Some issues of segment length and syllable weight

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1 Introduction

The aim of the present paper is twofold: firstly, to survey and compare existing accounts of syllable weight in general, concentrating on particular problems of compensatory lengthening, and secondly, to discuss possible analyses of "superheavy" syllables in Hungarian. We will examine surface vowel shortening and lengthening phenomena in Hungarian and see how the Hungarian data can help us in separating the notion of weight from length.

2 The mora

2.1 Definitions

"Heavy" and "light" syllables have been intuitively distinguished in poetry and used for a musical effect for thousands of years. Yet only recent phonological theory (metrical phonology) has discovered the linguistic relevance of syllable weight. While in 1968 the mora was given only a rather vague definition by McCawley ("something of which a long syllable consists of two and a short syllable consists of one"), it has since been found, for example, that English stress is easier to account for on the basis of syllable weight than segment length. Although Liberman & Prince (1977), Hogg & McCully (1987), Halle & Vergnaud (1987) and Harris (1994) do not work in a moraic framework, all of them distinguish syllables with a single short-vowel rhyme from syllables with a long-vowel or short-vowel-plus-consonant (or longer) rhyme, which is identical to the monomoraic–bimoraic distinction.

In order to justify mora-based accounts of segmental phenomena, the existence of the mora as a true metrical unit needs to be proved and the term itself defined, and this raises several questions. There was apparent confusion for a long time about the relationship of moraic structure and segment length. The mora was still defined as a "unit of length" by Bright in 1992. Harris uses the term "skeletal point" to indicate "a bare unit of phonological timing" (1994 : 85) without distinguishing moraic and nonmoraic skeletal points, and explaining compensatory lengthening phenomena on purely quantitative grounds. Perlmutter (1995) argues fiercely against length or time-based interpretations of the mora and proposes that it should be thought of as an abstract "unit of weight." The aim of Perlmutter's apparently subtle distinction between length and weight is to eliminate the notion of "length" both in the phonetic and in the "feature" sense. From a study of the relationship between geminate consonants and long vowels he concludes that the most important arguments for a moraic approach involve "quantitative differences between vowels and consonants," i.e., that the most important feature of moraic consistency (see **2.2** below) is that it is indifferent to whether quantity is realised on a vowel or a consonant. Therefore, in languages that distinguish between heavy and light syllables (e.g., Japanese), moras exist on their own, they are "stable and spread under deletion of melodic material."

2.2 Onset/rhyme asymmetry and moraic consistency

For moras to be justified as units of weight we need to prove that in a language that distinguishes between heavy and light syllables (a) segments may or may not be moraic according to whether they are in the onset or in the rhyme (onset consonants do not contribute to syllable weight—"Weight-By-Position" (Hayes 1989)), and (b) lost moraic—and only moraic—segments are compensated for ("moraic consistency"). Although there are plenty of well-known examples for both, let us see just a few.

The onset/rhyme asymmetry is well demonstrated by the East Ionic dialect of Greek, where the deletion of an onset consonant does not trigger compensatory lengthening but that of a coda consonant does (Hayes 1989):

(1)	***w**oikos	~	oikos	'house'
	*ne**w**os	~	neos	'new'
	*od**w**os	~	oodos	'threshold'

In this dialect onset *w*-s are deleted by virtue of a rule but are never compensated for. Lengthening only occurs in *oodos* but this, according to Hayes, is not compensation for the loss of the onset *w* but for the loss of the resyllabified coda *d*. The first two words remain syllabifiable after the deletion of the *w* (*woi.kos* → *oi.kos; ne.wos* → *ne.os*), but in the last word *d* will have to be resyllabified to the second syllable after the deletion (Onset Maximization Principle): *od.wos* → *od.os* → *o.dos.* It is the lost coda *d* that triggers compensatory lengthening: *od.os* → *oo.dos.* In conclusion, onset (nonmoraic) consonants can be lost without compensation, coda (moraic) consonants cannot.

A remark on *odwos*

Harris questions the entire concept of "resyllabification" and claims that "phonological processes preserve prosodic structure throughout the derivation" (1994 : 190); i.e., that a derivation process that requires "resyllabification" at any point must contain a misanalysed syllabic structure in its input. Instead of resyllabification, alternative tools like empty nuclear slots are offered. Although the arguments are convincing, we believe the *odwos* case presents a particularly interesting challenge to this framework, a theory which lacks not only resyllabification but moras as well.

The only way to account for the *odwos* phenomenon according to Harris's approach is to say that the original *od.wos* syllabification is wrong. If this is the case, three alternative solutions come to mind: first of all, as the sonority sequencing is right, we could say that the second syllable begins with a complex onset (*o.dwos*):

```
(2)  N    O     N  (C)¹
     |   / ≠    |   |
     o . d   w  o   s
```

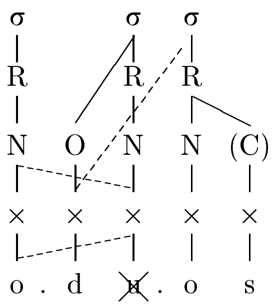
The deletion of the *w* in this case is quite possible but will in no way motivate the lengthening of the *o.* (This analysis would not motivate the phenomenon in a moraic framework either, as onsets are never moraic.) The second possibility is to assume an empty nucleus in the middle of the word (*o.d∅.wos*):

```
(3)  N   O   N   O   N  (C)
     |   |   |   ≠   |   |
     o . d   ∅ . w   o   s
```

This is not very likely though, as there is no reason why the glide *w* should not fill the empty slot (the *o*-lengthening cannot be motivated in this way either). The third possibility, however, is exactly this: to suppose that the *w* fills a separate nucleus (*o.dw.os,* or more precisely: *o.du.os*). This

[1] Word-final consonants in this theory may in fact be onsets of inaudible word-final syllables with empty nuclei, depending on a "parameter" of a given language which may allow or disallow them.

analysis ensures a moraic *w* (or *u*) instead of a moraic *d*, giving us the opportunity to describe the phenomenon in one step rather than two by creating adjacent vocalic (and also moraic) positions between the first *o* and the *u*. Another advantage is that in this way the deletion of the *w* can be motivated, too: if two nuclei are adjacent (in this case the *u* and the following *o*), one of them is likely to be "suppressed" (Harris 1994 : 205):

(4)


The deletion of the *u* is now motivated but still problematic. What is deleted exactly? The melodic content? The slot? The nucleus? The rhyme? The whole syllable? If the syllable is deleted (which is apparently the case), how can its nuclear slot (which is licensed by it) survive (as the second slot of the lengthened *o*)? How can this phenomenon be described without crossing association lines?

Combining moraic theory with Harris's model could solve these problems. We only need to claim that mora-based phenomena take place on a separate tier, independently of syllabic organisation:

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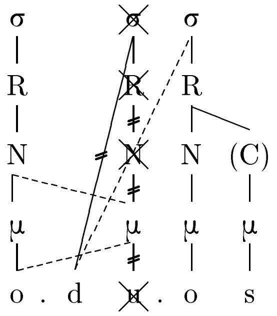
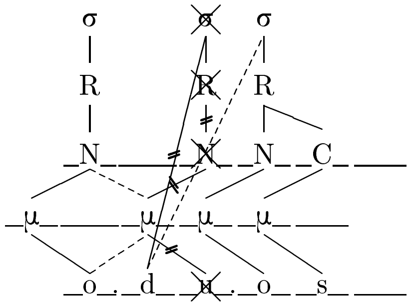


From the point of view of syllabic organisation, the deletion of the second vowel means the deletion of the whole second syllable, except the onset, which is associated to the third syllable. What happens on the moraic tier when the syllable is deleted is simply that a mora (originally associated with the nucleus) will be stranded and eventually filled by the melodic material of the *o.* Note that the lines do not cross as the moraic tier is independent. A "3D image" will illustrate the case:

(6)



(The *d* is not associated with a mora and therefore it can be freely reassociated to the next syllable without disturbing moraic association lines.)

2.3 A few more compensatory lengthening phenomena

Moraic consistency is the principle that explains compensatory lengthening in general: it requires that the loss of the melodic material of a moraic segment be compensated for by spread of that of a neighbouring mora to the stranded one. In other words, the number of the moras is fixed and must be preserved. The loss of the Old English word-final vowel in e.g., *talə* → *taal* 'tale' triggered the lengthening of the neighbouring moraic segment: the preceding vowel (Hayes 1989). Interestingly, in some cases moraic consistency may lead to the contrary: Korean, having no long/short vowel distinction, distinguishes long/short vowels in English loanwords by adding a word-final vowel (Broselow 1995):

(7) bit 'bit'
bitɨ 'beat'

Another instance of moraic consistency is found in Japanese: when the hypocoristic ending *čan* is added to the name *Hanako,* three alternative forms are possible but no others:

(8) hanako → haa-čan
hanako → hač-čan
hanako → hana-čan
hanako →*ha-čan

The requirement is that the root to which the suffix is added must remain bimoraic, regardless of whether those two moras are realised on one syllable or two, by the gemination of the onset *č* or the lengthening of the first *a* (Poser 1990, Perlmutter 1995).

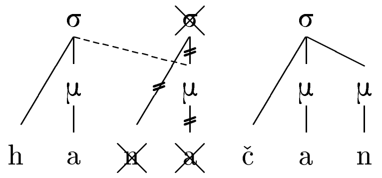
A remark on the *Hanako* case

If the requirement is that the root has to be bimoraic, then the form *hančan* would also satisfy this requirement—however, this is not given as a possible alternative. Why can the *n* not act as the second moraic segment of the first syllable? Are there perhaps no closed syllables in Japanese? This is obviously not true as this is exactly what we achieve by the gemination of the *č*. Is it then that the *n* cannot be a coda segment? This is wrong again as it is one in the syllable *čan*. The answer must be that the rule by which we get these derivations work on syllables, not moras: only whole syllables can be chopped off in the derivation, taking their onsets (the onset *n*) with them:

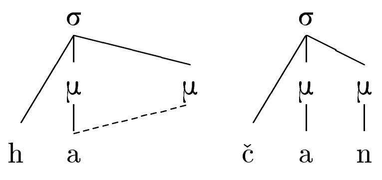
(9) ha.na.~~ko~~ → ha.~~na~~.čan →haa.čan
→hač.čan

Therefore the compensatory lengthening compensates not only for a lost moraic segment but for a whole syllable. The "stranded" mora is not only stranded because of the loss of its melodic material but also because of the loss of its association with a syllable. In fact, two things happen at the same time: first, the stranded mora is associated with another syllable, and second, the mora is filled up with melodic material by compensatory lengthening. Without assuming the first step, the lack of the form *hančan* cannot be explained.

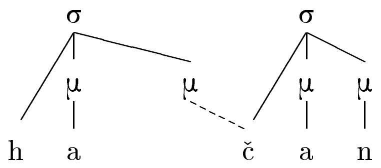
(10) **Step 1:** a. syllable deletion; b. mora reassociation



Step 2a: compensatory lengthening A

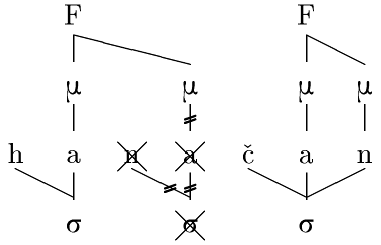


Step 2b: compensatory lengthening B

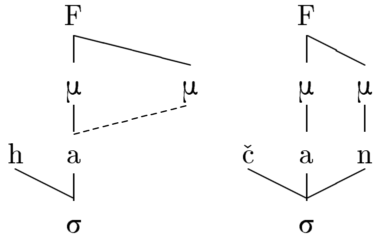


It seems mysterious, nevertheless, how a deleted syllable can leave its mora behind while taking everything else with it, including its onset. Our hypothetical assumption is that moras are metrical units but syllables are segmental ones: moras are not attached to syllables but to feet: moraic consistency is metrical consistency and can work independently of syllabification. The deletion of a syllable, at least in this case, is the deletion of a group of segments, which does not necessarily result in the loss of the metrical unit that these segments realised. Moreover, the mora is not stranded as it remains associated with the foot: it will be associated with the first syllable only indirectly (and automatically, by syllabification rules), after it is filled with melodic material through compensatory lengthening. This alternative analysis is offered below:

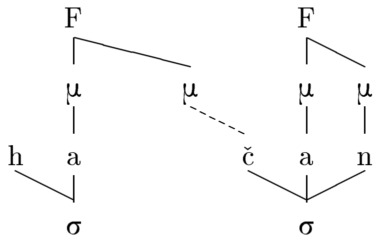
(11) **Step 1:** a. syllable deletion



Step 2a: compensatory lengthening A

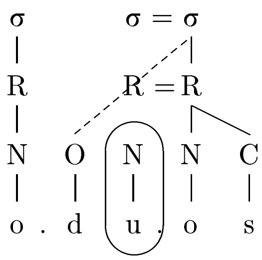


Step 2b: compensatory lengthening B



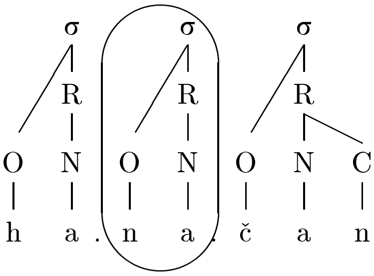
Comparing the *Hanako* phenomenon to the *odwos* case (**2.2.1** above), now the question of what exactly is deleted can be answered somewhat more precisely. The two deletions are fundamentally different: in *odwos,* according to our own interpretation, a nuclear segment is deleted (or "suppressed"), causing the last two syllables to "merge," as the deletion leaves an adjacent onset and a rhyme behind (and, of course, a stranded mora)—(the "=" indicates merger):

(12)



In the *Hanako case,* the whole second syllable is deleted, leaving only a stranded mora but no onset behind:

(13)



The *Hanako* case is simpler and less problematic because there is no stranded onset. It is the stranded *d* of *odwos* that suggests that a moraic tier needs to be detached from syllabic structure.

2.4 Universal limitations?

If compensatory lengthening, which is a cross-linguistic phenomenon, can be explained in moraic terms, this may mean that the mora as a weight unit is universal. If this is so, is there any moraic variation between languages? Are there any limitations? It is quite compelling, for example, to think of moraic contrast between syllables as binary: can we really say that a syllable is maximally bimoraic?

Harris argues for "maximal binarity" at all levels of representation: "a binary limit imposes itself on the amount of branching structure each constituent can support" (1994 : 33).

A possible proof of a binary upper limit on moraic constituents may be a fact in Cairene Arabic: there the emergence of a long-vowel-plus-consonant trimoraic syllable through derivation causes shortening, which can be explained by a tendency to avoid a trimoraic (superheavy) syllable (Broselow 1995):

(14) kitaab[2] + ha → kitabha
'book' 'her book'

Similar restrictions prevent the appearance of superheavy syllables in Japanese (Perlmutter 1995), however, a ternary weight opposition has been found in some languages: Blevins (1995), for example, finds that (C)VV heavy syllables in Estonian are heavier than (C)VC heavy syllables, and Vago (1992) argues for "ultraheavy" (trimoraic) syllables in Hungarian.

One of Vago's arguments is the colloquial compensatory lengthening in words like *zöld* → *ződ*[3] 'green', where, because in Hayes's theory compensatory lengthening requires a stranded mora, the *l* is moraic, and so is the word-final *d,* which cannot be considered extrasyllabic as it may also appear word-internally: *ződhöz* 'green-to'. Vago mentions even longer monosyllabic words, ending in geminates, forming minimal pairs with words ending in the same non-geminate final consonant, e.g., *ép* 'sound'–*épp* 'just', *ás* 'digs'–*áss* 'dig!' which should be argued to have four moras, however, he excludes these "on the safe assumption that quadrimoraic syllables are universally ill-formed" (1992 : 181).

Although it is obvious that for Hungarian *length* oppositions any binary distinction will be insufficient, it is not clear whether it is also insufficient if it is understood as *weight* opposition. Hungarian poetry, for

[2] In the root the final consonant is extrasyllabic.

[3] For simplicity, Hungarian words are given in the standard spelling.

instance, does not distinguish between more than two types of syllables. There are no rules in Hungarian phonology that would make reference to a heavy/superheavy opposition. In order to justify the existence of superheavy syllables, some metrically-based (top-to-bottom) evidence would be necessary rather than segmental (bottom-to-top) arguments. Perlmutter (1995) defines the mora as "a unit of measure from which quantity is predictable." This implies that segment length is dependent on moraic structure, rather than vice versa. This seems to suggest that somehow the top-to-bottom approach should be used, through which we might save the binary opposition and we could build upon mono- or bimoraic consistency. Allowances for superheavy syllables should only be made under prosodically well-defined and certainly exceptional circumstances. This is what we will, quite experimentally, attempt to do in the following sections.

3 Surface length instability and moraic structure

3.1 Surface vs. phonological phenomena

There is considerable variation among native speakers of Hungarian as to what they think and pronounce long, what they think long but actually pronounce short, and what they think and pronounce short on the surface. Spelling distorts the picture further as most speakers tend to accept what the spelling suggests as "correct." For instance, although most speakers would pronounce *rendőrség* 'police' with a short *ö,* they may never confess to it; well-disciplined radio announcers will force themselves to pronounce it long even if it is hard to do. Some other vowels vary in length dialectally: high vowels *u, ü, i,* (as described in Nádasdy & Siptár 1994, this volume), tend to become short, as their long and short versions rarely serve as distinguishing phonemes of minimal pairs; still southern dialects of Hungarian distinguish them carefully. The point is simply that it is difficult to draw the line between "phonological" and "surface" shortening phenomena in the case of those vowels whose long/short counterparts differ mainly in quantity (*o–ó, ö–ő, i–í, u–ú, ü–ű*). Luckily, there are two pairs which quite recognisably differ in quality as well: *a–á* and *e-é.* With these vowels surface shortening and lengthening are easily separable from their complete replacement by their short/long counterpart: as Hungarian has no long [ɔː] or [ɛː] or short [a] or [e] phonologically, the occurrence of these sounds (in dialects that otherwise use the standard phonetic values[4]) will be evaluated

[4] i.e., not in some Northern dialects

as surface length variation while an [ɛ]–[eː] or [ɔ]–[aː] alternation will be interpreted as phonological variation. Although these vowels will be used as a testing device, we will occasionally refer to the shortening or lengthening of other vowels as well.

3.2 Superheavy or superlong?

Let us return to Vago's problem (**2.3** above). Accepting Perlmutter's assumption that moras are units of weight rather than length, and that syllables are maximally bimoraic, there will be a mismatch between the "internal," minimal-pair-proven mora "needs" of Hungarian long vowels and geminate consonants and the universal limitations. The problem in Hungarian is that, as opposed to Japanese, long vowels and geminates are not mutually exclusive: they happily occur side by side, even if surface vowel shortening occasionally (and optionally) occurs. Perlmutter's definition, nevertheless, has an interpretation that could be made use of in the case of Hungarian. If moraic weight is indeed a universal (abstract) phonological measure of syllable weight, this means that moras are not supposed to measure time at all. Segment-internal length may only express its potential moraic value whose realisation will depend on the metrical arrangement: Weight-By-Position itself implies that consonants are only potentially (mono)moraic, and that this potential is only realised if they are in the coda. Similarly, we could say that long vowels in Hungarian are only potentially bimoraic, but this is only relevant until the second mora slot is filled and thereby a metrically heavy syllable is formed. Once the second mora is present, the remaining coda segments that need to be syllabified within the syllable do not contribute to syllable weight any more — yet they may well add to its actual phonetic time.

The separation of weight and length would thus give us light (monomoraic) and heavy (bimoraic) syllables; where a light syllable must also be short (it can only contain one short vowel in the rhyme), but a heavy syllable is either minimum-long (contains a short vowel plus a consonant or a long vowel in the rhyme) or superlong (contains additional consonants in the rhyme).

It is precisely the metrical redundancy of superlength that could explain the striking phonetic instability of superlong heavy syllables. Surface vowel shortening is more likely in superlong syllables than in any other case. It is also more likely in fast speech than in careful speech. We suggest that this phenomenon should be called Superlong Syllable Instability (SSI).

3.3 SSI phenomena

Superlong syllable rhymes are either VVC (***ét**terem* 'restaurant', ***út**törő* 'pioneer', *szem**éts**ég* 'nasty act', *kev**ésb**é* 'less', *bar**áts**ág* 'friendship', ***ár**tatlan* 'innocent', ***él**degél* 'lives', ***ál**lapot* 'state')[5] or VCC (*z**öld**ség* 'vegetable', *k**ard**vívás* 'fencing', ***arc**talan* 'faceless', *m**ajd**hogynem* 'almost', *sz**örny**szülött* 'gnome'; *k**aszt**rendszer* 'caste system', *t**est**beszéd* 'body language') or VVCC (***ért**hető* 'understandable', *t**ánc**tanár* 'dancing teacher'). The general tendency of surface variation is as follows. In VVC rhymes the long vowel (VV) tends to shorten. We will call this phenomenon SSI shortening. In VCC rhymes, however, the short vowel tends to be pronounced longer before *l, r, j* than before other consonants: we will call this Nonnasal Sonorant Lengthening (NSL). In VVCC syllables SSI shortening is nearly obligatory, even if the vowel is followed by a nonnasal sonorant.

Accepting SSI phenomena in this form calls for certain remarks on earlier analyses. Firstly, it should be noted that SSI shortening in VVC syllables is indifferent to whether the coda consonant is the first "half" of a geminate or not. In this respect it is only partly analogous to the Japanese example, (4); in other words, the shortening is not compensatory (and, in our interpretation not moraic, either). NSL (in VCC syllables) runs contrary to the logic of a moraic (compensatory) analysis and seems to be essentially phonetic in nature: why should lengthening take place in an already superlong syllable? Secondly, what is analysed by Vago as compensatory lengthening (*ződ*) seems to pattern here with other SSI lengthening phenomena which are also triggered by *r* and *j*, and which are not compensatory at all as they do not replace the latter two consonants. Furthermore, optional lengthening before *l, r, j* (NSL) does not only happen in superlong syllables: it is also possible in ones with a minimum-heavy (VC-) rhyme,—cf. ***aj**tó* 'door', *B**ar**bara* id., ***el**marad* 'cancelled', *csüt**ör**tök* 'Thursday', *Ip**ar**bank* ⟨a bank's name⟩, *el**ej**tett* 'dropped'—and near-obligatory before a coda *l* plus a following nonnasal sonorant: ***el**járás* 'procedure', *b**al**jós* 'ominous', ***fal**ra* 'wall-onto', ***fel**ráz* 'shakes up', ***el**rejt* 'hides'. If, however, NSL is an optional phonetic phenomenon and does not necessarily go hand in hand with the deletion of the *l, r* or *j* then this lengthening is not compensatory either, i.e., it cannot be explained in moraic terms. Logically, the deletion of *l* in *ződ* is an optional consequence of NSL, not its cause. As no other nonnasal sonorant is deletable (the *r* and the *j* will be retained), it has to be interpreted as an optional dialectal replacement rule, something

[5] The underlined graphemes are superlong syllable rhymes.

like glottal replacement in English.[6] If this analysis is correct, and the long vowel in *ződ* cannot be explained in terms of moraic consistency, Vago's trimoraic analysis of such words becomes questionable.

3.4 Hungarian syllable structure

The restriction of the mora to the status of the unit of syllable weight leads us to the question of how length (especially superlength) can be expressed formally. How can we formally account for SSI shortening, NSL and the resulting *l*-dropping? What really are they?

One could argue that phonology should not be concerned with surface phonetic phenomena: once we can prove that there are no trimoraic syllables, there is nothing left to account for. Or we could say that nonmoraic segments (e.g., onset consonants) are of relatively little interest as they behave neutrally in metrically-based phenomena. Still, the *ződ* phenomenon includes the regular loss of a segment, which is more than just a phonetic nuance and calls for a formal account.

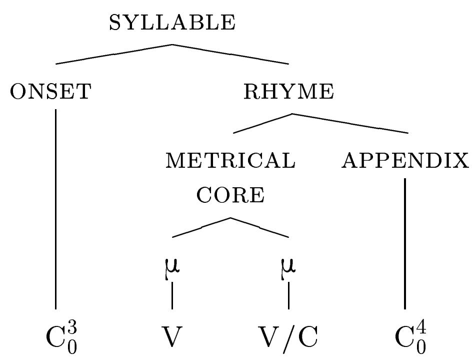
In any case, a placeholder will have to be created for the extra segments. What we need is a representation that expresses our assumption that segments that make a syllable superlong (e.g., *nc* in *táncparkett* 'dance floor')

a. are parts of the syllable rhyme
b. are adjacent to the moraic segments, but
c. are not themselves moraic.

This placeholder will be called the APPENDIX and will be similar to the onset (it will contain nonmoraic segments); the difference is that the onset is directly connected to the syllable node but the appendix will be connected to the rhyme node.

[6] In most British dialects of English, all non-foot-initial voiceless stops [p], [t], [k] and the affricate [ʧ] are preglottalized, yet only one of them ([t]) can be completely replaced by a glottal stop; this is called glottal replacement.

(15)



The metrical core consists of one or two moraic segments where the first one (in Hungarian) must be a vowel; the onset (in Hungarian) may include up to three consonants, the appendix up to four.[7] Onset and appendix segments do not contribute to syllable weight but they do to actual syllable time.

Non-onset segments fill up the slots left to right, starting at the first moraic position (underlyingly-long vowels fill both straight away; long coda consonants fill up the second moraic position as well as an appendix position). An appendix position is a possible extra place for "jammed" coda consonants; it is not created if the two moraic positions suffice. Its natural possibility, however, is shown by surface lengthening phenomena such as those in Hungarian ((17) below) and those in English ((19) in **3.5** below).

The proposed syllable structure is binary and assumes that the maximum moraic weight of a syllable is two. It suggests that only the first two non-onset segments may contribute to moraic weight, the other segments that are syllabified with the syllable cannot. The only alternative analysis is to suppose a third moraic position in the syllable, however, should we allow for this, there will be no principled reason to disallow a fourth moraic position as well. Besides, there is no independent evidence for the existence of a three-way weight opposition. We claim that Vago's "compensatory lengthening," is not compensatory and therefore does not constitute a piece of independent evidence.

Hungarian seems to have six basic rhyme patterns:

(16)

	μ1	**μ2**	**APP**		**μ1**	**μ2**	**APP**
1	V	—	—	**4**	V	V	C
2	V	V	—	**5**	V	C	C
3	V	C	—	**6**	V	V	CC

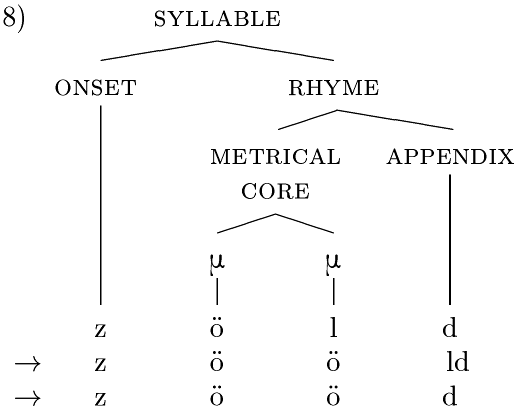
[7] not allowing for a word-final null vowel in the present analysis

Phonetic surface variation (SSI shortening and NSL) changes pattern 3 to 4 or pattern 4 to 3; pattern 5 to 6 or pattern 6 to 5 (moraic segments are underlined):

(17)	**3 to 4**	**VC** → **VV**C	NSL:	barna, szalma, persze[8]
	4 to 3	**VV**C → **VC**	SSI:	étterem, ártatlan[9]
	5 to 6	**V**CC → **VV**CC	NSL:	kardvívás, szörnyeteg[10]
	6 to 5	**VV**CC → **V**CC	SSI:	érthető, tánctanár[11]

The two (opposite) surface processes suggest that in Hungarian syllable typology the number of coda consonants is more decisive than the length of the vowel: vowels can undergo surface shortening or lengthening but the number of consonants remains stable. The *ződ* phenomenon would ruin this pattern by changing a VCC rhyme into VVC (4 to 5). If, however, we supposed (as we suggested in **3.3**) that *ződ* is a regular case of NSL with a 5→6 type VCC→VVCC surface lengthening, we could motivate the loss of the *l* by the loss of its moraic status, preconsonantal *l*-dropping or appendix cluster simplification:

(18)



(surface lengthening)
(*l*-dropping)

The proposed analysis assumes that the same effect (NSL) is triggered by *l, r* and *j* in Hungarian, which belong to the same class of "nonnasal sonorants."

[8] 'brown', 'straw', 'of course', respectively

[9] 'restaurant', 'innocent' respectively

[10] 'fencing', 'monster', respectively

[11] 'undestandable', 'dancing teacher', respectively

One last question remains though: how to handle the *l*-dropping in words like *volna, dolgozik, alszol* where the moraic *l* is not followed by another appendix consonant. In order to remain consistent, we have to suggest that NSL pushes the *l* to appendix position where it may optionally be deleted before another consonant or at the end of the word. This explanation would also account for the (not in any possible interpretation compensatory) loss of the *l* in word-final long vowel plus *l* combinations, e.g., *erről, attól,* etc.

3.5 SSI in English?

Are surface phenomena like SSI or NSL language-particular idiosyncrasies of Hungarian or is there evidence for similar processes in other languages? A well-known vowel-lengthening phenomenon of English may provide us with an answer.

English has a general surface rule of pronouncing vowels considerably longer before voiced coda consonants than before voiceless ones. This lengthening[12] is clearly non-compensatory in nature, as it is not related to the loss or gain of any other segment. More relevant to our discussion is the fact that this lengthening increases the length of already bimoraic syllables without the resulting loss of other segments — the condition of the lengthening itself presupposes the presence of a coda consonant, which must, by definition, be moraic:

(19) bæt ~ bæːd ~ bæːdli
mæt ~ mæːd ~ mæːdnəs

The simple fact that the vowel is long in *madness* is not enough reason to say that the first syllable in this word is trimoraic—instead, this lengthening is supposed to be a surface phenomenon which does not affect moraic structure. Where does the *d* in this word belong then? In syllables with branching nuclei (e.g., *maid*), coda consonants are generally supposed to be connected to the second mora, or in some theories (e.g., Harris 1994, Burzio 1994) be onsets of new syllables with null vowels. In our analysis they are sitting in appendix position.

[12] This phenomenon is considered by some authors (e.g., Harris 1994) to be an instance of shortening rather than lengthening. That would mean that [æ] is underlyingly long. The examples below (e.g., *Adam*) may prove that this is not the case.

That these consonants must somehow, at least on the surface, belong to the syllable is further supported by the fact that this lengthening does not take place if the [æ] is syllable-final:[13] *Adam* *[æːdəm], *habit* *[hæːbɪt], *ladder* *[læːdə].

Does this surface lengthening still take place if we increase the number of coda consonants? We assume that it does not, or, at least, that it is far less likely: *handful* does not have a long [æː] (*[hæːndfʊl]). If the presence of two coda consonants blocks the lengthening of [æ], then this syllable is exactly like the first syllable of *tánctanár* in Hungarian, showing SSI effects.

This may reveal a potentially universal phonetic effect: that the more consonants get jammed in coda position, the less stable the phonetic length of the nuclear vowel will be. Such effects are, however, genuinely phonetic and non-moraic in nature.

4 Conclusion

The phenomena discussed and the possible explanations offered in this paper demonstrate that although difficult, it is highly necessary to keep phonetic and phonological phenomena apart. The issue of weight vs. length illustrates this: in metrical terms, those lengthening and shortening phenomena that can be motivated by moraic (weight) consistency seem to be phonological, others phonetic. It was shown in the sections dealing with compensatory lengthening that incorporating a moraic component (or tier) into the syllable structure is extremely problematic. The *odwos* phenomenon suggests that the moraic tier is separate and to some extent independent of syllabic organisation. In section **3,** which deals with Hungarian vowel shortening and lengthening, it was claimed, in accordance with Perlmutter's view, that metrical syllable weight opposition is binary, and we have concluded that phonological length, at least as far as Hungarian is concerned, only represents a segment's metrical potentials, not its moraic value. We have offered an alternative analysis of the *zöld* ∼ *ződ* phenomenon along these lines, proposing a syllable structure containing a special placeholder for extra segments called an "appendix," and argued that, however compelling it seems, this may be a case of surface rather than compensatory lengthening, suggesting that Vago's trimoraic analysis is incorrect.

[13] not in standard British English, at least

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