## Rethinking the morphophonology of Estonian quantity

## 1 Introduction

The goals of this talk are as follows:

- Look at the 3 -way quantity distinction in Estonian
- Propose a novel analysis of the morphophonology of these paradigms
- Show that prosodic structure need not be directly manipulated by rules to get the three-way distinction
Estonian has many surface minimal triplets for quantity. This can apply to consonants, vowels, or diphthongs:

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"short" "long" "overlong"
Q1 Q2 Q3
vina viina visina
'vapour' (nom.) 'vodka' (gen.) 'vodka' (part.)
lina linna linma
'flax' (nom.) 'city' (gen.) 'city' (part.)
laulu lau:lu
'song'(gen.) 'song' (part.)
```

I'm focusing on alternations within nominals as in (2); nominatives are single syllables in Q3, genitives are bisyllables in Q2, and partitives are bisyllables in Q3:
(2) Nominative Genitive Partitive

| Q3 | Q2 | Q3 |  |
| :--- | :--- | :--- | :--- |
| vii:n | viina | viiina | 'vodka' |
| lin:n | linna | lin:na | 'city' |
| lau:l | laulu | lau:lu | 'song' |
| suu: |  |  | 'mouth' |

CVCV words don't undergo such alternations; all three forms are homophonous:

| Nominative | Genitive | Partitive |  |
| :--- | :--- | :--- | :--- |
| Q1 | Q1 | Q1 |  |
| vina | vina | vina | 'vapour' |
| lina | lina | lina | 'flax' |

### 1.1 Previous analyses

Standard descriptions (Viitso 2003:12) assume a weight distinction between Q2/Q3:
(4)

|  | Short | Long |
| :--- | :---: | :---: |
| Light | Q1 | Q2 |
| Heavy |  | Q3 |

Prince (1980) represents the Q2/Q3 distinction using recursive foot structure (as in 5).
a.
b.

c.


When a long syllable is the first member of a foot it is in Q2 (5b), but when it itself exhausts a foot (5c), it is in Q3. This one-syllable foot is then included as part of a higher foot.

Odden (1997) suggests that this can be done without recursive foot structure if the second syllable of a Q3 bisyllable is attached directly to the prosodic word $(\omega)$, as in (6c):
a.

b.

c.


Additionally, Odden uses moras (as in Hayes 1989) intead of C and V timing slots like Prince. My analysis below will instead use a hybrid model, where weight is independent of length.

Hayes (1989:296) uses trimoraic syllables to represent Q3. Q2 is derived from Q3 by deleting the third mora:


Hayes (1989) is not without issues:

- Weight (in moras) is not a binary distinction
- Weight should be binary in keeping with traditional descriptions
- Morphophonological rules must directly manipulate prosodic structure (i.e. "delete the third mora")
- Why should the derivation of Q2 not be a mora-conserving process?

The notion of having the first syllable in a Q3 bisyllabic word form its own prosodic unit as in Prince (1980) or Odden (1997) is good, but:

- A system like Prince's requires rules that directly manipulate foot structure, rather than having those feet be parsed from lower prosodic structure (such as moras)
- If we can get the correct mora counts from the underlying forms, then representations like Prince's and Odden's will follow from parsing those moras


## 2 Analysis

My analysis will be based on the following assumptions:

- Weight is underlying and binary (heavy: two moras; light: one mora)
- Length is underlying (long or short, a double or single timing unit)
- Distinguishing heavy/light, long/short is in line with traditional descriptions (4)
- Bisyllables undergoing the Q2/Q3 alternation in the genitive/partitive do not underlyingly have any prosodic material to constitute a second syllable; the vowel which "appears" comes from a "floating phoneme"


### 2.1 Preliminaries

Roots underlyingly have at least two moras, regardless of their syllable count:


Feet (or quantity groups) can be parsed from prosodic structure:

## (9) Foot parsing algorithm

i. Feet consist of two moras
ii. When a foot is coextensive with a syllable, produce it in Q3

I draw a distinction between /underlying material/ versus parsed structure. Underlying material can be present in underlying forms of morphemes independently of each other, whereas higher prosodic structure can only be parsed algorithmically, not manipulated or represented independently:


What about the vowel in the second syllable (the "theme vowel", according to Blevins 2005)? The lack of a second syllable in nominative forms is often assumed to be the result of deletion (cf. Prince 1980:534):
"It is plausible to assume that the nominative singular is generally derived by deletion of a stem-final vowel that shows up in the other cases and before derivational suffixes."

But it isn't that plausible:

- Only four of the nine vowel phonemes of Estonian can participate in this "deletion": /i, e, a, u/
- There are exceptions to it even with these vowels

Instead I propose that the vowels that "appear" in the second syllable are represented by "floating phonemes" (Sloan 1991). They are present independently of timing or weight units. These are shown in (11) with underlined vowels:
a.

b.

'city' 'flag'

One exception to the non-realization of the floating phonemes in the nominative is in stems ending in palatalized $/ \mathrm{t}, \mathrm{s}, \mathrm{n}, \mathrm{l} /$.

| Nominative | Partitive |  |
| :---: | :---: | :--- |
| hal:l | hal:la | 'frost' |
| halıl | hal̂̀li | 'hall' |
|  |  |  |
| nut:t | nut:tu | 'crying' |
| nuť: | nut:ti | 'round object' |

These forms have a floating /i/ which is actually associated to the stem-final consonant, causing slight diphthongization of the vowel:


### 2.2 Deriving Q2/Q3 bisyllables

The underlying form for the partitive suffix is just a mora with an attached vowel, but this vowel is featureless:


When this is suffixed to a stem, the V picks up the features from the floating phoneme:


The first syllable is bimoraic, and it is parsed into its own foot, with the second syllable associated directly to the prosodic word. As per Odden's (1997) analysis, this gives us Q3:


The genitive case is just a featureless vowel (i.e. a V timing slot). It does not have its own mora:

$$
\begin{gather*}
\text { / V V / }  \tag{17}\\
\text { 'genitive' }
\end{gather*}
$$

Like with the partitive, suffixing the genitive case to a stem causes it to pick up the features of the floating phoneme:


However, this leaves the second syllable with a weightless vowel. The genitive suffix must take a mora from the stem:


The first syllable now only has one mora, but is long. It cannot form its own foot, and thus, it is in Q2:


## 3 Conclusions

My analysis derives the Q2/Q3 distinction more elegantly than previous analyses, based on a few simple assumptions:

- Estonian feet are bimoraic
- The underlying forms of stems more closely resemble their nominative (citation) forms:
- They are bimoraic (Q3)
- They do not have a second syllable (floating phonemes)
- Foot structure is not directly manipulated by morphophonological rules
- Q3 is still represented as a single syllable exhausting a foot
- We don't need to delete moras to derive Q2; the genitive suffix just doesn't have its own!


## References

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