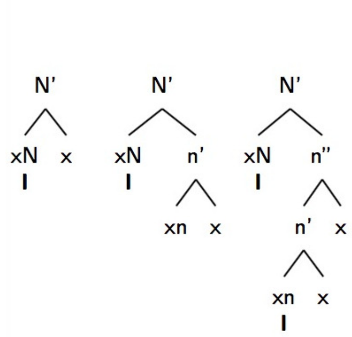
Open Sesame, or: Interactions of vowel height and length in Hungarian

Katalin Balogné Bérces & *Markus Pöchtrager*
(berces.katalin@btk.ppke.hu) *(markus.poechtrager@univie.ac.at)*[1]
PPCU, Budapest *Universität Wien*

The paper investigates the predictions GP2.0 makes with respect to how length and height affect the patterning of vowels, focusing on distinctions of different types of complexity in their subsegmental structure and the distributional restrictions that they generate. As both length and height are taken to be manifestations of extra (empty) structure, albeit of a slightly different type, they are expected to heavily interact with each other. The predictions are tested against the intricate system of Hungarian vowels (following on from Balogné Bérces 2018).

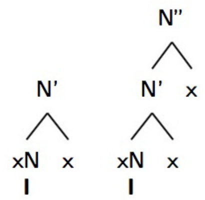
GP2.0 (Pöchtrager 2006 et seq.) is a representation-based theoretical framework subscribing to the fundamental tenets of Government Phonology[1], and claiming that phonological structure can be conceived of as a hierarchical configuration that is represented by tree diagrams. Similarly to syntactic structure, heads project to form higher-level constituents, whose positions contract relations of various types like (p-)licensing or m-command; segments, syllables and and certain syllabic constituents such as rhyme and coda are epiphenomenal. Terminal nodes are either annotated with a melodic prime or are empty. The melodic primes are those of a reduced version of Element Theory, with the **AIU** set typically assumed for vowels further reduced to **IU**, as vowel height (old **A**) is taken to be structural: additional layers with (empty) nodes, cf. (1). This extra structure coming with openness not only represents the degree of opening, but also provides the room where "coda" consonants can be plugged in. When no consonants are available, however, the complement nodes need to be m-commanded by the head or otherwise licensed (cf. Pöchtrager to appear). The same holds for the extra structure that comes with length, cf. (2).[2] As a result, there are two ways of being complex for vowels: by virtue of containing (multiple) elements, and by virtue of having (multi-layered) structure (where the former implies the latter). Both openness and length contribute to structural complexity, while the elements **I** and **U** contribute to melodic complexity, cf. (3).

(1)



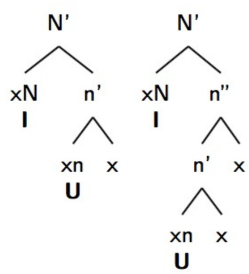
[i] [e] [ɛ]

(2)



[i] [iː]

(3)



[y] [ø]

We claim that the representations above do not only explain the so-called height effect in vowel harmony (analysed in Pöchtrager 2018), but they make further predictions for the interaction of length and vowel height, which we confront with the phonological patterning of Hungarian vowels (e.g., Siptár – Törkenczy 2000). We show that in GP2.0 we expect long **low vowels**[3] to be dispreferred (a) in hiatus and (b) word-finally, where empty structure would need to be taken care of, while (c) they are preferred in (medial) "superheavy" syllables as their empty nodes are able to accommodate the "coda" C. For **mid vowels**, GP2.0 predicts that (d) long mid vowels will be more easily tolerated in hiatus and word-finally, due to their structural complexity enhanced by accompanying melody; as a result, their empty structure is partly filled by melody. We demonstrate that most of these predictions are borne out in Hungarian, cf. (4a–d). Finally, we discuss **high vowels**: since in GP2.0 the two elements **I/U** exhibit asymmetries (as the hierarchical representation makes annotation possible in several structural positions; namely, **I** binds **U**, so **I** can c-command **U**, but **U** cannot c-command **I**), the issue of high vowels is related to the issue of the asymmetry between **I** and **U** (also manifesting itself in the behaviour of mid and low vowels). As is well-known, in Hungarian **I** and **U** are asymmetrical in vowel harmony (**U**-harmony being parasitic on **I**-harmony). In addition, (i) with the suffixes we dub

---

[1] Therefore, henceforth the labels "superheavy", "coda" and the like, which have no theoretical status in GP, are used as sheerly descriptive notions, given in quotation marks.
[2] Note, however, that the additional structure due to height is different in kind from the one coming from length. As a result, short and long [i], for instance, will pattern together in the height effect, to the exclusion of [eː].
[3] "Low" here means "phonologically low", as used in, e.g., Siptár – Törkenczy (2000).

"height-sensitive", [i] deletes the suffix vowel (e.g., **kicsiek* / ✓*kicsik*, similarly to (4a)); (ii) final high vowels may be short or long with [u] and [y] (*falu-* and *ágyú*-type words) but [i:] is extremely rare (similarly to *-á/é* (4b)); (iii) **I** is unable to make the vowel *phonologically* mid: [ɔ a: ɛ e:], as opposed to [o o: ø ø:], all count as *phonologically* low (e.g., [a:] and [e:] are both rare word-finally, are both found in superheavy syllables, etc., [o:, ø:] aren't) (cf. (4b–c)); (iv) **I** seems to contribute less to melodic complexity (as a result, [u:] = [y:] in distribution).

(4) a. partly borne out: (i) all long vowels (not just low ones) are dispreferred in hiatus; (ii) height-sensitive suffixes categorically avoid hiatus with low Vs: ✓*szomorúak* / ?*szomorúk* vs. **csúnyáak* / ✓*csúnyák*

b. borne out: very few examples with final low Vs (roots e.g., burzsoá, kordé; fá, lá, lé, tré, and a few suffixes)

c. borne out: only low Vs in monomorphemic V:CC## and V:C.C: érc/érték, márt/árpa etc. vs. *órc, *írpi (just a few counterexamples)[4]

d. borne out: (i) *-o/ö# (even loans lengthen the final V, e.g. libretto [librɛtto:]); (ii) height-sensitive suffixes exhibit variation in hiatus with mid Vs, cf. e.g., bántó(a)k

The phenomena discussed above are not exclusively phonological but governed to varying degrees by morphology. But morphonology operates over phonological representations, having to refer to phonological terms (without being phonological itself), and it is these phonological terms that we intend to focus on. Also, we are aware that some of the data are more complex than presented and there are problem cases that resist attempts at an explanation, but we submit that the strong tendencies we observe can be linked to the phonological shape of words.

References:

Balogné Bérces, K. 2018. Minőség és mennyiség a magyar magánhangzók szerkezetében. Invited lecture delivered as part of the event "Vágó Róbert köszöntése", celebrating Robert M. Vago (CUNY) on his 70th birthday, RIL HAS, 3 April 2018. Link.

Pöchtrager, M. A. 2006. The structure of length. PhD diss., University of Vienna.

Pöchtrager, M. A. 2018. Transparent vowels: Small cogs in large machines. Paper presented at OCP 2018.

Pöchtrager, M. A. To appear. Tense? (Re)lax. A new formalisation for a controversial contrast. Acta Linguistica Academica.

Siptár, P. and Törkenczy, M. 2000. The phonology of Hungarian. Oxford: Oxford University Press.

Voeltzel, L. 2016. Preaspiration of singletons in Faroese. In: K. Bellamy et al. (eds.): ConSOLE XXIII: Proceedings of the 23rd conference of the Student Organization of Linguistics in Europe. Leiden: Leiden University Centre for Linguistics. 530–553.

[4] Similar phonotactic effects can be identified in English (see, e.g., Pöchtrager 2006); also cf. an analysis along the same lines in Voeltzel (2016) for V[-high] + preaspiration.