# Moraic weight, extraprosodic word-final consonants, and morphophonological length alternations in Hungarian

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## Preliminaries

(1) In the rhyme of the Hungarian syllable, short and long vowels appear in all combinations with a following consonant, consonant cluster, or geminate consonant.

| | | |
|---|---|---|
| CV | ma | 'today' |
| CV: | fu | 'grass' |
| CVC | bor | 'wine' |
| CV:C | kád | 'tub' |
| CVCC | kedd | 'Tuesday' |
| | sült | 'baked' |
| CV:CC | rótt | 'notched' |
| | múlt | 'last' |

Siptár and Törkenczy (2000) note that syllables of the final type are always multimorphemic. However, Törkenczy (1994) notes that the low vowels 'é' and 'á' are in fact permitted in extra-heavy, monomorphemic syllables. Futhermore, there are only two examples of monosyllables of the type CV – *fa* 'tree' and *ma* 'today'.

Evidence that moraic weight is relevant to syllable structure in Hungarian is shown by the fact that compensatory lengthening preserves the mora. In the majority of Hungarian dialects, including the standard dialect, /l/, /r/, /n/, and /j/ may be deleted if they appear as the first element in a word-final coda cluster (Imre, 1972, Kenesei et al., 1998).

(2)

| | Standard | Colloquial |
|---|---|---|
| zöld 'green' | [ zöld ] | [ zö:d ] |
| küld 'send' | [ küld ] | [ kü:d ] |
| kulcs 'key' | [ kulc ] | [ ku:c ] |
| nyelted 'swallowed-2S' | [ Nelted] | [ Ne:ted] |

(3) Other possible weight effects in Hungarian verb system

| 3rd Singular / "stem" | Infinitive | 2nd singular | Gloss |
|---|---|---|---|
| lát | látni | látsz | see |
| fút | fútni | fútsz | run |
| | | | |
| sóhajt | sóhajtani | sóhajtsz/sóhajtasz | sigh |
| áll | állni | állsz/állasz | stand |

| | | | |
|---|---|---|---|
| allít | allítani | állítasz | adjust |
| ránt | rántani | rántasz | pull |
| hord | hordani | hordasz | wear |
| ront | rontani | rontasz | worsen |

(4) Vago's (1989) proposed syllable and moraic structure

| s | s | s |
|---|---|---|
| μμμ | μμμ | μ μ μ |
| š ü l t | k o d | f ü g g |
| *sült* | *kód* | *függ* |
| 'baked' | 'code' | 'hang' |

(5) Mora sharing in words with long vowel ending in a consonant cluster or geminate (Vago 1989)

| s | s |
|---|---|
| μμμ | μμμ |
| r o t t | m u l t |
| *rótt* | *múlt* |
| 'notched' | 'last' |

(6) Issues with this syllable representation:

- Syllables containing a word-final consonant cluster are trimoraic regardless of whether the vowel is long or short – hence an important length distinction is lost in the representation.
- Coda consonants are given differing treatments based on the length of the vowel, although we know that length is not a significant factor in the combinatorial phonotactics of Hungarian.
- These proposals do not align with phonetic studies on syllable durations.

**Alternate Representation: Extraprosodic word-final consonants**

(7) Trimoraic monosyllables under Vago's analysis are now bimoraic.

| a. | s | b. | s | c. | s |
|---|---|---|---|---|---|
| | μ μ | | μ μ | | μ μ |
| | š ü l «t» | | k o «d» | | f ü g |
| | *sült* | | *kód* | | *függ* |
| | 'baked' | | 'code' | | 'hang' |

(8) Mora sharing is no longer required – compare with (5).

| s | s |
|---|---|
| μμμ | μμμ |
| r o t «t» | m u l «t» |
| *rótt* | *múlt* |
| 'notched' | 'last' |

(9) Summary of predictions

| | After short vowel | | After long vowel | (after Ham, 2001) |
|---|---|---|---|---|
| a. | μ μ μ | | μμ μ | |
| | | = | | Mora Sharing |
| | V C C | | V: C C | |
| b. | μ μ | | μμ μ | |
| | | < | | Extraprosodic |
| | V C «C» | | V: C «C» | |

**Evidence for extraprosodic consonants**

(10) Allows for a unified treatment of geminate consonants.

Magdics (1969) found that the quantity of the preceding vowel has virtually no effect on the duration of the following consonant. Ham (2001: 152, 195) finds that final consonant cluster duration is the same following long and short vowels.

The table in (11) summarizes Ham's findings.

(11)

| | Vowel | Stop Closure | Total | #moras |
|---|---|---|---|---|
| VC | 148ms | 106ms | 254ms | μ |
| V:C | 241ms | 106ms | 347ms | μμ |
| VCC | 142ms | 170ms | 312ms | μμ |
| VC: | 134ms | 202ms | 336ms | μμ |
| V:CC | 217ms | 170ms | 387ms | μμμ |
| V:C: | 202ms | 195ms | 397ms | μμμ |

Nádasdy (1985) also gives data to support word-final extrametricality.

(12)

| a. Light | b. Heavy | c. Heavy | d. Superheavy |
|---|---|---|---|
| s | s | s | s |
| μ | μμ | μμ | μμμ |
| šok | šok | a l | a l |
| *sok* | *sokk* | *ál* | *áll* |
| 'many' | 'shock' | 'spurious' | 'stand' |

(13) Kerek (1971) gives further support to the idea of final consonant extrametricality.

- Primary stress in Hungarian always falls on the first syllable.
- Secondary stress – third or fourth syllable?

According to Kerek, word-internal CVC, CVCC, CV:C, and CV:CC syllables pattern as heavy, stress attracting syllables, while only CV syllables pattern as light (no indication is given for CV: syllables). However, word-finally, both CV and CVC are treated as light.

**Maximal Syllables**

Does Hungarian have syllables with two moraic consonants?
(restated) Does Hungarian have CCC (tri-consonantal) clusters?

(14) *zöldbab* 'green bean'
*centrum* 'center'

Under the assumption that the weight-by-position constraint (Hayes, 1989) is active in Hungarian, the first syllable of the words in (14) contains three moras, while the first syllable of the words in (15) contain four moras.

(15) *múltban* 'in the past' [multban] (Olaszy et al., 2004)
*bájtban* 'byte-inessive'
*hársban* 'lime-inessive'

**Minimal Syllables and Minimal Words**

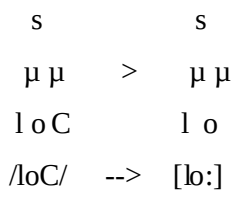
(16) Hungarian /v/ stems: Note vowel length alternations

| Nom. | Dative | Plural | Gloss |
|---|---|---|---|
| ló | lónak | lovak | 'horse' |
| fu | funek | füvek | 'grass' |
| lé | lének | levek | 'liquid' |
| nyu | nyu | nyüvek | 'maggot' |

(17)

| Nom. | Dative | Plural | Gloss |
|---|---|---|---|
| szív | szívnek | szívek | heart |
| só | sónek | sók | salt |

(18) Vago's (1989) analysis




(19) **MINWD**: A content word must be at least bimoraic.
(cf. Hayes, 1995, Selkirk, 1980, Siptár and Törkenczy, 2000)

(20)

| Nominative | Dative | Vowel-initial | Gloss |
|---|---|---|---|
| mu | munek | muv-e | 'creation' |
| szú | szúnak | szúv-as | 'woodworm' |
| bu | bunek | buv-ös | 'magic' |

**How active is the minimal word condition?**

Under the assumption that word-final consonants are extraprosodic, monosyllabic CV words *and* CVC content words are considered too short.

To test this hypothesis, I consulted the Hungarian reverse-alphabetized dictionary (Papp, 1969) to find what percentage of monosyllabic words ending some phonemes obeyed the minimal word condition. The results are in (21).

(21)

| Final Stem Consonant | 1 μ | 2+ μ |
|---|---|---|
| b | 14 | 13 |
| c | 2 | 49 |
| cs | 7 | 35 |
| d | 10 | 56 |
| f | 2 | 26 |
| g | 18 | 55 |
| k | 21 | 67 |
| l | 27 | 40 |
| m | 12 | 25 |
| n | 18 | 27 |
| p | 11 | 42 |
| r | 19 | 59 |
| s | 12 | 34 |

There appears to be a preference for long vowels in monosyllabic words that appears to be explained by appealing to a minimal word condition.

**Topics for further research**

Phonological questions discussed in this talk need to drive phonetic research. To what extent does the presence of a word-final consonant really affect the weight analysis of the final syllable? For example,

(a) In the dialects of Hungarian in which high vowels vacillate in length word finally (cf. Nádasdy and Siptár, 1989) , does the presence of final consonant affect this vascillation?

(b) Is the phonotactic restriction that all round mid-vowels be long word-finally extend to a constraint that round mid-vowels be long if they appear in the final syllable?

The organization of the syllable cannot be discussed without noting the exceptional behavior of the low vowels[1]. Specifically, (1), (2), and (21) above suggest that the "minor" vowels of Hungarian outside the fourteen vowel system – long correlates of *e* and *a* and short correlates to *é* and *á* – may play a role in the phonology of some dialects.

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[1] In addition to the low vowels, other phonotactic regularities and peculiarities in the distribution of the mid-vowels (at the end of the word) and vacillating length observed in the high vowels suggest that a review of vowel length distinction in Hungarian is in order.