

## Locality, neutrality, and contrast: A new resolution to the Votic paradox

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**Introduction** Blumenfeld & Toivonen (2016) point out an apparent featural paradox in the behaviour of /i/ in Votic (a Finno-Ugric language, spoken in Russia). While /i/ is transparent to vowel place harmony (as in Finnish), its frontness is phonologically active in conditioning allophony of /l/. Blumenfeld & Toivonen show that the pattern cannot receive a satisfactory account in Span Theory (McCarthy 2004; O'Keefe 2007), and present an analysis using Agreement By Correspondence (Hansson 2001; Rose & Walker 2004). Their account relies on the proposal that [–back] is ‘weakly’ specified on /i/ because it is non-contrastive, and that harmony operates only on ‘strong’—i.e., contrastive—specifications (as in Rhodes 2010; Calabrese 1995; Nevins 2010). This paper argues, however, that the transparency of /i/ cannot be attributed to an absence of contrast, and proposes an alternative in which the frontness of /i/ is marked by a different feature from the one that participates in harmony. Given these representations, vowel harmony can be said to operate under familiar conditions of relativized locality, without recourse to feature strength or parametric (in)visibility.

**The data** For the most part, the front–back pairs /y/–/u/, /ø/–/o/, /e/–/ɤ/, and /æ/–/ɑ/ participate in backness harmony. (Exceptions are noted below.) Harmony propagates from left to right, as in the examples in (1) from Ariste (1968), which show the alternation in the relative case suffix. /i/, which has no back counterpart in the native phonemic inventory, is transparent, as shown in (2), also from Ariste.

- |     |    |            |                      |     |    |             |                 |
|-----|----|------------|----------------------|-----|----|-------------|-----------------|
| (1) | a. | vævy-ssæ   | ‘son-in-law’+ELATIVE | (2) | a. | tæi-ssæ     | ‘louse’+ELATIVE |
|     | b. | sepæ-ssæ   | ‘smith’+ELATIVE      |     | b. | pehmiæ-ssæ  | ‘soft’+ELATIVE  |
|     | c. | vasara-ssa | ‘hammer’+ELATIVE     |     | c. | poiga-ssa   | ‘son’+ELATIVE   |
|     | d. | vɔrkko-ssa | ‘net’+ELATIVE        |     | d. | vɔttimɤ-ssa | ‘key’+ELATIVE   |

An obvious way of connecting the transparency of /i/ to its lack of a harmonic partner would be to say that it is simply unspecified for [±back]. However, Blumenfeld & Toivonen (2016) show that this cannot be the case. The lateral /l/ is normally velarized [ɭ] in back-harmonic words (3a) and clear [l] in front-harmonic words (3b), but /l/ immediately followed by /i/ is consistently clear, even in words whose other vowels are back (3c), (3d); data from Ariste (1968). To this can be added the morphophonological palatalization of /k/ to [tʃ] in (4), which is fed by raising of word-final /ɤ/ to [i] (Odden 2005: 100–101).

- |     |    |            |                        |     |    |       |         |                         |
|-----|----|------------|------------------------|-----|----|-------|---------|-------------------------|
| (3) | a. | pyħoħssa:  | ‘field’ (terminative)  | (4) | a. | si:li | si:li-æ | ‘hedgehog’ (NOM./PART.) |
|     | b. | miltinle:ɔ | ‘some kind of’         |     | b. | jarvi | jarvɤ-ɑ | ‘lake’ (NOM./PART.)     |
|     | c. | tuli:sɤ:   | ‘fires’ (illative pl.) |     | c. | kurʃi | kurkɤ-ɑ | ‘stork’ (NOM./PART.)    |
|     | d. | lintuiħa   | ‘birds’ (allative pl.) |     | d. | ɤtʃi  | ɤħkɤ-ɑ  | ‘straw’ (NOM./PART.)    |

Blumenfeld & Toivonen (2016) resolve the paradox by positing that although /i/ is specified as [–back], and this feature is phonologically active, the specification is ‘weak’ (in the sense of Rhodes 2010) because /i/ has no minimally different native phonemic [+back] counterpart. Their approach follows Calabrese (1995) and Nevins (2010) in saying that feature specifications that do not distinguish a segment from a minimal counterpart can be ignored by some rules (here, harmony) but visible to others (/l/ allophony and, presumably, /k/ palatalization).

**The contrastive status of /i/** However, /i/ does have at least a marginal back counterpart /i/. Although /i/ does not appear in the native vocabulary of Votic, it does occur in some words borrowed from Russian (Blumenfeld & Toivonen 2016: 1169 fn. 2; Ariste 1968: 1); Harms (1987: 382) describes these loanwords as “well assimilated to Votic phonological and morphological patterns.” Even if the relevant borrowings are marked as lexical exceptions to an otherwise high-ranking constraint against unrounded high back vowels, it is still necessary that /i/ and /i/ have distinct representations, because they can co-occur within a loanword, as in [viʃifka] ‘embroidery’ (< Russian *вышивка*). The ‘weakness’ of [–back] on /i/ in Blumenfeld & Toivonen’s account, then, cannot follow straightforwardly from the content of the phonological inventory, but must instead depend on some more subtle consideration such as functional load or contrastive status within a particular stratum of the vocabulary.

**Proposal** This paper proposes a novel solution to the paradox, predicated on an inversion of two of Blumenfeld & Toivonen's (2016) assumptions: /i/ does contrast with /i̥/, but /i/ is not specified as [–back]. If /i/ is to be distinguished from /i̥/, it must have some specification for frontness, and (3) and (4) show that this specification must be phonologically active. However, it does not participate in vowel harmony. Suppose that rather than the harmonizing feature [–back], /i/ is specified with the distinct (and usually consonantal) place feature CORONAL. It is this feature that spreads to /l/ in (3c–d) and to /k/ in (4c–d). Phonologically, the motivation for representing CORONAL /i/ differently from [–back] /y e ø æ/ is that the frontness of /i/ interacts only with consonants, while [±back] is the feature that harmonizes on vowels (as well as conditioning velarization on /l/, though this is overridden by an immediately following /i/). Intriguingly, Černjavskij (n.d.: 8) suggests that intervocalic /i/ can be realized as [dʲ:], but does not give details; this would certainly also be consistent with the proposition that /i/ is specified with CORONAL. The proposal is also phonetically plausible. While little phonetic research has been done on Votic, descriptions of the language (e.g., Ahlqvist 1856; Ariste 1968) characterize the vowels as similar to their equivalents in Estonian (with the exception of /i̥/, which has no Estonian counterpart). Estonian /i/ is notably farther forward than the other front vowels, including its nearest rounded counterpart /y/ (e.g., Asu & Teras 2009: 368). If the same is true in Votic, then it is plausible (though of course not inevitable) that /i/ bears a feature marking a degree of coronal constriction that other vowels lack, on the assumption that phonological features do not have rigidly defined universal phonetic boundaries but are also not wholly abstract and devoid of phonetic content (Dresher 2014).

**Consequences** If this analysis is on the right track, then the transparency of /i/ to Votic vowel harmony cannot be attributed to an absence of contrast with /i̥/. Empirically, this should not be entirely surprising, as two other vowels that do not lack counterparts also exhibit some form of neutrality in Votic: /o/ can follow front vowels (causing harmonizing vowels to its right to be back), and there are some transparent instances of /e/ (Ariste 1968; Blumenfeld & Toivonen 2016). Nonetheless, this analysis is consistent with a strong version of the theoretical claim that a feature must be contrastive to be phonologically active (Dresher 2009): the ability of /i/ to palatalize /k/ and override velarization of /l/ depends on the fact that the feature CORONAL distinguishes it from the other Votic vowels, while its transparency to harmony follows from the fact that [–back] is redundant if /i/ is already specified as CORONAL. This proposal also allows harmony to apply straightforwardly to all vowels specified for [±back] (modulo the exceptions with /o/ and /e/), rather than skipping over ‘weak’ instances of [–back]; harmony is subject to normal conditions of relativized locality, without reference to the metafeatural property of strength.

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