is trimoraic, as predicted by Scheer's analysis: (*vtí*$_{\mu\mu}$*p-e*$_{\mu}$*k*). However, things work differently in, for instance, the nominative plural form. The nominative plural is marked by a vocalic ending, thus, as a consequence, the diminutive suffix gets the vowel-less *-k*. Assuming that only vowels are moraic in Czech (as Scheer does), the templatic domain in the nominative plural form is thus bimoraic: (*vtí*$_{\mu\mu}$*p-k*)*-y*. At the first sight, this problem can be solved by including inflectional markers in the template; in that case, the nominative plural form fits the postulated trimoraic requirement: (*vtí*$_{\mu\mu}$*p-k-y*$_{\mu}$). This templatic-domain extension works for those inflectional forms that include short-vowel endings. However, things get worse once we take into consideration also long-vowel case endings: should they be included in the template, the produced forms are quadrimoraic, as shown by the following forms: genitive plural (*vtí*$_{\mu\mu}$*p-k-ů*$_{\mu\mu}$), dative plural (*vtí*$_{\mu\mu}$*p-k-ů*$_{\mu\mu}$*-m*) and locative plural (*vtí*$_{\mu\mu}$*p-k-á*$_{\mu\mu}$*-ch*).

Moreover, there are also polysyllabic bases for diminutives in Czech—and they pose a problem for defining the template boundaries (and, as it happen, pose another problem for Scheer's templatic analysis of diminutives). Consider the following trisyllabic base *učit[e]l* 'teacher' and its lengthened diminutive form *učit[iː]l-ek*. The base is composed of three morphemes: the verbal root *uč,* the thematic suffix *-i* and the agentive suffix *-tel*, i.e., *uč-i-tel*. Thus, in principle, one might want to see the templatic domain as composed from two morphological units: the agentive suffix *-tel* and the diminutive suffix *-ek*, i.e., *uč-i(-tý*$_{\mu\mu}$*l-ek*$_{\mu}$*)*. There are, however, monomorphemic bases consisting of more than one syllable—and they lengthen as well. For example, in a bisyllabic base *jet[e]l* 'clover', the second *e* lengthens in the diminutive form *jet[iː]l-ek*, even though the string *tel* does not have a morphemic status (as opposed to the *tel*-string in *učitel*). If lengthening is triggered by the trimoraic template, as proposed by Scheer (2003, 2004), we have to claim that in diminutives like *jetýlek*, based on monomorphemic bases, the templatic domain involves the diminutive suffix and only one phonological part of the root, i.e., its last syllable: *je(tý*$_{\mu\mu}$*l-ek*$_{\mu}$*)*. This scenario must be ruled out: it allows *morphological* templates (and the diminutive template in Scheer's rendering is certainly such) not to correspond to *morphological* units. That is clearly not what we want.

Summing up: there is no base-shortening in *ík*-diminutives, *ek*-diminutives, on the other hand, very often show lengthening of the base last syllable. Once we

see the data in this way, suddenly there are only few counterexamples (like *svalek* in table (3) above)—and I come back to them in section 4.3.1.

4.2 Phonology of Diminutive Suffixes and Diminutive Stems

Let us start with recapitulating the phonological properties of diminutives. We have identified two formal processes involved in their formation: (i) lengthening base-final vowels, (ii) suffixation by [ek] or [iːk]. In this chapter, I examine these formal processes in greater detail.

4.2.1 Evidence That *-ek* Starts with [e] Lexically

We have already seen the suffix *-ek* alternations: it is either vowel-initial or consonant-initial depending on the context to its right. The alternating pattern is summarized in (4).

(4)	a. -k/ _-V	b. -ek/ _#	c. -ek/ _-ek	d. -ek/ _-k
	dár-[k]-ov-ý	*dár-[ek]*	*dár-[eʧ]-[ek]*	*dár-[eʧ]-[k]-ov-ý*

In the adjective *dár-k-ov-ý* 'gift-related' in (4a), a vowel-initial (adjectival) suffix *-ov* follows the diminutive suffix and it then surfaces as vowel-less. Crucially, notice that the suffix *-ov* itself is not alternating: its initial vowel does not alternate with zero. If the diminutive suffix is followed by another alternating suffix, it always appears with an initial [e], as shown in (4c,d). Both (4c,d) contain a double diminutive with two suffixes *-ek* following one another. The first diminutive suffix always surfaces as vowel-initial—regardless whether the second suffix is actually vocalized (as in the nominative singular form *dár-eč-ek* in (4c)) or not (as in the adjectival form *dár-eč-k-ov-ý* in (4d)). Finally, the nominative singular forms of both a simple diminutive *dár-ek* in (4b) and its double-diminutive cousin *dár-eč-ek* in (4c) illustrate that the diminutive suffix appears vowel-initial also word-finally, i.e., when there is no other suffix following it.[34]

The vowel-zero alternating pattern (found in all Slavic languages) has been analyzed intensively in the literature (for an overview, see Scheer & Ziková (2010)). Generally, there are two approaches: vowels alternating with zero are either lexically present or they are epenthetic. The main argument in favor of the

34 Note that the examples in (4) also illustrate the alternation of the consonant of the diminutive suffix consonant shows: it alternates between a velar [k] and a postalveolar [ʧ], the latter one appearing in the double diminutive form. This (perfectly regular) consonant alternation is discussed further on in section 4.2.3

former account, i.e., an alternating vowel is lexically stored, is the fact that the alternating vowel is not predictable from phonotactics alone. This unpredictability is well illustrated by the (near) minimal pairs in (5): there are three identical consonant clusters, but this cluster is sometimes perfectly fine as a word-final cluster, but sometimes it just must be broken up by the alternating vowel [e]. Thus: the contexts with the vowel-alternant must be lexically distinguished from those context in which it does not appear—and, clearly, the most straightforward option is to include the vowel in the lexical representation of those roots and affixes where we do see it (even if it is not always the vowel surfaces).

(5)	C_xC_y#		C_x[e]C_y#	C_xC_y-V	
	pa[rk]	'park, Nsg'	*dá[rek]*	*dá[rk]-u*	'small gift, Nsg, Gsg'
	zmá[ʧ'k]	'he pushed'	*ptá[ʧ'ek]*	*ptá[ʧ'k]-a*	'small bird, Nsg, Gsg'
	su[lʦ]	'aspic, Nsg'	*pa[leʦ]*	*pa[lʦ]-e*	'thumb, Nsg, Gsg'

Notice, however, that the alternating vowel [e] has to be underlyingly distinguished from its non-alternating cousin, as both types of *e*'s can occur in the same phonotactic environment. Table (6) provides a couple of examples illustrating this surface ambiguity between the alternating and non-alternating [e].

(6)	C_x[e]C_y#	C_x[e]C_y-V	C_x[e]C_y#	C_xC_y-V	
	úl[lek]	*úl[lek]-u*	*úl[lek]*	*úl[lk]-u*	'scare, small hive; Nsg, Gsg'
	je[tel]	*je[tel]-e*	*da[tel]*	*da[tl]-a*	'clover, woodpecker; Nsg, Gsg'
	ba[ret]	*ba[ret]-u*	*[ret]*	*[rt]-u*	'beret, lip; Nsg, Gsg'

In the Strict CV framework—the phonological framework we use in this book—it is relatively easy to distinguish between vowels alternating with zero on the one hand and stable vowels on the other: the former are lexically floating segments while the non-alternating vowels are segments that are associated with their V-slots already in the lexicon. Thus, the diminutive suffix *-ek* involves a lexically floating vowel [e] on its left. Its exact lexical representation is discussed further on in section 4.3.5.

4.2.2 Evidence That *-ík* Is Not Just Lengthened *-ek*

Since lengthening in diminutives involves raising of mid vowels, as I illustrated by the examples in (1) above, one might be tempted to claim that the lexical identity of the long high vowel in *-ík* is a short mid vowel [e]—only lengthened. In other words, it is not unthinkable to propose an analysis that would have it

so that there is a single diminutive suffix which surfaces either as *e*-initial or *í*-initial, depending on its position with respect to the prosodic affix that causes lengthening in diminutives. If the prosodic affix were attached higher than the segmental suffix *-ek*, the prosodic suffix would trigger lengthening—and raising of its initial [e] to [iː]. If the prosodic affix were to attach lower than *-ek*, the lengthening would rather affect the root and the segmental suffix would thus surface in its lexical form, i.e., with an initial *e*.

This scenario predicts that both shapes of the diminutive suffix should behave in a similar way phonologically: if *-ek* and *-ík* shared a single underlying form, they would be are expected to share phonological properties. This is, however, not the case: these two suffixes differ phonologically—and in fact, they are different in two different ways. First, the initial vowel alternates with zero in *-ek*, but not in *-ík*; cf. the contrast between *dár-[ek], dár-[k]-u* 'small gift, Nsg, Gsg' and *oltář-[iːk], oltář-[iːk]-u* 'small altar, Nsg, Gsg'. Second, each of the suffixes triggers different palatalization patterns, as is illustrated in table (7). The comparison of three pairs of *ek*-diminutives (in the left-hand part) and *ík*-diminutives (on the right) shows that root-final dentals [d t n] are preserved before the *-ek*, but they change to palatals [ɟ c ɲ] before the suffix *-ík*.

(7)	base	*ek*-diminutive		base	ík-diminutive	
	scho[d]	*schů[d]-ek*	'step'	*bo[d]*	*bo[ɟ]-ík*	'point'
	plo[t]	*plů[t]-ek*	'fence'	*chr[t]*	*chr[c]-ík*	'geyhound'
	župa[n]	*župá[n]-ek*	'bath robe'	*po[n](-y)*	*po[ɲ]-ík*	'pony'

One might want to claim that the palatalization of dentals in *ík*-diminutives is due to the raising of a mid [e] to a high [iː]. However, this explanation is untenable as the data in table (8) show. There are three nominal roots in (8) whose final syllable starts with a dental followed by the mid vowel [e]. And these dentals are preserved even in *ek*-diminutives in which the base internal [e] has raised (and lengthened) to [iː]. These data thus clearly show that the *e*-to-*í* raising—in fact—does not lead to dental palatalization.

(8)	base	*ek*-diminutive	
	mo[de]l	*mo[diː]l-ek*	'model'
	prs[te]n	*prs[tiː]n-ek*	'ring'
	pa[ne]l	*pa[niː]l-ek*	'panel'

In sum, there is phonological evidence that the suffix *-ík* is not just a long version of the suffix *-ek*. There is an additional piece of evidence pointing in the same direction: feminine nouns in which the suffix appears short and the short vowel is [i]. I discuss them presently.

4.2.3 Evidence That *-ík* Starts with [i] Lexically

Up to now, I have been discussing diminutive forms of masculine gender. Both diminutive suffixes (*-ek* and *-ík*), however, derive also feminine diminutives (and neuter ones that I leave aside for the moment). The suffix *-ek* behaves phonologically the same way in both masculines and feminines: if it surfaces as vowel-initial, the vowel is a short [e]. The table below illustrates that it holds for simple and double diminutives of both genders, i.e., masculines in (9a) and feminines in (9b). Note that for the feminine diminutive, I opt for genitive plural form, as it is that form in the feminine paradigm that lacks an overt case marker—just like the nominative singular of the masculine gender. This adjustment then allows us to see the parallel behavior of the suffixes clearly.

(9)		simple diminutive	double diminutive
	a.	*dár-[e]k*	*dár-[e]č-[e]k*
		gift-DIM.NOM.SG	gift-DIM-DIM.NOM.SG
	b.	*strán-[e]k*	*strán-[e]č-[e]k*
		page-DIM.GEN.PL	page-DIM-DIM.GEN.PL

Phonological behavior of the suffix *-ík*, on the other hand, is gender-sensitive: it is long in masculines, but short in feminines. The pattern is illustrated in the table in (10). The table lists double diminutive forms, in which the *i*-initial suffix is followed by the *e*-initial one. (Note that the velar of the first suffix is regularly palatalized to [ʧ].) The masculine forms in (10a) display a long version of the *i*-initial suffix—while the feminines in (10b) show a short version. (A phonological independence of the alternation is demonstrated by comparing the forms in the left-hand column, where the vowel in question appears in an open syllable, i.e., *ko.n[iː].ček*, with the forms on the right showing the vowel in a closed syllable, i.e., *ko.n[iː]č.ka*. Once again, this leads to comparing the masculine nominative singular with the feminine genitive plural in the first column, and the masculine genitive singular with the feminine nominative plural in the second column.)

(10)	a.	*kon-[iː]č-ek*	*kon-[iː]č-k-a*
		horse-DIM-DIM.NOM.SG	horse-DIM-DIM-GEN.SG
		kluč-[iː]č-ek	*kluč-[iː]č-k-a*
		boy-DIM-DIM.NOM.SG	boy-DIM-DIM-GEN.SG
		les-[iː]č-ek	*les-[iː]č-k-a*
		forest-DIM-DIM.NOM.SG	forest-DIM-DIM-GEN.SG
	b.	*ryb-[i]č-ek*	*ryb-[i]č-k-a*
		fish-DIM-DIM.GEN.PL	fish-DIM-DIM-NOM.SG
		ruč-[i]č-ek	*ruč-[i]č-k-a*
		hand-DIM-DIM.GEN.PL	hand-DIM-DIM-NOM.SG
		věž-[i]č-ek	*věž-[i]č-k-a*
		tower-DIM-DIM.GEN.PL	tower-DIM-DIM-NOM.SG

Generally, the length alternation in the *i*-initial suffix can be represented either derivationally or suppletively. In the first case, there are further two scenarios: the suffix either starts with a short [i] lexically and it lengthens in the masculine context, or, the second possibility is to see the long [iː] stored lexically and the vowel shortens in the context of feminine nouns. Under the suppletive scenario, both versions of the suffix (i.e., both the long and short version) would be stored in the lexicon (together with their gender specification). In what follows, I argue for the derivational approach and within that, I favor the lengthening scenario. Before elaborating on it, let me explore the length pattern in *ek*-diminutives.

4.2.4 Length Alternations in Bases: The Gender Asymmetry

It is also in *ek*-diminutives we can observe a robust correlation between vowel-length alternations and the gender features. The gender-contrast is well illustrated by the diminutive forms of gender-ambiguous first names, as shown in (11). As we have discussed already in chapter 3, a lot of first names (or, at least the first-name bases stripped off their inflectional morphology) are ambiguous between masculine and feminine gender. Recall that such gender-ambiguous nouns actually differ only in the declension patterns. The most significant difference regards the nominative singular (which is also the citation form used in metalinguistic contexts): in the feminine paradigm, it is marked by *-a*, while the masculine paradigm has no overt marker in the nominative singular form. However, there is another ending *-a* in the masculine declension: the genitive singular marker. To complete the symmetry, there is a paradigm cell in the feminine declension that lacks an overt case

marker: genitive plural. Thus, if we take the bare-root form *Ivan* and the *a*-final form *Ivan-a*, each form can be either feminine or masculine, thus, both *Ivan* and *Ivan-a* are gender-ambiguous. Importantly, it is only non-diminutive forms that are ambiguous—diminutive forms (even though they follow the same declensional patterns as the first names) do not show such ambiguity. And, not surprisingly, it is the length of the base-final vowel that gives the (otherwise syncretic) forms out. While the masculine diminutive forms systematically show length, the corresponding feminine forms are short (i.e., lack lengthening).

To see this, consider, for instance, the name *Ivan*. As it should be apparent from the discussion, the form *Ivan* is ambiguous between masculine nominative singular and feminine genitive plural. When the diminutive suffix is attached, the ambiguity disappears and a minimal diminutive pair is born: *Iv[aː]n-ek* (masculine, lengthened) vs. *Iv[a]n-ek* (feminine, not lengthened). Analogously, the form *Ivana* is ambiguous between masculine genitive singular and feminine nominative plural. Under diminutivization, the ambiguity is resolved by length: the lengthened form *Iv[aː]n-k-a* is unambiguously masculine, while the short form *Iv[a]n-k-a* is feminine. The table below illustrates the contrast for a variety of first names. All of the names are—like *Ivan*—ambiguous without the diminutive suffix, but once they get diminutivized, the ambiguity disappears.

(11)	Masc (Nsg)	Fem (Gpl)	Masc (Gsg)	Fem (Nsg)
	Iv[aː]n-ek	*Iv[a]n-ek*	*Iv[aː]n-k-a*	*Iv[a]n-k-a*
	Rom[aː]n-ek	*Rom[a]n-ek*	*Rom[aː]n-k-a*	*Rom[a]n-k-a*
	Vlad[aː]n-ek	*Vlad[a]n-ek*	*Vlad[aː]n-k-a*	*Vlad[a]n-k-a*
	Bohd[aː]n-ek	*Bohd[a]n-ek*	*Bohd[aː]n-k-a*	*Bohd[a]n-k-a*
	Mart[iː]n-ek	*Mart[i]n-ek*	*Mart[iː]n-k-a*	*Mart[i]n-k-a*
	Vikt[uː]r-ek	*Vikt[o]r-ek*	*Vikt[uː]r-k-a*	*Vikt[o]r-k-a*

To summarize so far: *ek*-diminutives alternate in vowel length in a way similar to *ík*-diminutives. In both cases, the alternation is gender-sensitive and in both cases, the long alternants occur in masculines. The difference is a locus of the alternation: it is the suffix in *ík*-diminutives, but the base in *ek*-diminutives. And then there is the question of productivity (which poses another difference between the diminutives). The alternation of the *i*-initial suffix is regular and productive: no masculine diminutive ever shows a short version of the suffix, thus, there are no forms like **kon-[i]k* or **kon-[i]č-ek*. Masculine *ek*-diminutives, by contrast, do not behave uniformly at all: they show lengthened bases (see (11) above)—or there is variation. For example, there is both *Jindř[iː]š-ek* and *Jindř[i]š-ek* or both

Šim[uː]n-ek and *Šim[o]n-ek* with either a lengthened or a non-lengthened variant of the first-name base.

Despite the variation, the gender-sensitive pattern is still detectable even in *ek*-diminutives (summarized in (12)): if a base alternates in length, the long alternant always appears in the masculine *ek*-form. The complementary pattern of an alternation, cf. a short masculine and a long feminine, is not attested.

(12)	base	*ek*-masculine	*ek*-feminine
	V	V/VV	V
	Jarm[i]l(-a)	*Jarm[i/iː]l-ek*	*Jarm[i]l-k(-a)*
	V	VV	V
	Mart[i]n(-a)	*Mart[iː]n-ek*	*Mart[i]n-k(-a)*

To conclude, the behavior of gender-ambiguous nouns indicates that lengthening of base-final vowels is activated only in masculine diminutives. Moreover, gender-specific nouns support this conjecture as well, as illustrated in table (13): masculine-only names lengthen their vowels in *ek*-diminutives (in the left part of the table), while feminine-only names (on the right) do not. (Notice also that all bases below have a similar phonological structure—all end in /an/—, which suggests that the alternation is really not sensitive to the phonotactics.)

(13)	base	*ek*-masculine	base	*ek*-feminine
	Mil[a]n	*Mil[aː]n-ek*	*Zuz[a]n(-a)*	*Zuz[a]n-k(-a)*
	Duš[a]n	*Duš[aː]n-ek*	*H[a]n(-a)*	*H[a]n-k(-a)*
	Al[a]n	*Al[aː]n-ek*	*Jol[a]n(-a)*	*Jol[a]n-k(-a)*

The length pattern is followed not only by gender-specific first names, but also by gender-specific common nouns, as illustrated in (14). Each row of the table compares two *ek*-diminutives built on phonologically similar bases. (Note that the roots in the second row are even homonymous.) And again: only masculine bases undergo lengthening. Moreover, these bases are all loans, which suggests that the diminutive lengthening is really a productive process synchronically.

(14)	base	*ek*-masculine		base	*ek*-feminine	
	muff[i]n	*muff[iː]n-ek*	‘muffin’	*mik[i]n(-a)*	*mik[i]n-k(-a)*	‘hoodie’
	kab[e]l	*kab[iː]l-ek*	‘cable’	*kab[e]l(-a)*	*kab[e]l-k(-a)*	‘bag’
	trakt[o]r	*trakt[uː]r-ek*	‘tractor’	*amf[o]r(-a)*	*amf[o]r-k(-a)*	‘amphora’
	festiv[a]l	*festiv[aː]l-ek*	‘festival’	*mand[a]l(-a)*	*mand[a]l-k(-a)*	‘mandala’

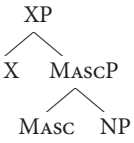
It is fair to add that there exist also lengthened feminine forms of both first names (e.g. *Mil[a]d(-a) – Mil[aː]d-k(-a)*) and common nouns (e.g. *str[a]n(-a) – str[aː]n-k(-a)* 'page'). However, such lengthened *ek*-feminines are generally much less frequent then lengthened *ek*-masculines. To explain this contrast between masculines and feminines, I propose that lengthening is an active process only in *ek*-masculines. In particular, I claim that length arises from the insertion of a prosodic VC-affix that, in turn, is a realization of (a part of) the diminutive meaning. In *ek*-feminines, this part can be realized by the base itself and that is why they only have short vowels (i.e., they do not have to lengthen the base). From this perspective, lengthened feminine bases are suppletive, i.e., stored in the lexicon (as opposed to their lengthened masculine cousins whose length results from phonological derivation). This proposal is developed in the next sections.

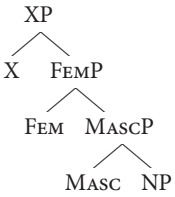
4.3 Decomposing the Diminutives

This section presents the way the findings about phonological properties of diminutives, presented in the previous chapters, can be derived from their morphosyntactic structure.

4.3.1 Long vs. Short Diminutive Stems

When analyzing hypocoristics, I have established that the category of gender is decomposed into two syntactic projections, hierarchically organized as [FEMP FEM [MASCP MASC]]. The idea was that morphosyntactic structure of masculine nouns involves only the lower projection of the gender subtree, while feminines involve both of them. Let me now introduce a new feature X: X encodes (a part of) the diminutive meaning. From now on, the tree dominated by XP is a *diminutive stem*. Since the X-head is placed on top of the gender subtree, there are two syntactically different types of diminutive stems. (15a) shows a structure of the masculine diminutive stem in which the diminutive feature X is merged with MASCP. The feminine stem in (15b) is then one-projection bigger: the X is merged with the whole gender subtree.

(15) a. 

b. 

In the previous section I showed that lengthening is an active process only in masculine diminutives. To capture this generalization, I propose that there is a prosodic affix and once it is merged in the tree, it triggers lengthening of base-final vowels. Moreover, this affix is lexically paired with both the masculine and the diminutive features. The lexical entry for this affix is shown in (16).[35]

(16) </VC/, [$_{XP}$ X [$_{MascP}$ Masc]]>

The contrast between lengthened masculine *ek*-diminutives (e.g. *kr[o]k – kr[uˑ]č-ek* 'step') and those that do not lengthen (and are, in fact, exceptional, as e.g. *br[o]k – br[o]č-ek* 'slug') then arises from the different spell-out of their stems. In particular, the diminutive-stem tree in (15a) is spelled out either by a single item, i.e., by the root itself (in non-lengthened forms such as *br[o]č-ek*), or it is spelled out by two items, i.e., the root and the prosodic affix (in lengthened forms such as *kr[uˑ]č-ek*). From this perspective, the contrast between masculine roots maintaining short vowels and roots whose vowels lengthen in the diminutive stem boils down to their lexical storage, as is illustrated in (17).

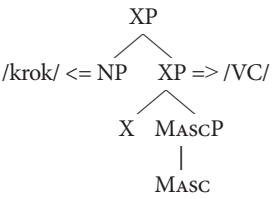
35 Note, that the empty V-slot of the diminutive prosodic affix differs phonologically from the empty V-slot of the hypocoristic prosodic affix discussed in chapter 3. Specifically, the V-slot of the diminutive prosodic affix is provided with the root node and this root node is absent in the hypocoristic affix. This difference derives the contrast between qualitative lengthening (in diminutives) and pure lengthening (in hypocoristics). Note further, that the VC-shape of the prosodic affix in (16) ensures that it is inserted before the base-vowel, which means that its melody automatically spreads to the inserted empty V-position. The lexical form of the prosodic affix thus determines that manipulation with base-vowel length is independent of the diminutive syllable structure; the reader is directed to section 2.5 for more technical details on melody spreading. However, the VC-shape of the prosodic affix itself does not indicate which of the base vowels should be lengthened. Since it is always the last vowel in the string that gets the length, as clearly shown by polysyllabic bases in (14), the prosodic affix must be lexically specified for the given prosodic anchor.

(17) a. </krok/, [$_{\text{MASCP}}$ MASC [$_{\text{NP}}$ N]]>

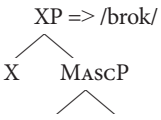
b. </brok/, [$_{\text{XP}}$ X [$_{\text{MASCP}}$ MASC [$_{\text{NP}}$ N]]]>

The root /brok/ stored as a structure in (17b), is able to spell out the whole diminutive-stem tree in (15a): the trees, i.e., the lexical one in (17b) and the one created in syntax (shown in (15a)), fully match. This one-item-spell-out scenario is depicted in (18b). The two item-scenario, involving insertion of the root /krok/ and the VC-affix (which triggers *o*-to-*ů* lengthening), is shown in (18a). Technically, under this scenario, the NP moves to spec of the XP—as this movement is the only possibility for the XP to be spelled out. Even more technically, the spell-out procedure in (18a) involves the so-called *backtracking* (Starke 2018): a portion of a syntactic structure spelled out by the root /krok/ first "increases" and then "shrinks" in the subsequent steps of the cyclic derivation. In particular, the form /krok/—lexically paired with [$_{\text{MASCP}}$ MASC [$_{\text{NP}}$ N]]—is inserted into the structure after the merge of NP. It is reinserted after the next merge-step, in which the MASCP is created. In the next step, syntax creates the XP which, however, can no longer be spelled out by the form /krok/. Thus, as the last option, the NP-to-specXP movement is applied leading to the constituent [$_{\text{XP}}$ X [$_{\text{MASCP}}$ MASC]]. And this structure, then, matches the syntactic structure of the prosodic affix in (16). As a consequence, the form /krok/ spells out just the NP, as it had done previously, i.e., before the MASCP was merged.

(18) a.



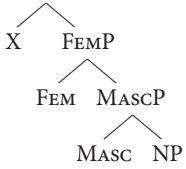
b.



Let me now turn to the feminine stems; recall that they do not lengthen productively in diminutives. I propose that the absence of lengthening is in fact a consequence of the syntactic structure of feminines. Recall that for the feminine stems, I have proposed the structure in (19a): the diminutive feature X is merged with the whole gender tree. Notice also that there is no way the prosodic affix (the trigger of lengthening) can enter this structure: the VC-affix is lexically specified for [$_{\text{XP}}$ X [$_{\text{MASCP}}$ MASC]] (see the entry in (16) above). However, no such constituent is present in the feminine stem in (19a) and, in addition, no thinkable type of spell-out driven movement can derive it from the structure in (19a). (For the typology of spell-out operations, see footnote 8 in section 3.3.1). Thus, the

diminutive feature X can be spelled out under one (and only) scenario, namely the one-item scenario: a single lexical form spells out the whole diminutive-stem tree in (19a). This proposal, moreover, draws a parallel between feminines and non-lengthening masculines: both are built on bases that are lexically specified for spelling out the diminutive feature X. The parallel becomes obvious once we compare the lexical entry for the feminine root /bot/ 'shoe' in (19b) (which produces a non-lengthened diminutive *bot-k(-a)*) with the lexical entry for the masculine root /brok/ 'slug' depicted in (17b).

(19) a.



b. </bot/, [$_{XP}$ X [$_{FEMP}$ Fem [$_{MASCP}$ Masc [$_{NP}$ N]]]]>

In section 3.4.5, I looked at gender-ambiguous first-name roots, such as /ivan/ that produce both a masculine name *Ivan(-Ø)* and a feminine name *Ivan(-a)*. I claim that these roots involve the whole gender subtree lexically. Since their diminutive forms follow the general pattern, whereby masculines are lengthened (*Iv[aː]n-ek*) and feminines are not (*Iv[a]n-k(-a)*), the gender-ambiguous roots must be lexically stored with the diminutive feature X. To illustrate this, consider a lexical entry for the root 'Ivan': </ivan/, [$_{XP}$ X [$_{FemP}$ Fem [$_{MascP}$ Masc [$_{NP}$ N]]]]>. In the feminine diminutive stem, the root behaves exactly like any other feminine-only root, cf. /bot/ from above: it spells out the whole diminutive structure shown in (19a). In the masculine stem, on the other hand, the spell-out scenario for the masculine-only root /krok/ in (18a) is repeated. Concretely, the form /ivan/ spells out just the NP and the rest of the masculine diminutive tree is spell-out by the prosodic affix; as a consequence /ivan/ lengthens to /ivaːn/.

Finally we can move to the last exception I have already mentioned: a couple of lengthened feminine stems, e.g. *str[a]n(-a) – str[aː]n-k(-a)* 'page' or *jah[o]d(-a) – jah[uː]d-k(-a)* 'strawberry'. The same strategy used for masculines, cf. the prosodic affix, which induces diminutive lengthening, cannot be used in feminines at all: the feminines include the whole gender subtree. As a consequence, long feminine stems must be lexically stored. This proposal is depicted in (20a). Literally, this lexical entry says that the long form /jahuːd/ is "a diminutive version of the root /jahod/": it is specified for spelling out the diminutive feature X and it points out to the lexical entry in (20b), which stores a short version of the root. To express the lexical relatedness between the long and the short form of the

root, the old tool, i.e., a pointer ➢, is used in (20a) (see section 3.3.1 for more technical details on pointers).

(20) a. </jahuːd/, [$_{XP}$ X ➢</jahod/>]
b. </jahod/, [$_{FemP}$ Fem [$_{MascP}$ Masc [$_{NP}$ N]]]>

Summing up, I proposed that lengthened masculine diminutive stems arise from concatenation of the prosodic affix while lengthened feminine stems are lexically stored. The suppletive approach to length alternations in feminines fits well with our finding that length alternations are much less widespread in feminine diminutives than in masculine ones.[36]

4.3.2 Against Shortened Stems

As we already seen, diminutive lengthening is not the only process recognized in the literature—there is also a reverse process, i.e., diminutive shortening. It is illustrated by pairs like *d[uː]m – d[o]m-ek* 'house' or *ž[aː]b(-a) – ž[a]b-k(-a)* 'frog'; see e.g. Anderson & Browne (1973:460), Petr et al. (1986:302), Scheer (2004:621), among others. In what follows, I argue that the only length-manipulation process involved in diminutives is lengthening and it is induced by the prosodic affix, as discussed above. In particular, I claim that there is no diminutive shortening at all. The main argument supporting this hypothesis is the fact that shortening analyses equate citation forms (i.e., nominative singular forms) with lexically stored forms that serve as bases for diminutive stems—and that this alignment is inaccurate.

Let us start with the following generalization regarding "shortening" masculines: all masculine roots that undergo diminutive shortening show length alternation throughout the declensional paradigm. The actual correlation between vowel-length behavior of roots in the masculine declension and in *ek*-diminutives is illustrated in (21). The table in (21a) shows the root 'house', its short diminutive form *d[o]mek* is claimed to involve *ů*-to-*o* shortening. The first two columns of the table demonstrate that the root alternates in length also in the declensional paradigm. By contrast, roots that do not alternate in length in the declension, never "shorten" their vowels in *ek*-diminutives, as is illustrated

36 In the model proposed here, length variations seen in some diminutive stems can be explained as arising from variations in lexical storage. For example, some speakers use a non-lengthened version of the *ek*-diminutive *rob[o]t-ek* 'robot' while others use its lengthened form *rob[uː]t-ek*; that translates in our system to the claim that while the former store the root /robot/ with the diminutive feature X, the latter without it.

by the root 'throne' in (21b). This root has a long vowel [uː] in all the forms in the declensional paradigm (as shown in the first two columns in (21b)), in the *ek*-diminutive *tr[uː]nek*, and in the other derivatives as well (in the third column).

(21) a.

	Sg	Pl		
N	*d[uː]m*	*d[o]m-y*	*d[o]m-ek*	'small house'
A	*d[uː]m*	*d[o]m-y*	*d[o]m-a*	'at home'
G	*d[o]m-u*	*d[o]m-ů*	*d[o]m-ovník*	'caretaker'
D	*d[o]m-u*	*d[o]m-ům*	*d[o]m-ácí*	'homemade'
L	*d[o]m-ě*	*d[o]m-ech*	*d[o]m-obrana*	'militia'
I	*d[o]m-em*	*d[o]m-y*		

b.

	Sg	Pl		
N	*tr[uː]n*	*tr[uː]n-y*	*tr[uː]n-ek*	'small throne'
A	*tr[uː]n*	*tr[uː]n-y*	*tr[uː]n-ní (sál)*	'throne (room)'
G	*tr[uː]n-u*	*tr[uː]n-ů*	*tr[uː]n-it*	'to be on the throne'
D	*tr[uː]n-u*	*tr[uː]n-ům*		
L	*tr[uː]n-u*	*tr[uː]n-ech*		
I	*tr[uː]n-em*	*tr[uː]n-y*		

Even a glance at the table in (21a) reveals how disproportionately the short and long forms of the root are distributed: the long form appears only in two (syncretic) paradigm cells, namely in the nominative and accusative singular; the short form, on the other hand, appears elsewhere, i.e., in the rest of the declensional paradigm and also in all types of derivatives, including the *ek*-diminutive (as is shown in the third column in (21a)). Given the rather limited, case-sensitive distribution of the length, the length alternation *d[uː]m* 'house' – *d[o]m-ek* 'small house' can hardly be interpreted as involving *ů-to-o* shortening. On the contrary, a much more plausible analysis is such, according to which the root is lexically stored as short and it lengthens in the given case/number context.

If we take on the hypothesis that the length in the root /duːm/ is due to its merger with the nominative/accusative case marking prosodic affix, we are then in a position to unify three distributional observations that would have otherwise remained unrelated. In particular, assuming that the length marks the nominative/accusative case, it is no coincidence that: (i) there is correlation between the long variant of the root and the absence of an overt case marker (the explanation: the case is marked by the length itself); (ii) existence of a directional adverb

dom (e.g. *Petr šel dom* 'Petr went home') is not surprising any more (the adverb, made up from a short bare root, does not carry the nominative feature, hence, it does not merge with the prosodic affix, hence, it does not lengthen); (iii) there is only one vowel-length alternating pattern in the masculine paradigm and the contrast is between the nominative/accusative singular on the one hand and the rest of the paradigm cells on the other (and not between, say, dative singular and the other cases).

As far as I can see, the shortening in the masculine diminutive was "invented" solely based on the length contrast between a particular inflectional form of the root and its diminutive form. However, if distribution of length variants of "shortening" roots is considered from a broader perspective, then, in fact, the contrast lies between the nominative/accusative singular form and the rest of the inflectional and derivational forms. Thus, there is no difference between the short diminutive *domek* and the short diminutive *broček* 'slug' (discussed in the previous section): in both, there is a lexically short root that spells out the whole diminutive-stem tree (with the concatenated diminutive suffix *-ek*). The only distinction is that the root 'house' and the other roots listed in (22) merge with a prosodic affix in the nominative singular context, while the root 'slug' does not.

(22)	*ek*-diminutive	Gsg	Nsg	
	dv[o]r-ek	*dv[o]r-a*	*dv[uː]r*	'court'
	hn[o]j-ek	*hn[o]j-e*	*hn[uː]j*	'dung'
	l[o]j-ek	*l[o]j-e*	*l[uː]j*	'tallow'
	st[o]l-ek	*st[o]l-u*	*st[uː]l*	'table'
	v[o]l-ek	*v[o]l-a*	*v[uː]l*	'ox'

To complete the discussion of "shortening" masculines, there is yet another alternating pattern illustrated in (23). The root 'god' alternates in length in the denclension paradigm the same way as the roots above; however, it—contrary to the stems above—has a long vowel also in the *ek*-diminutive, cf. *b[uː]ž-ek*.

(23)	Sg	Pl		
N	*b[uː]h*	*b[o]h-ové*	*b[uː]ž-ek*	'little god'
A	*b[o]h-a*	*b[o]h-y*		
G	*b[o]h-a*	*b[o]h-ů*	*b[o]h-yně*	'goddess'
D	*b[o]h-u*	*b[o]h-ům*	*b[o]ž-í*	'godly'
L	*b[o]h-u*	*b[o]z-ích*	*b[o]ž-stvo*	'deity'
I	*b[o]h-em*	*b[o]h-y*		

The third column in the table above demonstrates that all derivatives include a short root—except the diminutive. To explain this length contrast, I draw a parallel between the diminutive *bůžek* and the diminutive *krůček* 'step', analyzed previously. I assume that both are built on lexically short roots that merge with the prosodic affix, and from this merger, a diminutive stem is created. Under this analysis, the co-distribution of the length across the nominative singular and the *ek*-diminutive in tables (23) and (24) is coincidental: it arises from the merger of two lexically distinct prosodic affixes.

(24)	*ek*-diminutive	Gsg	Nsg	
	d[uː]ll-ek	*d[o]ll-u*	*d[uː]ll*	'pit'
	v[uː]z-ek	*v[o]z-u*	*v[uː]z*	'cart'
	hr[aː]š-ek	*hr[a]ch-u*	*hr[aː]ch*	'pea'
	mr[aː]z-ek	*mr[a]z-u*	*mr[aː]z*	'frost'
	l[iː]ž-ek	*l[i]h-u*	*l[iː]h*	'alcohol'
	sn[iː]ž-ek	*sn[e]h-u*	*sn[iː]h*	'snow'

To conclude, the contrast between the *bůžek*-type roots in (24) and the *domek*-type roots in (22) boils down to the old contrast between roots that undergo diminutive lengthening and those that do not: only the latter are capable to spell out the whole diminutive stem, the former need help of a prosodic affix.

Let us now turn to "shortening" feminines: in certain respects, they resemble "shortening" masculines—and yet, they differ from them. Again, the "shortening" analysis is postulated based on comparison between a short diminutive and a long nominative singular. However, as with masculines, short versions of feminine roots are not restricted to the diminutive context, as illustrated in the third column of table (25). As a matter of fact, the short form of the root 'frog' is distributed across derivatives of various semantic types.

(25)		Sg	Pl		
	N	*ž[aː]b-a*	*ž[aː]b-y*	*ž[a]b-ka*	'small frog'
	A	*ž[aː]b-u*	*ž[aː]b-y*	*ž[a]b-ák*	'male frog'
	G	*ž[aː]b-y*	*ž[a]b*	*ž[a]b-inec*	'chickweed'
	D	*ž[aː]b-ě*	*ž[aː]b-ám*	*ž[a]b-í*	'froggy'
	L	*ž[aː]b-ě*	*ž[aː]b-ách*		
	I	*ž[aː]b-ou*	*ž[aː]b-ami*		

To capture the distribution of the short forms—really wide-spread outside the declension—I assume that it is the short version of the root 'frog' that is stored in the lexicon, and that is why it can spell out the whole diminutive stem. Hence, there is no diminutive shortening at all, neither in masculines discussed previously, nor in the feminines like *žába – žabka*. But: despite their similarity, there is still a crucial distinction between alternating masculines on the one hand and alternating feminines on the other regarding length distribution in the declension. Long-root variants are in the minority in the masculine declensional paradigm, but they are prevalent in the feminine paradigm, as illustrated in the first two columns in (25). To accommodate this generalization, I propose that all case markers concatenate with a declensional stem, and it is this stem that involves a lengthening morpheme for feminine nouns like 'frog'.

The lengthening proposal builds on the idea introduced by Bittner & Hale (1996) and Bayer, Bader & Meng (2001): they argue for a functional head K that syntactically unifies various different morphological cases. Expressed in morphological terms, the K-head defines a declensional stem to which particular case markers are attached. Since the case forms in (25) share the long variant of the root (which, moreover, does not occur outside the declensional paradigm), I claim that the K-head is spelled out by a prosodic affix that triggers a root-vowel lengthening. But: not all declensional forms in (25) have the lengthened root. In particular, the root is short in the genitive plural form. Notice, incidentally (or not), that the absence of root-vowel lengthening in genitive plural correlates with the absence of an overt case marker. Viewed from the syllable-perspective, the only declensional form with the short root in (25) is the one where the vowel appears in a closed syllable; lengthened root vowels, on the other hand, are always in open syllables. It thus indicates that the length alternation in the feminine declensional paradigm is syllable-sensitive.

In a Strict CV model, used in this book, the contrast beween syllable-sensitive and syllable-independent vowel lengthening is derived from the direction of melody spreading. As I have already shown in chapter 2 (in sections 2.6 and 2.7, in particular), leftward spreading entails syllable-independent lengthening and that actually means that the lengthened vowel can appear in both open and closed syllables. The rightward spreading, on the other hand, derives long vowels in open syllables. Technically speaking, a lexically short vowel can spread its melody only to a licensed empty V-slot. If this slot precedes the particular vowel, it is always licensed by it; hence, vowel lengthening is automatically triggered. But in case the empty V-slot follows the short vowel, its licensing depends on its

right syllable context, i.e., whether there is another vowel to the right of the given empty V-slot that could license it.

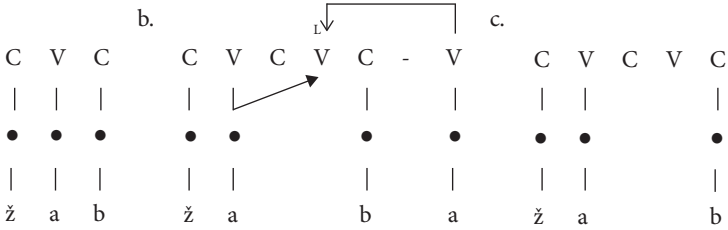
From what has been said it inevitably follows that the prosodic affix that, as I claim, spells out the K-head shared by all cases (including the genitive plural), must be of the CV-shape: only in this case, the empty V-slot (i.e., a target of melody spreading), is inserted to the right of the root vowel (and not to its left). The entry for the prosodic affix, which defines what I called *declensional stem*, looks therefore as in (26).[37]

(26) </CV/, [$_{KP}$ K]>

The figures in (27) show the derivation of the long and short versions of the declensional stem; both cases involve the prosodic affix (marked by shading). The derivation proceeds as follows. The declensional stem involves a merger of the prosodic affix with the lexically short root (whose lexical form is in (27a)). The CV-shape ensures that the prosodic affix is inserted after the root vowel (and not before it). In the next step, the declensional stem is merged with a particular case ending. Since all endings in the paradigm in (25) are vowel-initial, the empty slot of the declensional stem is always licensed. As a consequence, root-vowel lengthening is triggered, as illustrated by the nominative singular form *ž[aː]b-a* in (27b). The genitive plural form in (27c) is expressed by a bare stem: it means that its empty V-slot lacks a licensor. Being unlicensed, the root vowel therefore does not spread and it surfaces as short.

37 Note that only a closed subset of feminine roots shows the length contrast between the genitive plural and the rest of the declensional forms. In the proposed model, the difference between alternating (e.g. *ž[aː]b-a – ž[a]b*) and non-alternating roots (e.g. *sl[aː]v-a – sl[aː]v* 'glory') is that the former need to merge with the prosodic affix to spell out a declensional stem, while the latter are capable to spell it out themselves. From this perspective, the diachronic change that makes alternating roots non-alternating can be interpreted as the change in the lexicon. Specifically, the root accommodates the K-feature into its lexical entry, hence it becomes capable to spell out the whole declensional stem, i.e., without help of the prosodic affix. An example of such lexical restoring might be a root 'cart-load' which actually shows a long vowel [uː] throughout the whole paradigm, i.e., *f[uː]r-a* 'Nsg' – *f[uː]r* 'Gpl', but originally it had a short vowel [o] in the genitive plural, i.e., *f[uː]r-a – f[o]r*.

(27) a. b. c.



In sum, the proposed model describes the co-distribution of the short form /žab/ across the declension and the *ek*-diminutive, as not having a single source. While it is true that in both cases the root surfaces with a short vowel, the reason is different. Moreover, even the underlying structure of the short version of the root is not the same: in derivatives, the short root matches the lexical root-form, in the genitive plural form, the root is prosodically bigger; compare the underlying forms of the lexical structure in (27a) and the genitive plural structure in (27c). Yet, both surface with a short vowel [a].

The table below provides a couple of alternating feminine roots that follow the same pattern as the root 'frog': they exhibit a short vowel in the genitive plural and in the diminutive *ek*-form.[38]

(28)	Nsg	Gpl	*ek*-diminutive	
	j[aː]m-a	*j[a]m*	*j[a]m-k(-a)*	'hole'
	kr[aː]v-a	*kr[a]v*	*kr[a]v-k(-a)*	'cow'
	r[aː]n-a	*r[a]n*	*r[a]n-k(-a)*	'wound'
	sk[aː]l-a	*sk[a]l*	*sk[a]l-k(-a)*	'rock'
	chv[iː]l-e	*chv[i]l*	*chv[i]l-k(-a)*	'moment'
	l[iː]p-a	*l[i]p*	*l[i]p-k(-a)*	'linden'
	ž[iː]l-a	*ž[i]l*	*ž[i]l-k(-a)*	'vein'

38 Note that some of these roots can appear short also in paradigm cells other than the genitive plural. However, these non-genitive short forms always co-exist with long forms. For example, the root 'cow' appears invariably short in the genitive plural (*kr[a]v*), but it shows variation in length in other plural cells, i.e., in the dative (*kr[aː]/[a]v-ám*), locative (*kr[aː]/[a]v-ách*) and instrumental (*kr[aː]/[a]v-ami*). I follow Scheer (2011), Bethin (2003a) and Sukač (2013) who argue that the optional appearance of short forms outside the genitive plural is a relict of diachrony and assume that these forms are suppletive.

The pattern above has already been analyzed by Scheer (2004:621) in the Strict CV framework. He assumes that the co-distribution of short root alternants in genitive plural forms and *ek*-diminutives has a single source, namely the closed syllable context. If we were to look only at the triplets in (28), we might be inclined to share Scheer's claim. However, if we take other forms of these roots into account, it is clear that shortness of the root vowel does not always come from a closed syllable context. First of all, the diminutive suffix itself is vowel-initial and once it combines with the genitive plural form, the root vowel appears in an open syllable. And yet, the vowel is still short (e.g. *j[a].m-ek, kr[a].v-ek, r[a].n-ek*, and so on). Furthermore, short root-vowels appear in open syllables also in double diminutives (e.g. *kr[a].v-ič-k(-a)* and *chv[i].l-ič-k(-a)*) or other types of derivatives (e.g. *kr[a].v-inec* 'cowpat' or *sk[a]l-isk(-o)* 'a piece of rock').

Moreover, Scheer's analysis, while it apparently unifies the behavior of length in the genitive plural and the diminutive, does not account for the pattern illustrated in (29). Here, only the genitive plural form is short and the *ek*-diminutive is long. This pattern thus provides a strong piece of evidence for our proposal that sees the vowel quantity in *ek*-diminutives and in the genitive plural as independent.

(29)	Nsg	Gpl	*ek*-diminutive	
	č[aː]r-a	*č[a]r*	*č[aː]r-k(-a)*	'line'
	dr[aː]h-a	*dr[a]h*	*dr[aː]ž-k(-a)*	'track'
	chv[aː]l-a	*chv[a]l*	*chv[aː]l-k(-a)*	'praise'
	v[aː]h-a	*v[a]h*	*v[aː]ž-k(-a)*	'weight'
	s[iː]l-a	*s[i]l*	*s[iː]l-k(-a)*	'power'

Summing up, nouns showing a length contrast between the long nominative singular and the short *ek*-diminutive are built on lexically short roots. Thus, there is no productive diminutive shortening at all, instead, the only length-manipulating process involved in diminutives is lengthening. The length is induced by the insertion of the CV-affix which spells out a particular syntactic part of the diminutive stem.

4.3.3 The Suffix *-ek* Is a Fully-Fledged Noun

The syntactic structure of the diminutive stem thus involves gender projections dominated by the diminutive phrase XP. Let us now turn to the suffix *-ek* that attaches to the diminutive stem. To define its syntactic structure, consider the examples in (30). There are three *ek*-derivatives and neither of them carries the

diminutive meaning. Rather, the *ek*-suffix serves as a pure nominalizer: it turns non-nominal bases (on the left) to fully-fledged nouns (on the right). Specifically, it may turn a numeral to a number-denoting noun in (30a), a directional adverb to a place noun (30b) or a preposition to a place-denoting noun (30c).

(30)	a.	*pět*	'five'	*pět-k(-a)*	'five'
			(numeral)		(number-denoting noun)
	b.	*ven*	'out'	*ven-ek*	'outside'
			(adverb)		(place noun)
	c.	*před*	'in front of'	*před-ek*	'the front'
			(preposition)		(place noun)

Furthermore, the suffix *-ek* often replaces nouns in multiword fixed expressions, a process sometimes called univerbization (a trait typically colloquial). An example of such an "univerbizing" function of the *-ek* is given below.

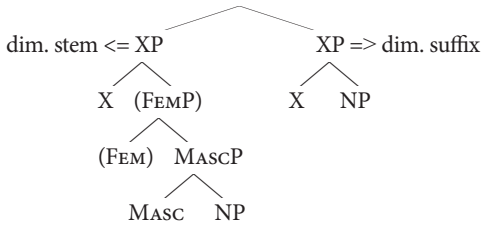
(31)	*průmysl-ov-á*	*škol-a*	*průmysl-ov-k-a*	'technical school'
	industry-ADJ-AGR	school-NOM.SG	industry-ADJ-N-NOM.SG	

To capture the observations above, I propose that the suffix *-ek* is syntactically a fully-fledged noun with a general meaning 'thing'; that, in turn, means that its syntactic structure involves a nominal-root phrase (NP) at the bottom. While it might sound strange, if you think about it, the only irregularity is that this noun is affixal in nature. In addition, recall that the idea that affixes can spell out even the root projections is not completely new: it has already been proposed in the literature (see section 3.4.2 for references) and I also used it when analyzing the structure of hypocoristics. There is, however, a difference between the "root" *-ek* on the one hand and the hypocorictic "root" *-d* on the other: the suffix *-d* derives only masculine hypocoristics, as we have already seen, while *ek*-derivatives are of different semantic types (and different genders as well). This contrast suggests that the root phrase associated with *-ek* is semantically more general than the one involved in the suffix *-d*.

Despite the difference between their suffixes, *d*-hypocoristics and *ek*-diminutives are both bi-nominal syntactic constructions (i.e., compounds). The structure of the *ek*-diminutive is depicted in (32). The suffix spells out a fully-fledged nominal tree with the nominal-root phrase NP at the bottom and the diminutive phrase XP

on the top. The suffix tree is then adjoined to the diminutive-stem tree, yielding the bi-nominal construction.[39]

(32)



The bi-nominal analysis proposes that the suffix *-ek* itself is not associated with any gender features—and that, in turn, captures the generalization that diminutives "inherit" gender of their bases.[40] Furthermore, from (32) it follows that the diminutive meaning—encoded in the X-head—is present twice in the structure, i.e., in both nominal trees. In the right-hand tree, it is spelled out by the suffix *-ek*, while in the left-hand tree it is spelled out by a prosodic affix, which triggers lengthening of the stem. This explains another generalization, namely that *ek*-suffixation is accompanied by vowel lengthening only in diminutives. If *-ek* is suffixed to a non-diminutive stem (and that actually means that a nominal tree to its left is not dominated by the XP), no lengthening is triggred. To illustrate the contrast between vowel-length behavior in *ek*-diminutives on the one hand and other types of *ek*-derivatives on the other, consider the examples in (33). The table contains three pairs of words, each pair sharing both the root and the suffix *-ek*. All these roots alternate in length following the same pattern: they appear

39 Bachrach & Wagner (2007) propose something similar for diminutives in Brazilian Portuguese (within a Distributed Morphology framework). They claim that BP diminutives are syntactic bi-nominals in which one of the nouns is spelled out by the root morpheme and the other by the diminutive suffix /-zi̯n/.

40 From this perspective, Czech differs from, say, German, in which diminutive suffixes *-chen* and *-lein* turn masculines and feminines into neuters. Using a Distributed Morphology framework, Wiltschko & Steriopolo (2007) interpret this contrast between gender-changing and gender-transparent diminutive suffixes as stemming from their position in the syntactic structure: the former are assumed to be syntactic heads, while the latter are assumed to be modifiers of a categorizing head *n* (which carries gender features). In the system proposed in this book, the difference between the two types of diminutive affixes is encoded syntactically as well. In particular, syntactic structure spelled out by the suffix either involves gender projections—or it does not.

long only in those *ek*-forms that carry diminutive meaning (in the right-hand column of the table), otherwise they are short.

(33)	*ek*-nominalization	*ek*-diminutive	
	pod-hř[i]b-ek	*hř[iː]b-ek*	'species of boletus; small boletus'
	ná-hr[o]b-ek	*hr[uː]b-ek*	'gravestone; small grave'
	pod-v[o]z-ek	*v[uː]z-ek*	'undercarriage; small carriage'

4.3.4 The Morphosyntactic Hierarchy: Size over Affection

Since there is a single diminutive projection shared by the diminutive stem and the diminutive suffix, all diminutives are expected to have the same properties. However, this is obviously not true—neither in Czech, nor cross-linguistically. However, there seems to be a kind of consensus in the literature (e.g. Dressler & Merlini Barbaresi 1994, Juraffsky 1996, Bauer 1997, Grandi & Körtvélyessy 2015, among many others), that there are two core meanings associated with diminutive forms, i.e., size and affection. Hence, there are at least two types of diminutives.

Cinque (2015), using a cartographic approach, proposes that these two core functions of diminutives are encoded syntactically as two separate projections. I take on Cinque's proposal and in what follows, I use the labels AFF(ective)P and SMALLP for the two projections. Of course, languages differ in how these two projections are spelled out. Cinque (2015) shows that they are spelled out by two formally distinct suffixes in Italian. For example, a diminutive *cas-ett(-a)* expresses speaker's affection toward a denoted house and *cas-in(-a)* refers to its size. According to Cinque (2015), this semantic contrast between the two diminutive forms—that share the same root—suggests that the suffix *-in* is associated with SMALLP syntactically, while *-ett* with AFFP.

Czech, similarly to Italian, has two formally distinct diminutive suffixes, i.e., *e*-initial and *i*-initial. But unlike their Italian cousins, each of these two affixes derives semantically ambiguous diminutives. In order to show that, let me start from the fact that mass nouns are incompatible with size modifiers (e.g., **a big air*); for a mass noun to get modified by a size modifier, it would have to be first packaged into units (of some sort), so that we can talk about size (of the packaging, clearly). In this light, consider the sentences in (34) and (35). In (34), there are two diminutives of mass nouns, i.e., *vzdouš-ek* 'air' in (34a) and *rum-ík* 'rum' in (34b), that are modified by a quantifier 'a lot of'. The grammaticality of the quantifier phrases indicates that these are mass nouns—and, thus, they should be

incompatible with size reading of the diminutive. Therefore, we must conclude that neither the *ek*-form nor the *ík*-form in (34) refer to the size, but, rather, both are used affectively.

(34) a. *Je tady spousta čerstvého vzdoušku.*
is here a_lot_of fresh air.DIM
'There is a lot of fesh air here.'

b. *V láhvi je pořád spousta rumíku.*
in bottle is still a_lot_of rum.DIM
'There is still a lot of rum in the bottle.'

To illustrate a size use of *ek*- and *ík*-forms, consider the sentence in (35). The meaning indicates that we are dealing with the size reading of the diminutive. Once again, this environment is grammatical with both an *ek*-form *nehýtek* and *ík*-form *nehtík*—thus, both of them refer to a (small) size.

(35) *Nehýtek/nehtík je nehet, který je malý.*
nail.DIM is nail that is little
'Nail (diminutive) is a nail that is little.'

The examples above demonstrate that neither of the two diminutive suffixes is restricted to spell out just AffP (as opposed to Italian, in which the suffix *-ett* realizes AffP, but not SmallP). This, however, does not mean that *all* diminutive forms in Czech are ambiguous between a size reading and an affection reading. The generalization is this: diminutives (of either form) are either ambiguous or they are affective-only. In other words, those forms that can refer to a size can always be used affectively as well, but the opposite is not true. To show the contrast between affective-only and ambiguous diminutive forms, compare the examples above with those in (36) and (37). Here, the same diminutive forms as above are used, but in the opposite contexts. In particular, the diminutive forms of the noun 'nail' are modified by the adjective 'big' in (36) which enforces their affective meaning.

(36) *Musíme ustřihnout ten velký nehýtek/nehtík.*
we.must cut_away that big nail.DIM
'We must cut that big nail (diminutive).'

By contrast, the diminutives *vzdouš-ek* and *rum-ík* do not express a size meaning, as is testified by the ungrammaticality of the sentence below.

(37) **Vzdoušek/rumík je vzduch/rum, který je malý.*
air.DIM/rum.DIM is air/rum that is small
'*Air/rum (diminutive) is an air/rum that is small.'

Summing up, the diminutives *nehýt-ek* and *neht-ík* can express both a small size (35) and affection (36), but the diminutives *vzdouš-ek* and *rum-ík* are affective-only (see the contrast between (34) and (36)). And, in Czech, there are no diminutives that express just size; affectiveness is always present.[41]

In a cartographic approach, the generalization above (the meaning of diminutive forms is either size- or affection-related) can be explained by assuming that the diminutive projections are organized in an implicational hierarchy: SmallP>AffP. This hierarchy predicts that there are exactly two types of diminutive forms: affective-only and ambiguous. The affective-only forms involve only a lower diminutive projection, i.e., AffP. The ambiguity reading of diminutives, then, follows from the spell-out: given the Superset Principle, the form that can spell out the SmallP is also able to spell out the AffP.

The diminutive hierarchy is the same as proposed by Cinque (2015); Cinque, however,does not consider it to be implicational. Cinque establishes the ordering of the diminutive features on the basis of the ordering of the diminutive suffixes in Italian (and in other languages as well). In particular, he claims that the affective suffix *-ett* (mentioned above) always precedes the size suffix *-in*. In Italian, thus, there are double diminutives like *cas-ett-in(-a)* 'small cosy house'—but not like **cas-in-ett(-a)*. For Cinque, this ordering constitutes his main argument for the feature hierarchy Small>Aff. In Cinque's system, each simple diminutive

41 The both affective-only diminutives discussed here are derived from mass nouns, denoting homogenous substances. This, however, does not automatically mean that all diminutive forms of mass nouns are affective-only. On the contrary, De Belder (2011) and De Belder et al. (2014) show that in many languages diminutive forms of mass nouns are typically count, which means that they refer to a size. It holds also for Czech: for example, diminutives like *chleb-ík* or *čokolád-k(-a)*, derived from mass nouns 'bread' and 'chocolate', may denote a small piece of bread or chocolate. However, despite being able to denote a small-size units, the diminutives *chleb-ík* and *čokolád-k(-a)* can also be modified by a quantifier 'a lot of', i.e., *spousta chlebíku/čokoládky*, which indicates their affective use (and the mass nature as well). The behavior of these forms thus corresponds to the generalization above: diminutives derived from mass nouns are either affective-only or ambiguous. The former retain mass properties of their bases while the latter alternate between count (in the size use) and mass (in the affective use).

(i.e., *cas-ett(-a)* and *cas-in(-a)*) involves a single projection encoding the given diminutive meaning, i.e., either SmallP or AffP.

However, Cinque (2015:71) also notes that there is a formal ambiguity between the size and affection readings. In particular, he points out that simple diminutives derived by the suffix *-in* refer not only to the size, but they can be used affectively as well. There is thus a contrast between the suffix *-ett* on the one hand: it derives only affective diminutives—as opposed to the suffix *-in*: it derives both affective and size diminutives. This generalization follows automatically, if the hierarchy Small>Aff is assumed to be implicational (as I do here). The implicational relationship between the SmallP and AffP predicts the existence of ambiguous suffixes such as *-in* and affective-only suffixes such as *-ett*.[42]

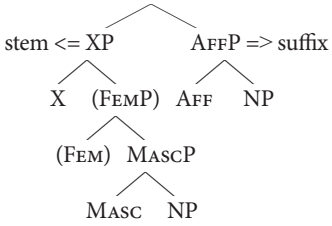
Having established the diminutive feature hierarchy let me turn back to the bi-nominal diminutive proposal introduced in the previous section. Recall that I have established a single diminutive projection, i.e., XP, shared between the diminutive stem and the diminutive suffix. In what follows, I propose that the projection dominating the diminutive stem is in fact distinct from the projections involved in the diminutive suffix. Specifically, I assume that SmallP and AffP replace the old XP only in the diminutive-suffix syntactic tree—but not in the diminutive-stem tree. The proposal builds on the idea introduced in section 4.3.2: I argued for existence of a declensional stem, to which particular case endings are concatenated. The crucial point now is that the declensional stem is defined syntactically, concretely by the projection labelled as KP. KP thus serves as a syntactic "umbrella point" of all projections encoding particular cases. Applying the similar logic to diminutives, I assume that the XP defining the diminutive stem, is the "umbrella point" of the projections encoding particular diminutive meanings. The proposal is depicted in (38).[43]

The figure in (38a) represents a syntactic structure of a diminutive with the affective meaning: the suffix tree (on the right in (38a)) involves just AffP. In (38b), there is a syntactic structure of a diminutive referring to the size of the denotee: it involves the whole diminutive subtree, i.e., [$_{\text{SmallP}}$ Small [$_{\text{AffP}}$ Aff]].

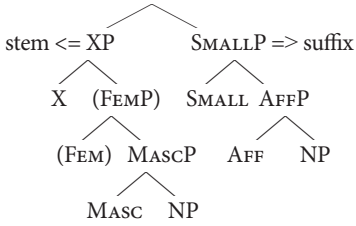
42 Steriopolo (2008) examines semantic and syntactic properties of more than 30 expressive suffixes in Russian and she identifies exactly those two types predicted by the proposed hierarchy, i.e., suffixes expressing only speaker's attitude and suffixes that "convey an attitude and refer to the size of the referent" (p. 3).

43 I label the stem projection simply as XP, leaving aside its exact semantic content. However, if we adopt the idea that diminutives always involve speaker's judgment—the speaker considers the denotee either small or endearing—, then this just might be the semantic content of the XP. I leave this issue open for further research.

(38) a.



b.



From the perspective of the structures above, *ambiguous* diminutives in fact differ syntactically. In other words, if a particular form expresses affection, its syntactic structure is as in (38a). And if the same form is used to denote the small size of the denotee, it has the structure in (38b). The ambiguity of diminutives like *nehýt-ek* thus arises from the spell-out, concretely from the Superset Principle. Given this principle, the suffix *-ek* (lexical entry for which is in (39)), can spell out both right-hand trees of the binominal structures above: the lexical tree of the suffix in (39) matches the right-hand tree in (38b) and it involves the tree in (38a). As a consequence, syncretic *ek*-diminutives are derived.[44]

(39) </-ek/, [$_{\text{SMALLP}}$ Small [$_{\text{AFFP}}$ Aff [$_{\text{NP}}$ NP]]]>

The proposed analysis makes a prediction concerning the distribution of vowel length. Since both types of diminutives involve the stem dominated by the XP, they should not differ with respect to the vowel length. The reason is that the length pattern is defined within the XP, i.e., independently of the suffix, which spells out the particular diminutive meaning. This prediction is confirmed by diminutives that are syncretic between both meanings. In fact, there exist no minimal pairs like *l[a]b-ek – l[aː]b-ek* in which the vowel length would differentiate between the size meaning and the affective meaning. (Recall that there exist *ek*-diminutives that show the length variation, e.g. a noun 'robot' has either a lengthened (*rob[uː]t-ek*) or a non-lengthened diminutive form (*rob[o]t-ek*). However, as far as I know, the length variation does not correlate with the meaning distinction. Hence, *rob[uː]t-ek* can denote both 'a small robot' and 'a dear robot' and the same holds for the short form *rob[o]t-ek*.)

44 Given the Superset Principle, the suffix *-ek* can potentially spell out just the NP, i.e., the most embedded sub-constituent in the lexical tree in (39). And it really does: remember that *-ek* serves also as a pure nominalizer which indicates that it is used to spell out just a nominal-root projection.

4.3.5 Decomposing the Suffix *-ík*

In the previous section, I proposed that the size-affection syncretism of *ek*-diminutives follows from the spell-out, concretely from the fact that the suffix *-ek* is able to spell out the whole diminutive subtree. Since the same type of syncretism appears also in *ík*-diminutives, I argue that both *ek*-forms and *ík*-forms involve a single diminutive suffix, i.e., the *-ek*.

The idea that there is only one suffix shared by formally distinct diminutives might seem to be in conflict with my previous claim that the suffix *-ík* cannot be just a lengthened version of the suffix *-ek*; the arguments were presented in sections 4.2.2 and 4.2.3. However, the two claims are not conflicting if we assume that the suffix surfacing as [iːk] is not a morphological atom. In other words, I propose that there is not a single lexical item corresponding to the form [iːk]; rather, there are three independent items that put together phonologically give the form [*iːk*]. Two of them we have already established: the VC-affix and the *ek*-suffix. The new ingredient is a high-vowel suffix *-i*.

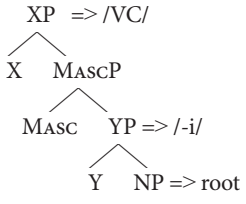
The main benefit of the three-item proposal is that it unifies both semantic and phonological properties of both types of diminutives. The proposed decomposition of the suffix *-ík* enables us to explain length alternations in *ek*-diminutives and *ík*-diminutives in a uniform way. Recall that the contrast between masculine *ek*-forms that productively lengthen their bases and feminine *ek*-forms that do not, results from the different spell-out of their stems: feminines are able to spell out the whole diminutive stem dominated by the XP, masculines, on the other hand, need help of the prosodic affix (whose lexical entry is repeated in (40) below). Since also *ík*-diminutives differ in length between the masculine and the feminine gender, it is reasonable to assume that both length alternations have the same logic.

(40) </VC/, [$_{XP}$ X [$_{MASCP}$ MASC]]>

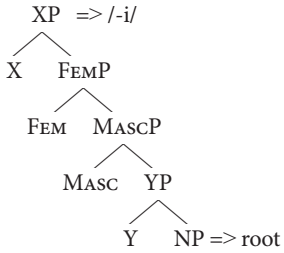
The difference between *ek*-deminutives and *ík*-deminutives is that in *ík*-diminutives, it is the high-vowel suffix itself which alternates in length: it is long in masculines (e.g. *les-[iːčk(-a)* 'forest') but short in feminines (e.g. *kas-[i]čk(-a)* 'money box'). This, thus, suggests that the *i*-suffix spells out a projection between the nominal root and the masculine feature that is realized by the prosodic affix. In (41), this newly introduced projection is labelled as YP and it is spelled out by the suffix /-i/ in diminutive stems of both genders. The difference is that in a masculine stem in (41a), the *i*-suffix realizes just the YP; the rest of the projections, i.e., the masculine gender projection MASCP dominated by the diminutive-stem projection XP, are then realized by the prosodic affix. As a consequence, the

prosodic affix merges with the /-i/ and causes its lengthening. The prosodic affix cannot realize the stem projection in feminines because in this case the XP dominates FemP, as shown in (41b). This explains why neither *ek*-feminines nor *ík*-feminines exhibit lengthening. However, the XP needs to be spelled out even in feminines. Since in *ek*-feminines it is spelled out by the root itself, in their *ík*-cousins, in which roots are merged with the *-i*, the XP must be spelled out by this high-vowel suffix.

(41) a.



b.



The lexical entry for the *i*-suffix thus looks as in (42): its lexical tree bottoms at YP and ends with XP. Viewed from the spell-out perspective, the difference between masculines and feminines is that the latter use the maximal and the former the minimal spell-out extent of the item in (42).

(42) </-i/, [$_{XP}$ X [$_{FemP}$ Fem [$_{MascP}$ Masc [$_{YP}$ Y]]]]>

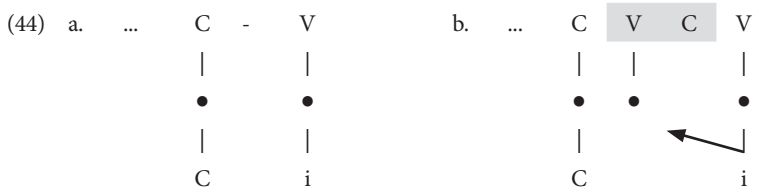
The third formal ingredient of *ík*-diminutives is the suffix *-ek*, whose lexical entry is repeated in (43).

(43) </-ek/, [$_{SmallP}$ Small [$_{AffP}$ Aff [$_{NP}$ NP]]]>

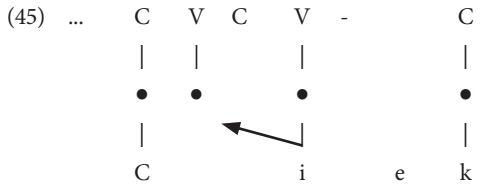
Summing up, both formal types of diminutives are bi-nominal structures, in which the right-hand noun is spelled out by the suffix *-ek*. The difference is in the left-hand noun, i.e., in the stem. The stem of *ík*-diminutives is syntactically more complex than that of *ek*-diminutives. In particular, there is a feature Y that is merged with the nominal-root projection in *ík*-diminutives and it is realized by a high-vowel suffix *-i*.

Let me now show that the proposed decomposition of the suffix *-ík* is plausible phonologically. How does it happen that the three lexical forms, i.e., /-i/, /VC/ and /-ek/, merge into a single form, surfacing as [iːk]? The phonological merger of the first two forms—which occurs in the stem—is depicted in (44). First, the high-vowel suffix /-i/ concatenates with the nominal root. This first step

of the phonological derivation is shown in (44a): technically speaking, the V-slot associated lexically with an *i*-segment is simply aligned after the last C-slot of the root. In the next step, the VC-affix is inserted to the left of the *i*-suffix, which is indicated by shadowing in (44b). The empty V-slot of the prosodic affix then automatically accommodates the vowel of the suffix—and that vowel, in turn, is spelled out long. To illustrate the two just described steps, there is the root /les/ 'forest' and it enters the derivation: in the first step, the form /lesi/ is derived and it turns into /lesiː/ in the second step.



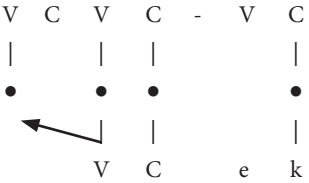
Subsequently, the lengthened *i*-stem is merged with the diminutive suffix *-ek*. I have already established that this suffix involves a floating vowel (see section 4.2.1 for the relevant arguments): this, then, means that the *e* is not provided with its own prosodic slot. When the suffix is concatenated with a vowel-final morpheme, there is no empty slot for the floating *e*. Since being associated with a V-slot is a necessary condition for the floating vowel to be phonetically realized, the [e] is not heard after the lengthened *i*-stem. This is the reason why the phonological merger of /lesiː/ and /-ek/ produces /lesiːk/. The phonological merger of the *i*-stem and the *ek*-suffix is illustrated in (45).



Finally, the scenario in (46) illustrates what happens when the *ek*-suffix is merged with a consonant-final stem such as, for example, /daːr/ 'gift'. In this case, the merger produces a linear string of two adjacent C-slots: the first one belongs to the stem and the second one to the suffix. However, prosodic structure is well-formed only if C-slots alternate regularly with V-slots. The ill-formed CC-string (the result of a merger of the C-final stem and the diminutive suffix) thus has to be repaired. As shown in (46), it is repaired by

insertion of an empty V-slot—and it is this empty V-slot that provides a potential landing site for the floating vowel of the suffix. At this moment, I leave aside the exact mechanism how this newly inserted V-slot accommodates a melody of the suffix. At this point, the only relevant thing is that there is a phonological contrast between vowel-final diminutive stems (i.e., those involving *i*) and consonant-final stems: it is only in the latter that the floating vowel of the diminutive suffix has an opportunity to surface.[45]

(46)



I have just shown that the form [i:k] is created from three independent lexical pieces. Let me provide further arguments for the proposed analysis. The first argument is that *ík*-forms can express the same diminutive meanings as *ek*-forms. As we have already seen, both the *ek*-form *nehýtek* and the *ík*-form *nehtík* (derived from the noun 'nail') can each be either size- or affection-type diminutive. Since both involve the suffix *-ek* (and, remember, *-ek* realizes certain diminutive features), existence of such diminutive synonyms is predicted—hence, expected.

Another argument for the particular decomposition of the suffix *-ík* comes from the data in (47). The table shows four pairs of diminutives, in each of them, the high vowel is separated from the *k*-final suffix by another morpheme, in this case by a consonantal suffix *-n*. Given the separation, the data thus support the proposal that the high vowel and the [k] belong to two independent lexical items. Moreover, notice that the high vowel alternates in length (it is long in masculines, but short in feminines) even though it is not adjacent to the *k*-segment. The fact that the alternation follows the same pattern as in *ík*-diminutives suggests that there is a single suffix *-i* shared by *ík*-diminutives (like *tatík*) and *ínek*-diminutives (like *tatínek*).

45 The proposed scenario, according to which phonology inserts an empty V-slot for the sake of repairing the prosodic structure, is not in line with the mainstream of the Strict CV theory—but I do not address this issue in this book more than this brief note. For an alternative analysis of the phonological structure of the suffix *-ek*, see Scheer & Ziková (2010a).

(47)	*tat-[iː]-n-ek*	*mam-[i]-n-k(-a)*	'father, mother'
	strýč-[iː]-n-ek	*tet-[i]-n-k(-a)*	'uncle, aunt'
	brouč-[iː]-n-ek	*tyč-[i]-n-k(-a)*	'beetle, lath'
	ptáč-[iː]-n-ek	*sleč-[i]-n-k(-a)*	'bird, young lady'

Summing up: *ík*-diminutives and *ek*-diminutives are both syntactic bi nominals, in which the right-hand noun is spelled out by the diminutive suffix. This suffix is the same for both formal types. The left-hand noun represents a diminutive stem with the feature Y spelled by a high-vowel suffix in *ík*-diminutives. For now, I remain agnostic as for the precise semantic content of this feature; what is important is that it distinguishes between the diminutive forms that are otherwise synonymous.

4.4 Double Diminutives

We have already seen double diminutives in Czech. They end in *ečeк* and *íček* for masculines and *ečk(-a)* and *ičk(-a)* for feminines. The table below summarizes all the possible types both for masculines (48a-b) and feminines (48c-d).[46]

(48)	a. *dár-eček*	b. *les-íček*	c. *čár-ečk(-a)*	d. *ruč-ičk(-a)*
	'gift'	'forest'	'line'	'arm'

Given that the diminutive meaning is decomposed into two syntactic projections, i.e., SmallP and AffP, each with a slightly different function, the null hypothesis is that each of them is spelled out by a separate suffix, leading to the double-diminutive forms. This is what is proposed by Cinque (2015): in double diminutives, like in the Italian *cas-ett-in(-a)*, the inner diminutive suffix, i.e., *-ett*, spells out the lower projection AffP and the outer suffix, i.e., *-in*, spells out the higher SmallP. In Cinque's system, it means that double diminutives have an intersective reading; thus, in the case above, the double diminutive *casettina* refers to a house that is both endearing and small.

The intersective interpretation, however, does not work for Czech. In (49) and (50), I repeat the sentences used previously to demonstrate that there are mass diminutives like *vzdouš-ek* 'air' or *rum-ík* 'rum' that do not refer to a size.

46 Since there are *ík*-diminutives—like *tatínek* 'father' and *maminka* 'mother', which involve the suffix *-n* intervening between the high vowel and the diminutive suffix *-ek* (as I have demonstrated at the end of the previous section), double diminutives can actually also end in *íneček* or *inečk(-a)*, i.e., *tat-íneček* or *mam-inečka*.

The use of double diminutive forms such as *vzdouš-eček* or *rum-íček* 'rum' does not change the (un)grammaticality of the sentences below: thus, neither they do have the size reading.

(49) a. *Je tady spousta čerstvého vzdoušku/vzdoušečku.*
is here a_lot_of fresh air.DIM/air.DIM.DIM
'There is a lot of fresh air here.'

b. *V láhvi je pořád spousta rumíku/rumíčku.*
in bottle is still a_lot_of rum.DIM/rum.DIM.DIM
'There is still a lot of rum in the bottle.'

(50) a. **Vzdoušek/rumík je vzduch/rum, který je malý.*
air.DIM/rum.DIM is air/rum that is small
'*Air/rum (diminutive) is an air/rum that is small.'

b. **Vzdoušeček/rumíček je vzduch/rum, který je malý.*
air.DIM.DIM/rum.DIM.DIM is air/rum that is small
'*Air/rum (double diminutive) is an air/rum that is small.'

Summing up, double diminutives in Czech are not interpreted intersectively—rather, they have a degree reading: *vzdoušeček* or *rumíček* express a high degree of speaker's affection. And similarly, a simple *ek*-diminutive *dárek* 'gift', which is syncretic between the size and affection, has a double diminutive cousin *dáreček*—and that denotes either 'a very small gift' or 'a very endearing gift'. And the same holds for syncretic double diminutives ending in *íček* (rather than *eček*): *bratříček* denotes either 'a very little brother' or 'a very endearing brother'.

Consider now the non-diminutive forms in (51) which also have degree interpretation. As we can see, what these forms have in common is that they involve reduplication of a portion of their parts (the reduplicated strings are underlined). In particular, adjectives in (51a) involve reduplication of the suffix, nouns in (51b) reduplication of the prefix, and in (51c,d) the root morphemes are reduplicated. The conclusion thus might be that the degree meaning can be expressed by reduplication in Czech.

(51)	a.	*Velik<u>aná</u>nský*	*dlouhat<u>aná</u>nský*	*vysok<u>aná</u>nský*
		'very big'	'very long'	'very tall'
	b.	*<u>prapra</u>vnuk*	*<u>prapra</u>babička*	*<u>prapra</u>rodič*
		'great-great-grandson'	'great-great-grandmother'	'great-great-parent'

c.	*hrůza hrůz*	*chyba chyb*	
	'absolute horror'	'absolute error'	
d.	*div divoucí*	*tma tmoucí*	*leta letoucí*
	'great miracle'	'absolute darkness'	'very long time'

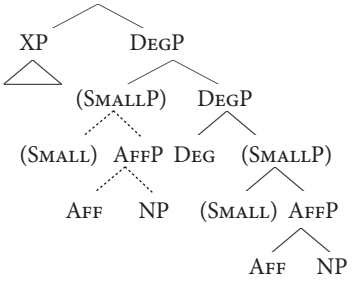
In the light of the examples above, I assume that the double diminutives (that carry the degree meaning as well) involve reduplication—exactly as the examples in (51). In particular, I propose a DEG(ree)-head that is present in the structures in (51) – and in double diminutives; this head is realized by reduplication.

Traditionally, the term *reduplication* refers to the doubling of a phonological structure, where the reduplicants have a fixed prosodic shape. From this perspective, however, the doubling of the degree-expressing forms in (51) can hardly be interpreted as arising from such a reduplication: it is obvious that the reduplicated pieces of the phonological structure do not have any uniform prosodic shape. Fortunately, Inkelas & Zoll (2005) argue that there are two types of reduplication and that these two types differ fundamentally regarding the nature of the linguistic material that is copied in the process. Phonological reduplication typically copies either syllables or feet. Consequently, such reduplication follows prosodic constituency and that, in turn, means that reduplicants have a fixed prosodic shape. The second type of reduplication is morphological, in which morphosyntactic constituents are copied, irrespective of their prosodic structure.

The morphological reduplication, as proposed in Inkelas & Zoll (2005), explains the formal variability of the examples in (51) on the one hand and their uniform semantic interpretation on the other. Put simply, we can claim that the merger of the DEG-head, shared by the forms above, triggers copying of its sister node (together with all other nodes dominated by it). In that case, both the sister of the DEG-head and its syntactic copy can be spelled out by the same lexical form.

Figure (52) shows an implementation of this reduplicative scenario in the diminutive context. Since reduplication targets the sister node of the DEG-head, a whole subtree dominated either by SMALLP or by AFFP is copied into spec DEGP (depending on whether the given diminutive expresses size or affection).

(52)



Having the same syntactic structure, both the source tree, i.e., a complement of DegP, and its syntactic copy in the specifier of DegP (marked by dashed lines in (52)) are expected to be spelled out by the same lexical item. How does this expectation correspond to the generalization on the form of double diminutives mentioned at the start of this section and repeated in (53)?

(53) Double diminutives end in *eček* or *íček*, but never in **ečík* or **íčík*.

At the first sight, the reduplicative structure in (52) excludes the existence of diminutives like *les-íček* 'forest'. That is because the traditional decomposition postulates the inner diminutive suffix *-ík*, which is not a copy of the outer suffix *-ek*. However, this problem disappears once we adopt the proposal that *ík* involves the diminutive suffix *-ek*, which surfaces as [iːk] due to its merger with the *i*-final stem (as I have established in the previous sections). Under this analysis, the reduplicative scenario in (52) correctly predicts that all double diminutives are *ek*-final. In other words, there is only one diminutive suffix *-ek* and it is this unique suffix which is doubled when dominated by DegP. When the reduplicated string /-ek-ek/, underlying *all* double diminutives, is merged with the *i*-initial stem, it surfaces with the initial high vowel, as in the masculine *les-íček* 'forest' or the feminine *ruč-ičk(-a)* 'arm'. The very same phonological string otherwise surfaces as *e*-initial, cf. *dár-eček* 'gift' or *čár-ečk(-a)* 'line'.

Moreover, the reduplicative account of double diminutives, assuming the decomposition of the "suffix" *ík*, brings a new perspective on the so-called "diminutive gaps." The "diminutive gaps" occur when double-diminutive forms lack their simple-diminutive cousins. A couple of examples is given in the table below. (54a) shows the contrast between the masculines 'gift' and 'eden': the former produces both diminutive forms, while the latter has only the double one, ending in *eček*. In (54b), the same pattern is repeated with the masculine 'friend' which only has the double diminutive form in *íček*. The most wide-spread type of this pattern is in (54c), in which the only diminutive form of the feminine noun 'bath' ends *ičk(-a)*.

(54)	a.	*dar*	*dár-ek*	*dár-eček*	'gift'
		ráj	**ráj-ek*	*ráj-eček*	'eden'
	b.	*kostel*	*kostel-ík*	*kostel-íček*	'church'
		přítel	**přítel-ík*	*přítel-íček*	'friend'
	c.	*van(-a)*	**van-ik(-a)*	*van-ičk(-a)*	'bath'

The pattern above provides the support for the claim that double-diminutive are reduplicative structures of the type in (52). Since double-diminutives arise from reduplication triggered by the merger of the DegP with the diminutive-suffix tree, which, in turn, concatenates to the diminutive stem, then the contrast between nouns like 'gift' and 'eden' is the contrast between diminutive stems that combine with diminutive-suffix trees of different sizes and those that combine only with trees dominated by DegP. Of course, one could ask why some stems require DegP to create a diminutive. I leave the answer to this question open for further research. Note, however, that the "diminutive gaps" such as those illustrated in (54) pose a problem for traditional analyses in which double diminutives are built incrementally from simple diminutives.

4.5 Summary

I argued that formation of diminutives in Czech involves a prosodic affix (of the VC-shape) which is responsible for vowel-length alternations in both *ek*-diminutives and *ík*-diminutives as well. To capture a robust correlation between vowel-length alternations and the gender features, I proposed that the VC-affix is involved only in masculine diminutive stems; that is, lengthening is an active process only in masculine diminutives.

5. Conclusion

In this book, I have presented an approach where vowel length is connected with the syntactic structure. The main idea was that there are nominal functional projections in contemporary Czech which are spelled out by vowel length, or to be more precise, by various types of prosodic affixes which give rise to different types of vowel lengthening. I have argued that such prosodic affixes are the realizations of syntactic parts of hypocoristics and diminutives. Furthermore, I have proposed that length alternations in declensional paradigms such as *dům – dom-u* or *žáb-a – žab*, that are traditionally taken to be a relic of diachrony, can be analyzed as resulting from prosodic affixes that spell out particular inflectional projections.

The present approach is strictly decompositional on both the phonological and the syntactic side. In particular, I have proposed that length is to be represented separately from the melodic content of vowels. Such a dissociation of length from melody allows for the existence of lengthening morphemes that lack any melodic features. I have used such lengthening morphemes extensively in my analysis of various types of phenomena where lengthening is triggered by a particular morphosyntactic environment.

Furthermore, if short vowels are made up from privative elements, which are hierarchically organized, then these elements can be manipulated individually under lengthening and as a consequence, length alternations of different types can be derived.

Once lengthening is understood in this particular way, namely as an autosegmental marking of a particular morphosyntactic category, it provides us with a new tool that can be used to probe deeper into the morphological structure of various categories where it is found. Specifically, following this approach, I was led to decompose morphological categories such as diminutives and hypocoristics into several hierarchically ordered syntactic projections. Some of these projections are realized by "regular" affixes like a diminutive *-ek* or a hypocoristic *-d*, while others are only revealed by prosodic affixes whose merger triggers the lengthening of adjacent morphemes.

I believe that such an integrated approach which takes into account both phonological and syntactic side of vowel-length alternations, enables us to understand better some of the vowel length patterns we find in contemporary Czech.

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