

## Vacillation and lexical variation in Hungarian backness harmony

The transparency of neutral (N) vowels (i iː eː ɛ) in Hungarian backness harmony is variable: the vocalic context BN<sub>-</sub> is harmonically ambiguous in that it underdetermines harmony in suffixes – as opposed to the contexts B<sub>-</sub>, F<sub>-</sub> (where B(ack): u uː o oː ɒ aː, F(ront): y yː ø øː). This ambiguousness manifests itself in variation: vacillation (when a root may take the front or the back alternant of a suffix (with different probabilities;), e.g., fotɛl-ok/-ɛk ‘armchair-PL’) and lexical variation (when roots of the same vocalic pattern are harmonically different, e.g. [Beː] somseːd-ok/\*-ɛk ‘neighbour-PL’ but sloveːn-ok/-ɛk ‘Slovenian-PL’). Variation is subject to the **Height Effect** (Hayes & Cziráky Londe 2006): the higher the vowel, the more transparent it is to harmony. High i and iː are always transparent (e.g., forint-ok ‘florin-PL’, pɒpiːr-ok ‘paper-PL’), mid eː may be transparent (e.g., somseːd-ok) or variable (e.g., sloveːn-ok/-ɛk), while low ɛ generally induces vacillation (e.g., fotɛl-ok/-ɛk ‘armchair-PL’). Thus, there is a transparency hierarchy from high to low N vowels: i(:) > eː > ɛ. The Height Effect is “turned off” in multiply suffixed forms consisting of a root and a harmonically invariant N-vowel suffix: such a suffix does not modify the harmonic properties of the root. This is due to **Paradigmatic Harmonic Uniformity** (PHU), which requires that the harmonic behaviour of a suffixed form should be identical to that of its root (e.g., haːz-nɒk ‘house-DAT’, haːz-eː-nɒk ‘house-POSS-DAT’, never \*haːz-eː-nɒk/-nɛk).

The Height Effect has been given phonetically grounded explanations (Beňuš 2005) and grammatical ones (as encoded in a stochastic OT constraint hierarchy (Hayes *et al.* 2006) or a MaxEnt grammar (Hayes *et al.* 2009)). These accounts do not take into consideration (and cannot explain) the fact that the Height Effect also shows up in lexical variation: as we go down the hierarchy the range of lexical variation (the number of lexical subclasses) increases.

	[Bi(:)]	[Beː]	[Bɛ]
transparency of N	+	+	±
vacillation	–		+
lexical variation/subgroups	–	+	

In this paper we explore the possibility that the Height Effect, including the conditioning of transparency by the Height Effect, follows from the lexicon: the (degree of) transparency of neutral vowels (vacillation) depends on (i) the distribution of [BN] stems in lexical strata and (ii) the distribution of neutral vowels in harmonically invariable suffixes.

We argue that the harmonic behaviour of [BN] stems is lexically conditioned: the degree of transparency is different between subgroups of items whose vocalic makeup is identical. The classes in which vacillation occurs differ from one another in this respect. In the class [Beː], the choice between back (+) vs. vacillating (±) behaviour is based on the lexical class of the root: (a) words of the **familiar class** (high-frequency words, non-recent loans, and words of Finno-Ugric origin) vs. (b) **recent loans**. The N vowel eː is fully transparent in familiar words (e.g., somseːd), but recent loan [Beː] stems (e.g., sloveːn) vacillate. These two subclasses of [Beː] stems contain an approximately equal number of roots. By contrast, about 95% of [Bɛ] stems are recent loanwords. The remaining few items in this group are familiar words and tend to get back suffixes, with little vacillation (they behave like familiar [Beː] stems).

Lexical classes	high N	non-high N	
	[Bi(:)]	[Beː]	[Bɛ]
a. familiar	+	+	(few: +)
b. recent loans		±	±

The Height Effect between the two *non-high* N vowels thus follows from the difference between the properties and the size of the lexical subclasses of [Be:] and [Bε] words.

This raises the following problem: why is there no lexical variation with *high* N vowels, specifically, why do *recent loan* [Bi(:)] stems *not* show vacillation (e.g., mobil-ok/\*εk ‘cell-phone-PL’)? If the two lexical subclasses we have identified for [Be:] and [Bε] stems determine whether a stem vacillates or not, why do we not find this influence in [Bi(:)] stems too? We argue that answer lies in the relationship between multiply suffixed and monomorphemic BN<sub>x</sub> harmonic contexts: (i) [...B]N<sub>x</sub> vs. (ii) [...BN<sub>x</sub>]. Recall that PHU turns off the Height Effect. Therefore, the multiply suffixed context (i) is more informative about harmonic behaviour than the monomorphemic context (ii) since in the former case there are plenty of paradigmatically related forms [...B] that unambiguously reveal the harmonic behaviour of the root. We assume that the more forms with context (i) exist compared to the number of forms with context (ii), the greater the effect of the harmonic behaviour of the more informative context will be on the less informative (and harmonically ambiguous) one. The distribution of N vowels in harmonically alternating and invariable suffixes is the following:

N-suffix types	high N	non-high N	
	-i(:)	-e:	-ε
i. non-harmonizing	+	(few: +)	-
ii. harmonizing	-	+	+

As a result of this distribution the high N vowels i(:) are frequent in the more informative context (i) while the others are not: suffixes with e: typically alternate (e.g., -ne:l~na:l ‘ADESS’), therefore their alternant with an e: typically occurs with front stems. Suffixes containing ε *always* alternate (e.g., -nεk~nɔk ‘DAT’), so they are never preceded by back vowels. Therefore there is a (functionally advantageous) contextual harmonic consistency between the contexts (i) and (ii) for i(:), which emerges as the result of PHU since forms with the more informative context are in abundance. For the other N vowels, forms with the more informative context (i) are not numerous/frequent enough (zero if N is ε) to impose on the harmonically ambiguous root context and harmonic ambiguity results in lexical variation, the subclasses *recent* vs. *familiar* (or perhaps even further ones).

To sum up: (a) lexical classes have a role in conditioning vacillation and its absence, but (b) this role is suspended for the high neutral vowels (cf. the Height Effect), and (c) this suspension is not accidental, but is a consequence of the distribution of neutral vowels in alternating and invariant suffixes and Paradigmatic Harmonic Uniformity.

## References

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