

LOW VOWEL LENGTHENING IN HUNGARIAN

‘LVLiH’

Low Vowel “Lengthening” in Hungarian

The topic of this essay is a phenomenon of the Hungarian language, Low Vowel Lengthening. In the following pages first, a brief description will be given of the Hungarian vowel system (**Section 1.**) then of the phenomenon itself in **Section 2.** I will also identify three problematic issues within Low Vowel Lengthening that a theory has to deal with. Later, in **Section 3.** three possible groups of approaches will be examined (of which only two seem to be well-grounded) with some of the analyses that have been written so far in the topic of Low Vowel Lengthening. In the end another alternative approach to the problem will be given in **Section 3.2.2.** Finally, a conclusion in **Section 4.** will summarize all the major issues that has been raised and attempt to give a satisfying answer to questions raised in this essay.

1. The Hungarian Vowel System

In Hungarian, there are 14 vowels (7 long and 7 short ones) that can be arranged into 7 length-pairs - in this essay (and all its figures and tables) their IPA representations will be used. As can be seen in Figure 1, the difference in most cases is merely quantitative (i.e. no qualitative difference between the short vowels and their long counterparts). The pairing therefore is quite straightforward, high vowels form three pairs (i - i:, u - u:, y - y:), mid vowels form two length-pairs (o - o:, ø - ø:) There are, however, two pairs in whose case the pairing is not completely obvious, as besides the quantitative difference there is also qualitative difference between the two vowels. These vowels are usually called low vowels, although phonetically e: is not long but in certain length-alternations it alternates with ε. For similar reasons, although a: and ɔ differ in their roundness and frontness as well, are still usually considered as one short-long pair.¹

	FRONT				CENTRAL	BACK	
	UNROUNDED	ROUNDED				UNROUNDED	ROUNDED
HIGH	i	i:	y	y:		u	u:
MID		e:	ø	ø:		o	o:
LOW	ε				a:		ɔ

Figure 1 – The Hungarian Vowel System

¹ There are other alternant pairs in Hungarian as well (e.g. o: ~ ɔ in words like hó-havat), but these cases seem marginal exceptions.

In Hungarian it can also be stated that underlyingly there are no other long vowel-phonemes than the 7 mentioned before. Long [ɔ:] and [ɛ:] can only be observed as a result of processes like Compensatory Lengthening. Therefore the following phonotactic constraint can be stipulated:

- (1) There are no /ɔ:/ and /ɛ:/ phonemes in Hungarian and the sounds [ɔ:] and [ɛ:] only appear phonetically as a result of certain phenomena (e.g. Compensatory Lengthening).

Exceptions to that constraint are words where ɔ or ɛ are at both ends of a morpheme boundary (for example, /odɔ+ɔdo:/ and /ɛ+ɛrɛskɛdø/ that in performance realizes as [odɔ:do:] and [ɛ:rɛskɛdø] respectively). In the light of this, the constraint has to be modified to that in (2)

- (2) Tautomorphemically there are no /ɔ:/ and /ɛ:/ phonemes in Hungarian and the sounds [ɔ:] and [ɛ:] only appear phonetically as a result of certain phenomena (e.g. Compensatory Lengthening) and cases where they stand for the name of a letter by themselves (for example initialisms).

In the following for every analysis it will be stipulated that whenever an /ɔ/ or /ɛ/ spreads, it will be realised as an [a:] or an [e:] that is phonetically identical to the surface for of the phonemes /a:/ and /e:/, respectively. Therefore, a surface [a:] can underlyingly be represented as an /a/ associated to two vowel positions or as an /ɔ/ associated to two timing slots and there will not be any phonetic difference.

2. The Alternation – Low Vowel Lengthening

Low Vowel Lengthening (in the following also mentioned as LVL) is an alternation, in which word-final ɔ and ɛ (regardless of the morphologic complexity of the word) alternates with a: and e: before most suffixes. A few examples for the phenomenon can be seen in Table 1.

Nominative Singular	Accusative Singular	Meaning
fɒ	fa:t	'tree'
kucɒ	kuca:t	'dog'
mɒtʃkɒ	mɒtʃka:t	'cat'
pɛjvɒ	pɛjva:t	'chaff'
kɒlodɒ	kɒloda:t	'stocks (form of punishment)'
kɛfɛ	kɛfe:t	'brushN'
piske	piske:t	'gooseberry'
ʃɔrte	ʃorte:t	'bristle'
ogre	ogre:t	'ogre'
rɛmete	rɛmete:t	'hermit'

Table 1 – Examples of Low Vowel Lengthening in Hungarian

In *Table 1* the examples have been selected in a manner that they show that LVL takes place irrespective of the harmonic property of the stem (i.e. it can be observed in front-harmonic, back-harmonic and mixed roots as well as long as those words and in ɒ or ɛ). The table contrasts Nominative Singular forms (which in Hungarian receive only a zero-morpheme inflection) with Accusative Singular ones (whose inflection is usually represented as a –t and in case of consonant-final words it might require a vowel inserted between the word-final consonant and itself but with certain words it can also appear right after the word-final consonant).

This alternation seems to be productive, as it can be observed in foreign (loan) words too (for example ko:lɒ - ko:la:t) even in case of fairly recent ones or slang words (infɒ - infɒta:t ‘Insta - short for the program Instagram’) or fa:tʃɛ - fa:tʃe:t ‘face, short for facebook’). Speakers seem to apply it automatically, no regular content words in Hungarian are exception to it.

There is only one group of words that does not show this alternation in every speaker’s speech: initialisms. This can be caused by the fact that they follow the pronunciation of the isolated letters of the alphabet. Letters seem to be a ‘sterile’ group as far as pronunciation is concerned (they do not seem follow the phonological patterns in many languages). Still, in some speakers’ speech they vacillate and some speakers just regularize them and treat them

just like any other word in the vocabulary. On the other hand, acronyms tie in with other words of Hungarian, they never vacillate in any speaker's speech regardless of the dialect's prestige, the speaker's age or any other factor. Figure 2 shows this contrast.

BME-sek	bme:ʃɛk	/	bme:ʃɛk
ELTE-sek	elte:ʃɛk	BUT	*elte:ʃɛk

Figure 2 –Initialism & Acronyms and Low Vowel Lengthening

Earlier it has been stated that Low Vowel Lengthening takes place before most suffixes and that implies that there are certain suffixes that do not trigger this alternation. These suffixes are (among others) -ʃa:g/ -ʃe:g, -fe:lɛ, -sor/-sør, -kor, -fajtɔ, -sery. What is especially problematic about them is that some of them obviously interact with the stem: their vowels harmonize with those of the stem. Therefore any analysis treating them as completely separate from the stem (and naming this as the reason for them not triggering LVL) has also got the task to account for how, for example, Hungarian Vowel Harmony seems to have no problem applying flawlessly in case of these words. This may be an issue that has to be treated with special attention in the analysis to be presented in this essay.

Also, there is a peculiarity of the Hungarian vowel inventory and the distribution of vowels that has to be mentioned. That is, in Hungarian there seem to be very few stems ending in a: or e:. Most of these content words can be considered marginal exceptions, such as loan words (e.g. *burzsoá*, *pönálé*), slang words (e.g. *tré*, *zsé*, *lové*) or words derived from words of exclamation (e.g. *hajrá*). To explain this seemingly accidental gap in the Hungarian vocabulary will stipulate a constraint that is the following stated in (3).

(3) There are no words in Hungarian that end in [a:] or [e:].

Only 15 stems (of which only two are lexical) and 2 productive suffixes (-*vá/-vé* – '(turn) into' and -*ná/-né* – 'he would') violate the constraint in (3) that end in [a:] and about 130 stems that end in [e:]. Although there are significantly more words ending in ɔ or ɛ, the difference between the number of words ending in a: and the number of words ending in e: shows an asymmetry that might be important enough for further consideration in the following analyses.

There is another phenomenon that is related to vowels, namely, the case of Lowering Stems that – when regular stems select a mid-vowel (o or ø) – take a low one (ɔ or ε) instead – depending on vowel harmony. There is usually no way to tell which stems are lowering ones (often even minimal pairs can be found one of whose members is a Lowering stem and the other one is not), but there are some suffixes that are known to make any stem a lowering relative stem. This is a phenomenon that is often explained with a similar structure to the ones used with Low Vowel Lengthening.

To sum up, there are three issues which will be given special attention in all the following analyses:

- I. Whether the analysis can provide an explanation for the asymmetry in the number of words ending in [a:] vs.[e:]
- II. Whether the analysis can provide an explanation for the set of suffixes that do not trigger LVL (but may trigger other lexical rules).
- III. Whether the analysis can be applied with little or no modification in the case of Lowering Stems.

3. The groups of approaches

Although the name ‘Low Vowel Lengthening’ suggests the alternation in question has to be explained as a lengthening, it is not the only way the phenomenon has been or could be analysed. With any alternation in any given language there are three possibilities if one wants to derive the alternating forms from an underlying source. We will not discuss the possibility to derive them both from a third, abstract phoneme because in this case the data do not justify or necessitate such an approach.

3.1. Shortening

The second approach is to derive [ɔ] and [ε] from /a:/ and /e:/, respectively. That would mean analysing LVL as a shortening process in which the underlying /a:/ or /e:/ is shortened word-finally (before a morpheme boundary). This approach to Hungarian LVL appears in a number of works, for example that of John McCarthy who argues that it can only be explained as a Shortening and for this his main argument is that

“...There may be other lengthening contexts, but presuffixal position does not seem to be one of them.”²

There are of course other arguments for perceiving the phenomenon as shortening. An approach like this would give a phonologically less marked sound as a an underlying source (at least in the case of the [ɔ] ~ [a:] alternation, for /a:/ without question appears in far more languages than /ɔ/ does). It would also say that the base form appears in more marked forms and the less marked one is the one that is derived. It could also explain the phenomenon as an example of neutralization as the contrastive roles of these phonemes that is present word-medially ([pɔrt] vs. [pa:rt]; [vɛr] vs. [ve:r]) seems to disappear word-finally. This seems justified if the lack of minimal pairs with word final [ɔ] vs. [a:] and [ɛ] vs. [e:] are taken in to account.

3.1.1. Abondolo (1988)

At first, Abondolo's work from 1988 will be examined. He explains Low Vowel Lengthening in Hungarian as shortening, more precisely he introduces rules for the reduction of low vowels. To understand his theory his idea of the Hungarian vowel system also has to be understood. He claims that a Hungarian word containing a low vowel is mostly represented with an underspecified low vowel (the short A or the long Á) that is not specified for front- or backness (other exceptional cases will be accounted for within this subsection). This is assigned lexically; harmony (front- or back prosody as he calls it) is a lexical property of the word itself that is a feature specified for vowels only during the word's derivation from its underlying form. (Front prosody is represented with ˘ in front of the underlying representation of the stem. Back-prosodic words are recognisable for having no such markings.) This allows the analysis to treat and explain the changes of a: and e: (ɔ and ε) the same way.

² McCarthy (2005)

His low vowel reduction rules are as follows.

- i. $\acute{A} \rightarrow A / _ \#$
- ii. $A \rightarrow \emptyset / _ \#$

Figure 3 – Low Vowel Reduction, Abondolo (1988). p 43.

He uses the example of the word SOBÁ ([sobɔ̃]). SOBÁ ends in a long low vowel and as that is in a word-final position it is reduced to an A. For the word is lexically back-prosodic, it is pronounced as [sobɔ̃]. The word [kɛfɛ] similarly is `KAFÁ}$  underlyingly, where after the application of the Low Vowel Reduction Rule and the assignment of front-prosody, the surface form [kɛfɛ] is reached. Whereas, if we take the plural forms (underlyingly SOBÁT and  $\text{`KAFÁT), the long low vowels are not in an environment a Low Vowel Reduction Rule would apply, therefore after the assignment of prosody the surface forms are reached ([sobɔ:t], [kɛfɛ:t]).

His theory finds an explanation for the existence of the about 130 stems that end in [e:] (for example [ka:ve:]). He states they contain simply a different vowel underlyingly (/É/) that does not take part in prosodic harmony (it is a fully specified front vowel) and is not affected by any rules of reduction. The phoneme /É/ is not used in any other positions, only word-finally.

It is interesting to note that the second rule of Low Vowel Reduction in *Figure 3* is of use in explaining another phenomenon, the Hungarian Lowering Stems. This set of stems got its name from the property that after them, suffixes that have a linking vowel take low vowels instead of taking mid ones (or none). Lowering Stems are for instance, [ha:z] (as opposed to [ga:z]) that in Nominative Plural is [ha:zɔk] (as opposed to [ga:zɔk]). Abondolo's analysis claims that a Lowering Stem and a regular stem differ in their representation. Lowering Stems end in an A, and all others end in any other sound (consonant or vowel) but only the A is deleted as a result of Low Vowel Reduction – the same way $\acute{A}$ is reduced to an A in an identical environment.

The main problem with this analysis is that it seems that while all the nouns Hungarian borrows or creates tend to end in $\acute{A}$ underlyingly ([sɔlsɔ̃], [dinɔmikɔ̃], etc.), they never end in A underlyingly since that would make them Lowering Stems and that category is a closed one (i.e. no new words –especially no new nouns - enter this group, new words are automatically treated as regular stems). This seems quite a radical difference which his theory does not predict (as underlying representations are not limited in any way). Also, there are certain suffixes that lengthen words that end in low vowels but do not show lowering after Lowering

Stems (e.g. –on/-en/-ön-/-n). Another weakness of his analysis is the proposal of the É phoneme for whose existence no other phenomenon seems to provide proof.

This analysis explains only two of the issues raised at the end of **Section 2.** (those being the explanation of the different number of exceptional word-final a:-e: sounds through an asymmetry in the vowel inventory and the case of Lowering Stems that fits into his framework perfectly). However, he never addresses the problem of the suffixes that do not trigger Low Vowel Lengthening but Vowel Harmony applies to them, before them and after them.

3.1.2. Rebrus (2000)

Another explanation that approaches this problem as a shortening can be found in Rebrus (2000) who proposed an entirely different, CV-type structure in his analysis. His work mainly focuses on the a: - ɔ pair of the two, but it is assumed the same stands for the e: - ε alternation.

According to his analysis, all words ending in vowels end underlyingly in a CVCV string. Of the two vowel positions of the CVCV string only the first one is lexically determined. In most cases, the features of the first vowel spread to the empty V position at the end.

This, in most words is supported by the concept of minimal words in Hungarian as proposed by Piroska Csúri. She in her 1990 paper proposed that a minimal word in Hungarian is bimoraic – i.e. there are no Hungarian words that are monosyllabic and at the same time end in a short vowel. In case of monosyllabic content-words (e.g. fa, ma) ending in a low vowel this rule of the minimal word goes against the constraint stated in (3). Although the examples for or against either side are rare, it is supposed that the prohibition of word-final a: and e: are stronger constraints of the Hungarian language than the requirement of bimoraic minimal words.

Therefore, in words ending in low vowels the spreading process does not take place in the realisation (as seen in *Figure 4* – In *Figure 4* and *Figure 5* the A-s are capitalised merely to show which parts these examples focus on). Should they be followed by another sound however (e.g. when the word is inflected or is subject to derivation), the constraint formulated in (3) does not stop the spreading because in this environment the phoneme is not word-final any more. Examples for the process in inflected words can be seen in *Figure 5*.

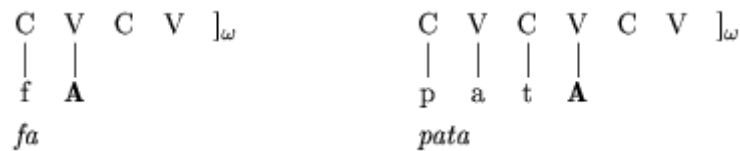


Figure 4 – Rebrus (2000), p. 918.



Figure 5 – Rebrus (2000), p. 918.

Another finding of Rebrus is the General Possessive Suffix (“általános birtokjel” - ÁBJ), i.e. there is a certain possessive suffix that is always there when the meaning indicates possessedness regardless of the possessor’s person or number – in the following figures (Figure 6 and Figure 7) capital letters indicate sounds that are lexically stored as floating elements (unlinked to the CV-tier of the morpheme under which they appear in the figures). The dashed lines show association lines made not in the lexicon but during the derivation of the word into its phonetic form. As Figure 6 shows, it is sometimes present as -j or -(j)A and in some other cases it can be non-overt as well. The peculiarity of this suffix is (as can be seen in Figure 7), that although it ends in an -o or -e, it is not lengthened by the Plural Possessive Suffix (-i). Rebrus’s explanation for this is that the General Possessive Suffix (GPS) has a structure consisting of only one CV string and this alone is no other V-position where the /o/ could lengthen to. In his theory of suffix-templates the Plural Possessive has to come first and forces the Possessor Person-Number Suffix (even that of 3rd Singular, which is an empty CV string) to a later position, therefore conserving the GPS in a short position (Figure 7). In Singular, however, the Possessor Person-Number Suffix instantly comes after the GPS (Figure 6) and that is naturally an environment for lengthening if further suffixes are also present (e.g. in Singular Accusative Case – *lapját*).

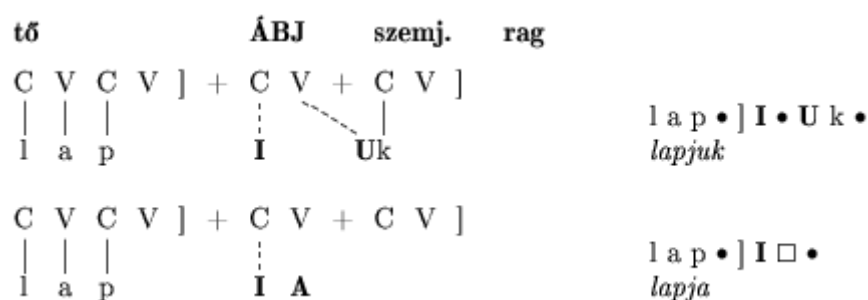


Figure 6 – Rebrus (2000), p. 929.

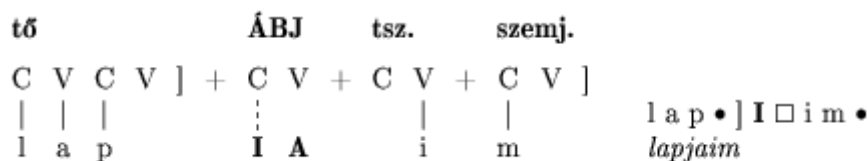


Figure 7 – Rebrus (2000), p. 929

Another issue that the author raises is the observation that sometimes one-syllable foreign words that end in -ε do not lengthen even before suffixes that would usually trigger Low Vowel Lengthening. Examples are usually names, for example *Che* (from *Che Guevara*) – clearly words that do not form inherently part of the Hungarian vocabulary. On the other hand, words ending in -ɔ blend in perfectly and do not show this anomaly. The difference in Rebrus’s opinion is that there are no content words in Hungarian that would end in -ε and would therefore show Low Vowel Lengthening. As a result, there is no precedent or analogy for the speaker to access. However, with ɔ there are two one-syllable words (*fa* and *ma*) which are quite frequent and can take many suffixes (the online corpus *Szószablya* contains over 200 types that have either *fa* or *ma* as an absolute stem and they appear in over 400 000 tokens)³ and that can be the main reason for this phenomenon.

Another possible approach is to account for the difference with the difference in the markedness of these two pairs of sounds. Cross-linguistically there is a far bigger difference between /ɔ/ and /a:/ than between /ε/ and /e:/ therefore [ɔ] changes into [a:] easier than [ε] does to [e:]. That phenomenon is certainly a potential topic of possible future research.

³ With *Szószablya*, for *ma* 38 types contain the inflected form *ma:-* (leaving out all ambiguous forms, such as *mákból*) in 15207 tokens and *ma* (non-inflected and non-derived form) appears 360551 times in WebCorpus. *fa* (non-inflected, non-derived form) appears 29399 times and words containing the *fa:-* alternant (after disambiguation of data) appear in 147 types that give 68971 tokens. Words containing the *fɔ-* or *mɔ-* alternant as part of a derived or inflected form were not counted in this survey.

This analysis provides no explanation for the first issue raised in **Section 2.** (the difference in the magnitude of words exceptionally ending in e: and those ending in a:), as it approaches Low Vowel Lengthening mainly through examples of low back vowels (ɔ and a:).

For the issue of certain suffixes triggering LVL while others do not (but some of them might trigger Vowel Harmony), a solution can be found in a presentation by several authors (Péter Rebrus, Péter Siptár, Péter Szigetvári and Miklós Törkenczy (1996)). It is suggested that the difference basically stems from the gradualness of suffixes. There are certain phenomena that have to be examined and suffixes can be grouped and placed on this scale. Naturally, some suffixes will form a group where all suffixes trigger Low Vowel Lengthening, Vowel Harmony and a number of other phenomena (e.g. the Plural Suffix *-k*). Another group will be one whose members show Vowel Harmony but do not trigger Low Vowel Lengthening (for example, *-ság/-ség*). Yet another group's members are suffixes that do not trigger any of these phenomena (for instance *-kor*) – this group is hard to distinguish from compound words (if such distinction is needed at all). With careful selection of these groups the problem formulated in the second question in **Section 2.** can be avoided easily.⁴

The phenomenon of Lowering Stems is often linked to Low Vowel Lengthening; approaches dealing with one try to give explanation to the other one as well. Here, it is explained by the use of the already introduced floating elements. Lowering Stems in this theory have the same structure as regular ones, the only difference is a floating A (depending on length realised as [ɔ] or [a:]) or E (realised as [ɛ] or [e:]). *Figure 8* shows that in practice – the floating A is realised when the word is inflected or derived. However, a problem instantly arises. That is, why the floating A is not realised if (even in Nominative Singular) the empty V position is there for it to attach to. Also, it is questionable why it is not realised in forms such as *halról* ('of a fish'). Although a constraint can be stipulated that this floating A element is only realised before suffixes (and only before certain suffixes) this problem is not addressed.

⁴ A similar approach to this one has been provided in other works as well, such as that mentioned in the chapter of Törkenczy in *The Blackwell companion to Phonology* (2011). In his work he uses a table to show the extent to which certain suffixes may trigger alternation in the suffix. He examines 5 suffixes compared to the preverb (*le* 'down') with respect to three different phenomena (Vowel Harmony, Low Vowel Lengthening and the phonotactic ban on adjacent identical Vowels) and although in a limited way, the same gradualness can be observed.

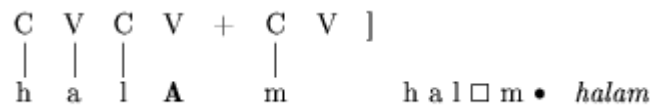


Figure 8 – Rebrus (2000), p. 925

Although the analysis leaves several problems unanswered (asymmetry of word-final a: and e:, the lengthening of the supposedly “non-lengthening ɔ” of the Possessive Suffix – *borjai* – *borját* and the behaviour of the epenthetic vowel in Lowering Stems) its merits also have to be mentioned. It works in a strict CV framework, where a word is solely built up from ‘CV’ units, and because of the strict framework and the limited number of tools it has stronger explanatory power. Also, the paper accounts for the behaviour and distribution of other vowels of Hungarian (especially the distribution of long and short vowels in Hungarian) which none of the other approaches try to and where other approaches fail. This theory, however, ties this phenomenon together with phonotactic properties of the language and thus becomes more generally applicable.

3.2. Lengthening

There is of course the traditional approach to Low Vowel Lengthening – as the name also shows: lengthening. It derives the [a:] and [e:] from the /ɔ/ and /ɛ/, respectively. If they are looked at with respect to markedness, approaches of this kind (by supposing /ɔ/ and /ɛ/ as underlying) take the more marked sounds to be underlying but these sounds appear at the surface in less marked forms of the paradigm (for instance, Nominative Singular – a form more likely for a native speaker to store the lexeme in). An analysis like this would also necessarily assume that there are no word-final long low vowels in Hungarian at all (except for the about 150 exceptions). Therefore the constraint stipulated in (3) has to be perceived as a static phonotactic rule rather than a dynamic one. The lack of long low vowels in a word-final position is not a result of a neutralisation process, but the possibility of their presence is excluded altogether.

3.2.1. Siptár-Törkenczy (2000)

A lengthening-approach to Hungarian Low Vowel Lengthening is one written by Péter Siptár and Miklós Törkenczy in 2000. They analysed this problem in probably the most traditional way: the phenomenon has been explained as a result of the lengthening (duplication) of word-final low vowels before certain suffixes. The low vowel receives two timing slots should it stand before a morpheme boundary. *Figure 9* shows his theory in practice – where] represents the morpheme boundary and Y represents the first segment of a suffix.

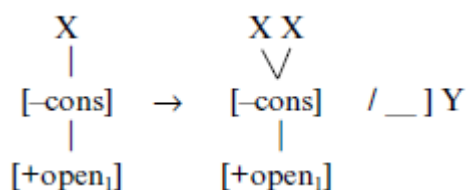


Figure 9 – Siptár-Törkenczy (2000)

Siptár and Törkenczy imagined it as a two-step procedure (as illustrated in *Figure 10*): in the first phase a timing slot is created in the appropriate environment, in the second the properties of the preceding sound (the low vowel) spread automatically to the newly created slot on the timing tier.

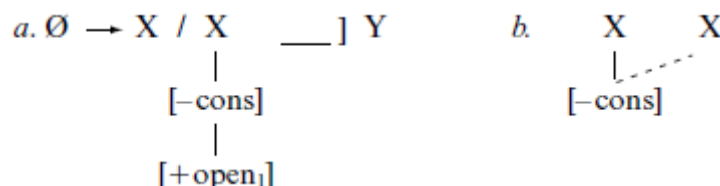


Figure 10 – Siptár-Törkenczy (2000)

The three problems mentioned in **Section 2.** have to be taken into consideration here again. The difference in the number of words ending in a: and those ending in e: is not addressed, merely the number of exceptional words is mentioned.

The issue of Low Vowel's Lengthening's “interference” with Vowel Harmony is, however, examined and discussed in length. The observation they make is that the most efficient and general solution that can be given is the one stating that suffixes that do not trigger Low Vowel Lengthening are simply in a separate phonological domain and are similar to compounds (consider the examples below).

[bɔltɔne:l]	'hatchet handle'
[bɛlɛle:p]	'steps into'
[kucɔsɛry]	'dog-like'
[mɔtʃkɔfe:lɛ]	'feline'
[budɔi]	'from Buda'
[plɛckɔke:nt]	'like a rumour'

The first two words show a true compound and a verb with a pre-verb, cases where the two morphemes can surely be (and are) considered to belong to separate phonological domains and therefore trigger no alternation in each other. The next four exhibit the case of words which although derived can be analysed as a compound word (because the derivative suffix does not trigger any alternation in the stem or the other way around). Such are the suffixes that do not trigger Low Vowel Lengthening and have only one allomorphic realisation (although when the addition of further inflections is possible, Vowel Harmony seems to flow through these suffixes, e.g. *budai*, *budaiakat*). Problematic are, however, suffixes which do not trigger LVL but clearly show Vowel Harmony like the suffixes *-ság* that can appear in two allomorphs ([ʃa:g] and [ʃe:g]) depending on the harmonic properties of the word it is attached to.

[butɔʃa:g]	'silliness'	*[butɔʃe:g]
[fɛkɛtɛʃe:g]	'blackness'	*[fɛkɛtɛʃa:g]

Were they considered to be in separate phonological domains, harmonising with the stem would not be possible and the alternants labelled as ungrammatical would be equally possible hypothetically.

Although Siptár and Törkenczy were co-authors of the already mentioned presentation held in Vienna in 1996 – *Hungarian morphology doesn't meet GP* – that proposed the idea of gradualness in the sense that some suffixes trigger more phenomena than others, their 2000 work states that “To the best of our knowledge, the literature does not contain any feasible suggestion as to a more principled solution to this problem.”

With Lowering Stems there is no connection made in this chapter and the solution provided to the issue is completely unrelated to the one proposed for Low Vowel Lengthening.

Although by analysing Low Vowel Lengthening as lengthening, a solution is given that is closer to the speakers' intuition than shortening, it tries to provide an analysis that is perhaps too general and therefore fails to account for certain peculiarities and leaves several exceptions without comment.

3.2.2. Empty V in the Suffix-approach

Finally, I would like to present an approach of my own. There is another possible way to analyse Low Vowel Lengthening as a lengthening – by stipulating an empty vowel position in suffixes that trigger this alternation. The empty V-position enables the melody of the word-final short low vowel to spread and that is how it lengthens. The underlying form of the stem contains a single word-final /ɔ/ or /ɛ/ and when it is lengthened, its long form will be [a:] or [e:] (as proposed in **Section 1.**). This is illustrated in *Figure 10* with a simple case - the word *fāk* ‘trees’ - and this example gives a good insight into the structure of most words showing Low Vowel Lengthening.

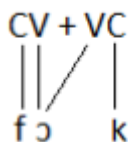


Figure 10

3.2.2.1. Possessive Cases

The structure Possessive Cases mentioned in **Section 3.1.2** is quite complicated in this approach, too. As this paper focuses on the behaviour of vowels and especially Low Vowel Lengthening, there will not be any explanation given on why and how the optional *-j-* of the possessive suffix appears after certain words and why and how it does not after others.

The General Possessive Suffix in this framework is made up of a VCV sequence all of whose timing slots are realised in its full form but none of which have to overt in its reduced forms. An interesting peculiarity of the Possessive forms is that the General Possessive Suffix (for a possessor in 3rd person Singular) is not lengthened by the Plural Possessive Suffix but is lengthened by numerous others, for instance, the Accusative Suffix. There can be two different representations for the Plural Possessive Suffix which seem equally possible to handle the case when it combines with words whose absolute stem ends in a low vowel. (*Figure 11*).

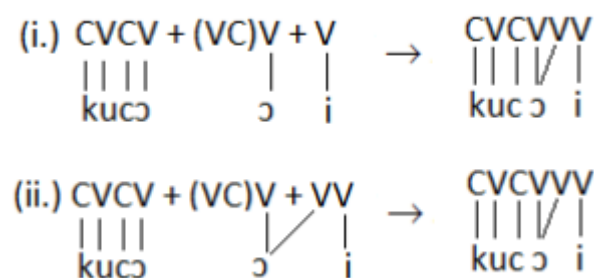


Figure 11

In both representations (in order to avoid the violation of the Obligatory Contour Principle (OCP)⁵) the ɔ sounds have to be the same melody but connected to several timing slots – and therefore are realised as an a: sound (*kutyái* – ‘his dogs’ – [kuca:i]). The second representation (Figure 11ii), in which the only difference is the extra empty vowel position at the beginning of the Plural Possessive suffix, contains a low vowel which is connected to not only 2 but 3 timing slots – as there is no formal constraint that would stop the spreading to the new empty V-position. But since at the surface Hungarian only distinguishes two types of length (long and short) and there are no “extra-long” sounds, the general rule in (4) has to be applied with which we get the final representation in Figure 11ii.

(4) Three timing slots long vowels are reduced to two slots long ones.

Apart from that the two options seem equally feasible.

However, through examples of words that do not end in low vowels, it can be seen that the second representation of the –i suffix is wrong.

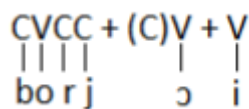


Figure 12

From words like *borjai* (‘his calves’) it is obvious that only the first option is possible, where the Plural Possessive –i suffix does not begin with an empty vowel slot - otherwise the General Possessive Suffix would lengthen, which it does not. As opposed to Rebrus’s theory in **Section 3.1.2** which states that it is the ɔ/ε of the Possessive Suffix is one that does not

⁵ This essay uses a dynamic version of the OCP that solves the problem of having two identical adjacent phonemes by merging them into one that is linked to all the positions to which either of the previous two identical phonemes were before the merger. This, Kenstowicz (1994) supposes to be a subcase of the OCP in Chapter 7.2.4.

lengthen (as it consists of only a CV sequence), here it is the structure of the *–i* that makes a difference and that solves the problem why the vowels of this suffix lengthen in every environment but the Plural.

3.2.2.2. The interaction of Linking Vowels and Low Vowel Lengthening

There are some linking vowels that usually do appear as part of a suffix, but disappear when LVL would also take place – e.g. *–unk* in the examples of *lát* ‘(he) sees’, *látna* ‘(he) would see’, *látunk* ‘we see’, but *látnánk* ‘we would see’).



Figure 13

The capital U in the representation of *látunk* in Figure 13i stands for a high floating vowel (that is underspecified for backness), a U which is not lexically connected to the timing tier's vowel slot it might appear in. However, during the phonetic derivation process it becomes associated to it and therefore will be pronounced. The example *látna* in Figure 13ii only shows the basic form for the next example.

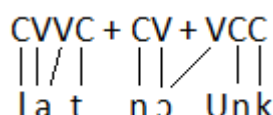


Figure 14

With the 1st person Plural Conditional of the word, the realisation will be *látnánk* which is a result of the spreading of melodic features if the word-final *ɔ* - i.e. Low Vowel Lengthening. At the same time, the floating U will not be realised because the *ɔ* occupies the empty vowel position it could be linked to. From this, the following observation can be made:

- (5) The morpheme-initial floating element of the suffix will not be realised if the previous morpheme ends in a low vowel.

This shows a certain hierarchy, which can also be perceived as an example of rule ordering. The rules to order are as follows:

- (6) If a morpheme-final low vowel is followed by an empty vowel-position of the next morpheme, the melodic properties of the vowel will spread.
- (7) A floating element at the beginning of the suffix will be associated to the empty vowel-position at the beginning of the suffix if there is any.

In this bleeding order the rule in (6), which is Low Vowel Lengthening itself basically, prevents the rule in (7) from happening by taking away some of its potential environments.

3.2.2.3. The word-final a:-e: asymmetry

As pointed out in the previous sections, there are a number of exceptions to the rule formulated in (3). There is a notable difference in the number of exceptions ending in [a:] and those ending in [e:] (former group consists of 15 stems the latter about 130). There is obviously a bigger cross-linguistic difference between the two sounds within the pairs (/ɔ/ is a lot more marked than its long counterpart, /a:/, whereas /ɛ/ and /e:/ appear to be equally marked – or unmarked).

After a check in the Magyar Webkorporusz (Hungarian Webcorpus) with the help of Szószablya⁶ it was found that there are 8848 lemma types of words ending in [ɔ] in Hungarian appearing as over 8.8 million tokens which is almost three times as many as there are words ending in [ɛ] (2093 types and 7.4 million tokens). Although they are somewhat rarer, a tendency can be noted that the number of words ending in [ɔ] is bigger than those ending in [ɛ].⁷

Words ending with the long vowels [a:], [e:], however, show completely the opposite. There are only 54 results for lemmas in Hungarian that would end in [a:] and one magnitude more (359). The difference in the numbers of tokens is somewhat less striking here (554 898 for [a:] and 845 019 for [e:]), it is obvious that some of the [a:] words are very frequent, but these are mostly grammatical words, words from closed classes. The most frequent one (*továbbá* ‘furthermore’) appears 136810 times in the corpus.

⁶ Available at <http://szotar.mokk.bme.hu/szoszablya/searchq.php>. The search for lemmas gave false positive results as well (on words like *Bogotá* which is spelt with an *á*, but pronounced with an [ɔ], but their number was irrelevant compared to the amount of data.

⁷ It also have to be noted that the first five words ending in *ε* are *de* ‘but’, *be* ‘in(side)’, *illetve* ‘besides, respectively’, *ne* ‘no(t)’, *le* ‘down’ none of which can usually serve as bases of derivation or inflection (only in meta-language) together give a sum of 3900869 tokens. Other frequent non-content words (of closed wordclasses) often have an *ε*-ending as well.

It seems as though the number of words ending with the long sound were in reverse proportion with the number of words ending in their short counterparts. The sound [ɛ] has a smaller frequency word-finally than [ɔ], but its longer counterpart [e:] is a definitely more frequent ending than the long counterpart of [ɔ] (i.e. [a:]). Assuming this ratio, any new word coming into Hungarian is under different influence in both cases. With ɔ or a: there is a strong analogical tendency of word-final vowels being borrowed as short because the difference is two magnitudes between the already present words ending in long or short low back vowels (8848 types vs. 52 types – 8 881 984 tokens vs. 551 543 tokens). With ε and e: the tendency is still there, but the difference is only one magnitude (2091 types vs. 358 types – 7 473 774 tokens vs. 842 810 tokens). From this data it seems that a loan word ending in a low-vowel is under stronger analogical pressure to end in a short vowel if that low vowel is back than it is if it is front.

3.2.2.4. LVL's interaction with Vowel Harmony

In this approach the distinction between suffixes triggering LVL and those not triggering it is made on a purely structural basis. The only ones capable of triggering it begin with an empty vowel slot, to which the morpheme-final low vowel of the stem can spread. As there is no domain boundary stipulated – not even in cases of suffixes like *–sÁg* that do not trigger LVL – there is no reason why Vowel Harmony would be interrupted in any way. Therefore in this analysis, there is no interaction between Low Vowel Lengthening and Vowel Harmony.

3.2.2.5. Lowering Stems

Lowering stems in this framework can be approached as stems with a floating element just like in Rebrus (2000) in **Section 3.1.2**. It can be stipulated that *gáz* ‘gas’, which is a regular stem, and *ház* ‘house’, which is a Lowering Stem, both have a CV structure of CVVC, but *ház* also has a floating A element (a low vowel not necessarily specified for backness, as Lowering Stems may take either ɔ or ε as a linking sound but that is in all cases deducible from the harmonic properties of the stem).

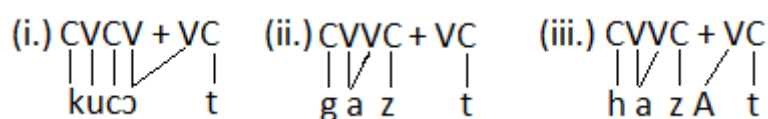


Figure 15

Figure 15 shows the same suffix (the Accusative Suffix) with three different types of stems. The first word is *kutyát* ‘dog, Acc.’ in Figure 15i where Low Vowel Lengthening takes place as previously described. The second example in Figure 15ii is *gázt* ‘gas, Acc.’ which is a completely regular noun and does not take any linking vowels. The third one in Figure 15iii is a Lowering Stem and as it can be seen the floating A of the stem attaches to the empty vowel-position at the beginning of the suffix.

This is a case where the suffix chosen does not take a linking vowel with regular stems. In the next example in Figure 16, however, there is the Plural Suffix (-k) that always appears in the form of a VC sting if attached to word that ends in a consonant. The structure of the suffix is the following: it is made up of a VC string, to whose consonant position a k is linked, but whose V-position is empty. Also it has a floating vowel which is a rounded mid-vowel underspecified for any other melodic property ([O]). The first example shows a word in whose Plural form LVL can be observed and in the last two cases (*gázok* ‘gases’ and *házak* ‘houses’) which are examples for regular and Lowering Stems, respectively. In *gázok* the floating [O] occupies the vowel position and is articulated. In *házak*, the difference is the floating element of the stem and because it becomes associated to the suffix’s empty vowel position, the [O] will remain unlinked and unpronounced.

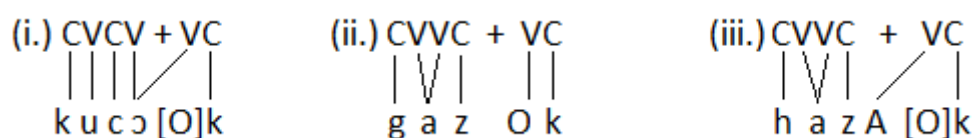


Figure 16

After seeing these examples it seems an area for further research to examine what regularities analyse the order or hierarchy of floating elements which determines which element will be associated and pronounced in the end and which will not. Some possible rules and principles are formulated in (8) and (9).

- (8) Floating elements do not link to empty positions if that would cause hiatus.
- (9) If the stem has a floating vowel and the suffix has an empty vowel position, the floating stem-vowel will associate to it.

Obviously the Hiatus Avoidance Principle seems an inviolable principle whereas the rule in (9) can be ordered to a later point of phonetic derivation (but certainly before (7), since

otherwise floating vowels of lowering stems would never appear). The order of the rules in (6), (7), (8) and (9) can be an issue of further interest.⁸

3.2.2.6. Pros and Cons

Probably the main strength of this theory is that it explains the difference with a structural difference in the suffix and not the stem. If we take a look on the distribution of LVL, it seems that whether it takes place or not depends much more on the suffix than the stem (once the stem provides a potentially sufficient environment – e.g. ends in a low vowel). On the other hand, suffixes seem to trigger or not trigger it arbitrarily. Therefore it only seems logical to look for a reason in the structure of the suffix and not the stem. Should this analysis prove right extended to the whole vowel system without causing anomalies, the theory itself is capable of providing a simple but powerful solution to Low Vowel Lengthening. Besides locating the source of the difference within the suffix, the difference itself is not a lexical property of the suffix but a completely deducible and predictable feature. The question of interaction with Vowel Harmony is not even raised in this framework.

However, it is clearly a weakness of the theory that it has been created only with respect to the low vowels of Hungarian. Testing how this structure-system of suffixes works with the other vowels and consonants of Hungarian is a topic to be left for future research.

4. Conclusions

The paper began with a brief but detailed description of the Hungarian vowel system and identified three critical issues which a competent approach has to account for – (I.) the problem of word-final *a:* and *e:*, (II.) the case of suffixes which do not trigger LVL but undergo Vowel Harmony and (III.) whether the theory can (with little modification or extension) be applied to Lowering Stems as well. We have examined several alternative theories in this paper. Some of them analyse the phenomenon as lengthening (taking the short low vowel as underlying) and some as shortening (assuming that the long vowel occurs in the underlying forms which sometimes appears as short at the surface).

⁸ Also, a further issue can be problematic, for example, is the case of stems that trigger LVL, but not Lowering (for instance, *-on/-en/ön/-en*) whose vowels have to be associated after LVL has taken place but before the floating element of the Lowering Stems could associate. This is not the topic of this essay but it can be a potential topic for future research.

Abondolo's work (1988) is a shortening approach which introduced Vowel Reduction Rules mainly uses vowels underspecified for prosody – but for the difference in number of words ending with a: and e: he also proposes a different vowel. However, Abondolo fails to account for the second issue (of non-LVL-triggering suffixes that harmonize with the stem).

Rebrus (2000) also perceives it as a lengthening but in his view, words ending in vowels all end in a CVCV string – of which only the first V-position is lexically specified. His theory is the most general one (taking all other vowels of Hungarian into consideration), but as far as LVL is concerned, his theory solely focuses on the case of back low vowels (/ɔ/ and /a:/). However, he raises the question of monosyllabic loan or foreign words and whether they show low vowel lengthening, which is a possible topic of future experiments or research.

A well-known lengthening approach is one by Siptár & Törkenczy (2000) who propose an analysis in which the low vowel of the stem is lengthened if followed by certain suffixes. However, they themselves also state that there has been no valid explanation for the issue in II. and neither do they mention the issue in I.

Finally, I presented an analysis which is also a lengthening approach that explains Low Vowel Lengthening by supposing an empty vowel-position at the beginning of suffixes that trigger LVL and does not in case of those which do not. Although it accounts for all three problems raised in this paper, it leaves several questions for future research, such as the extension to the theory of suffix structure to the whole Hungarian vowel system and not only with respect to Low Vowel Lengthening or the linking hierarchy of floating elements. As all the theories could answer most of the questions raised at the beginning of the essay, all in all, it can be observed that neither shortening nor lengthening is more valid by itself. Both lengthening and shortening approaches are theoretically possible. Some of the analyses proposed so far have been more successful than others but both the lengthening and the shortening approaches can provide viable options.

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