

## HUNGARIAN VOWEL HARMONY AND THE TYPOLOGY OF FRONT/BACK HARMONY

In a recent typological study of front/back harmony in Balto-Finnic languages (Kiparsky and Pajusalu 2003) it is claimed that (i) it is not accidental which vowels can be neutral in a given harmony system, (ii) some patterns of disharmony with neutral vowels are attested/possible typologically, others are not and (iii) these patterns can be analysed by assuming different rankings of independently/freely rankable constraints in an OT analysis. In this paper we use Hungarian front/back harmony (HVH) to (i) challenge the definition of neutral vowels (ii) show that the Hungarian disharmony pattern is a combination of two independently attested disharmony patterns and (iii) argue that the disharmony typology can be given a better analysis if we assume that there are implicational relations between some of the environments in which disharmony occurs.

### The identity of neutral vowels

According to Kiparsky and Pajusalu, those vowels are neutral in a given language that do not have a harmonic partner in the inventory or that are contextually prevented from changing into their harmonic partners in a particular domain. Furthermore, they claim that neutral vowels have the unmarked value of the harmonizing feature (which is [-back] for unrounded non-low vowels [i e]) and assume that the harmonically alternating pairs of vowels are marked-unmarked pairs. Neutral vowels are also *uniform* in that all neutral vowels with a given value of the harmonic feature are either opaque or transparent in a given system.

Hungarian where *í i é e* [i: i e: e] are usually assumed to be the neutral vowels (e.g. Vago 1980, Ringen & Kontra 1989) is doubly problematic in this respect: although transparency is related to participation in alternation, the (in)ability to alternate cannot be derived from markedness or positional faithfulness. Some neutral/transparent vowels (*e* and *é*) do have a harmonic pair in the inventory and participate in regular harmonic suffix alternations. Furthermore, one and the same neutral vowel may be opaque or transparent depending on whether it alternates or not in a suffix: *e* may be transparent in roots, but is always harmonic/opaque in suffixes (e.g. *-ban/ben*, *-nak/nek*). The rest of the neutral vowels behave differently: *i* and *í* are always transparent in roots, *é* is variably transparent in roots, but they all are (variably) transparent in non-alternating suffixes (e.g. *-ig*, *-ít*, *-é -ék*), but categorically opaque in alternating ones (e.g. *-nál/nél*, *-ság/-ség*; *-ja/-i*). This state of affairs violates uniformity (a vowel with a given value of the harmonic feature is sometimes opaque – other times transparent). More importantly, it is not true that harmonic pairs are pairs of vowels one of whom has the marked value and the other the unmarked value of [back]. This makes a markedness based approach to HVH problematic.

### The typology of disharmony

In a language that shows front/back harmonic alternations in suffixes the basic pattern is that stem and suffix vowels agree in backness: after front (non-neutral) stem vowels the suffix vowel is front: F+F and after back stem vowels the suffix vowel is back: B+B. If a neutral vowel (N) occurs as the last vowel of the stem, three cases can arise: if N is non-transparent (opaque), the suffix vowels can be F or B independently of the backness of the pre-N stem vowel, i.e. VN+B, or VN+F, see (1i) and (1ii) below. In the case of transparency, however, the suffix vowel has the same value for backness as the pre-N stem vowel, i. e. FN+F and BN+B, see (1iii). There is a further logical possibility (1iv): the backness of the suffix vowel could be the opposite of that of the pre-N vowel (i.e. FN+B and BN+F), but this pattern does not exist.

(1) Typology: harmonic alternants of suffix vowels after different stem vowels

Language types:	Stem vowels:	F+_	FN+_	BN+_	B+_	Example
i. opacity: N counts as B		F	<b>B</b>	<b>B</b>	B	Veps
ii. opacity: N counts as F		F	<b>F</b>	<b>F</b>	B	Khanty
iii. transparency: N does not count		F	<b>F</b>	<b>B</b>	B	Finnish, Hungarian
iv. transparency and anti-harmony	*	F	B	F	B	<i>unattested</i>

The unattested (dis)harmony type can be excluded by two things: the strict ordering of the stem vowel context (F+\_ > FN+\_ > BN+\_ > B+\_), and a monotonicity principle which requires that given the strict order of the contexts, any value (F, B) should be located within in an uninterrupted span of values. Thus there is no language which can have a subsequence of values B F B (or F B F). It follows from monotonicity that certain values imply other values and a possible language must obey these implications. This idea is similar to Steriade (2001) who also derives typological results from constraints referring to a pre-set hierarchy of contexts.

The stem vowel contexts in (1) can be augmented with a new context in which the stem consists of a single neutral vowel. In this case two possibilities arise: harmony (N+F) or anti-harmony (N+B). These two possibilities, however, cannot combine freely with the neutral contexts mentioned in (1); only those cases exist where monotonicity holds, see (2) where language type (ib) and (iib) are excluded because of their non-monotonic behaviour.

(2) Harmonic alternants of suffix vowels after neutral stem vowels in different language types

Language types:	Stem vowels:	FN+_	N+_	BN+_	Example
ia. opacity and antiharmony for N-stems		B	<b>B</b>	B	Veps
ib.		B	* F	B	<i>unattested</i>
ii. a. opacity and harmony for N-stems		F	<b>F</b>	F	Khanty
ii. b.		F	* B	F	<i>unattested</i>
iii. a. transparency and antiharmony		F	<b>B</b>	B	Finnish
iii. b. transparency and harmony		F	<b>F</b>	B	Uyghur

If we examine stem internal (dis)harmony in these languages (including Hungarian), we find that most of them represent mixed types since both B and F values are possible in some contexts that involve neutral vowels. Hungarian seems special in that it is a mixed type even in suffix harmony (a combination of (iii. a) and (iii. b)) because we find antiharmony after some N-only stems alongside front harmony after other N-only stems.

In the paper we discuss these issues in more detail and propose a formal analysis.

References:

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