Ungrounded phonology: Is Hungarian /aː/ a back vowel?

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Tu se' lo mio maestro e 'l mio autore,
tu se' solo colui da cu' io tolsi
lo bello stilo che m'ha fatto onore.
(Dante Alighieri: La Divina Commedia, Inf. 1:85–87)

¶1 The aims of this squib are threefold. First and foremost, it is to celebrate the seventieth birthday of Ádám Nádasdy, *maestro* and *autore* in more ways than one for many of us (see most contributions in the present webschrift). Second, more specifically, it is to remind ourselves of the merry nineteen-nineties, a decade during which the two of us worked, on and off, but mainly on, on a comprehensive description of the Hungarian vowel system (Nádasdy & Siptár 1989, 1994/2016, 1998) and of the many happy hours we spent together doing it. And third, this squib is meant to be a modest contribution to the issue of whether or not phonetics and phonology (should) go hand in hand in the case of the vowels (or rather, one of the vowels) of Hungarian.

The material discussed here was first presented in January 2013 in New York, at the Conference on the Feature in Phonetics and Phonology, CUNY Phonology Forum (thanks to Robert M. Vago for encouraging me to attend). A more detailed version of the talk was given with Mária Gósy at the Eleventh International Conference on the Structure of Hungarian, Pázmány Péter Catholic University, Piliscsaba, in August 2013 (see Gósy & Siptár 2015); an even more comprehensive version was presented in Hungarian in 2014 at the Research Institute for Linguistics of the Hungarian Academy of Sciences (see Siptár 2014).

1 Introduction

¶2 Distinctive feature values attributed to the phonological segments of a language are normally based, in the unmarked case, on their phonetic properties (height, backness, rounding, length, etc in the case of vowels); this is sometimes referred to as their phonetic 'grounding' (see Archangeli & Pulleyblank 1994). Some phonetic properties may on occasion turn out to be phonologically irrelevant, hence the corresponding feature values may remain unspecified (with the specification of the properties concerned left for 'phonetic implementation'). For instance, the Hungarian nonhigh unrounded front vowels [ɛ] and [eː] exhibit regular length alternation with one another, despite the difference in height (low vs mid). One possibility for keeping the (description of the) length alternation regular is to leave the value for the feature [low] unspecified, and correspondingly symbolize these segments as /ɛ/, /ɛː/ or — for typographical convenience — as /e/, /eː/ (Nádasdy & Siptár 1998, Siptár & Törkenczy 2000). Similarly, regular vowel harmony alternation is found between [ɛ] and low back slightly rounded [ɔ]; here,

it is the rounding of the back vowel that can be seen as phonologically irrelevant (in fact, rounding is predictable throughout the back vowel set; all back vowels except /aː/ are redundantly round). Therefore, the vowel pair at hand can be symbolized as /ɛ/, /ɑ/ or, again for typographical convenience, as /e/, /a/, with no implication concerning the backness value of the latter (that is, *not* meant in the sense of IPA [a], an unrounded *front* low vowel; cf Szende 1999).

¶3 One thing that would be expected to be quite impossible, however, is that the phonological behaviour and phonetic character of a vowel be downright irreconcilable, rather than the two sets of properties being in a proper subset relation, as in the above cases. Interestingly, Hungarian provides an intriguing example of this supposedly impossible situation, too. The long counterpart of /a/, conventionally symbolized as /aː/, is a regular back vowel in terms of its vowel harmony behaviour (alternating with /eː/). Nevertheless, its phonetic backness value seems to have been moving recently towards the front of the oral cavity.

¶4 The present paper is structured as follows. In §2, the vowel system of Hungarian is introduced. Then, in §3, we very briefly review the results of an acoustic-phonetic investigation of Hungarian /aː/ (Gósy & Siptár 2015). Finally, §4 discusses the possibilites of a phonologist's response to the state of affairs presented in that paper and concludes.

2 The vowel system of Hungarian

¶5 Hungarian has seven short and seven long vowels. The following table shows their conventional classification in terms of frontness/backness, rounding, and vowel height.

(1)

	front unrounded		**front rounded**		**back**	
high	i	iː	y	yː	u	uː
mid		eː	ø	øː	o	oː
low	e [ɛ]				a [ɔ]	aː

¶6 As was implied in §1 above, all seven pairs exhibit regular length alternations, despite the phonetic dissimilarity of the pairs /e/ ~ /eː/ and /a/ ~ /aː/. Also, regular vowel harmony alternations can be observed along the following lines:

(2) a. y: ~ u: *nagy fej-**ű*** ‘bigheaded’, *nagy láb-**ú*** ‘big-footed’
b. y ~ u *kert-**ü**nk* ‘our garden’, *ház-**u**nk* ‘our house’
c. ø: ~ o: *kert-t**ő**l* ‘from garden’, *ház-t**ó**l* ‘from house’
d. ø ~ o *tök-h**ö**z* ‘to pumpkin’, *tok-h**o**z* ‘to case’
e. e ~ a *tök-n**e**k* ‘for pumpkin’, *tok-n**a**k* ‘for case’
f. e: ~ a: *fej-n**é**l* ‘at head’, *láb-n**á**l* ‘at foot’

¶7 The members of the first four of these pairs, (2a–d), only differ in backness. ((2d) is actually part of a triplet *ø ~ o ~ e,* but this is not at issue here.) Those in (2e) additionally differ in rounding; but we have already suggested that the rounding of /a/ can be abstracted away from. (2f) has members differing in height; but, again, we said above that the fact that /e:/ is phonetically mid need not disrupt its pairing with low vowels: with /e/, eg in *kéz ~ kezek* ‘hand ~ hands’ and with /a:/, eg in *-nél ~ -nál* ‘at’. The only piece of the puzzle that remains to be seen is whether /a:/ is indeed a back vowel. If it is, its vowel harmony alternation with /e:/ and its length alternation with /a/ fall out automatically. But is it really?

3 Is /aː/ a back vowel?

¶8 Gósy & Siptár (2015) carefully demonstrate by measurements of formant values on a large body of spontaneous speech material that young female speakers’ second formants of /a:/ clearly exhibit values characteristic of front vowels. In the case of young male speakers, the data show that their /a:/ is fronted within the oral cavity, albeit the actual tongue position is central (or front-retracted), not as clearly front as in the case of female speakers. On the basis of these data the authors claim that a historical change has occurred (or, is just occurring) with respect to the articulation of this vowel (cf also Magdics 1965; Kovács 2004; Gráczi & Horváth 2010), influencing the phonetic definition of the surface realization of the phoneme /a:/. Although they found extensive variability in place of articulation both among speakers and within the same speaker’s speech, the tendency of the change has been found to be quite clear: Hungarian [a:] tends to be slowly creeping forward in the oral cavity and is now predominantly articulated as a front low vowel (as is suggested by its transcription symbol if taken literally in IPA terms), at least by female speakers. The overall conclusion is that /a:/, whether or not it is phonologically attributed the feature value [+back], is (or at least will soon become) a front vowel phonetically.

4 Discussion

¶9 The facts of Hungarian vowel harmony are notoriously complex (of the immense literature on the subject, see especially Hayes et al 2009; Törkenczy 2011; Törkenczy et al 2013; Rebrus & Törkenczy 2015). It is not simply the case that alternating suffixes show up as their front alternants in front-vowel contexts and as their back alternants in back-vowel contexts – the way the examples listed in (2) might have suggested.

¶10 First of all, vowels fall into three, rather than two, classes: along with front-harmonic and back-harmonic vowels, there is also a class of neutral vowels. The complexities begin when we want to define the class of neutral vowels (Siptár 2015; cf. also Rebrus & Törkenczy 2017). In one sense, all front unrounded vowels belong to the neutral class, but in another sense, the neutrality of these vowels (or their transparency as it is also called) changes with their height: the high vowels /i/ and /i:/ are practically fully neutral, the mid vowel /e:/ is less so, and the low vowel /e/ is the least neutral of all, so much so that in some analyses it is taken to be front-harmonic rather than neutral. This type of graduality is often referred to as the height effect.

¶11 Another gradual property is known as the count effect and concerns the items whose behaviour in harmony is variable. Note that variability itself is a factor that makes the system complex and difficult to account for. The count effect means that several neutral vowels in a row count as less neutral than a single instance of the same vowel. In addition, a lexically specified subclass of stems that exclusively contain neutral vowels governs back harmony rather than front harmony: this class is known as that of antiharmonic stems (for a systematic discussion of harmony, disharmony, antiharmony, neutrality, transparency, opacity, and variability in Hungarian and across languages, see Rebrus & Törkenczy 2015).

¶12 Without going into further details concerning the “dark secrets” (Rebrus et al 2012) of Hungarian vowel harmony, let us simply note here that the existing complexities would be further aggravated if we assumed that /a:/ is to be phonologically defined as befits its phonetic character, that is, as a front vowel that occurs in a back context and whose alternant occurring in a front context differs from it in height rather than in backness.

¶13 Consider now the alternative solution. If we carry on analysing the vowel /a:/ as a back vowel despite its phonetic properties in both articulation and acoustics, we do not make the system of Hungarian vowel harmony alternations unduly complicated on this count (at least), but we buy this relative simplicity at the cost of increasing the distance between the phonetic properties and the phonological feature values of this vowel, making the description at this point more abstract, perhaps too abstract.

¶14 The question, then, is what we would prefer to have: increased complexity or increased abstractness. Neither option appears to be attractive at first sight. The following table shows what the vowel system of Hungarian would look like if we took the first option and wanted to stick to the phonetic facts as much as possible.

(3)

	front unrounded		**front rounded**		**back**	
high	i	i:	y	y:	u	u:
mid		e:	ø	ø:	o	o:
low	e	a:			a	

¶15 As can be seen, length alternations would be fairly straightforward except for the familiar height distinction between /e/ and /e:/ that can be ignored as was pointed out earlier (although now we would somehow have to block the potential — but non-attested — length alternation between /e/ and /a:/). Another problematic bit of the length alternations would be that between /a/ and /a:/ — here, a lengthening rule as applied to /a/ would also have to turn this vowel front. This would be rather unnatural in itself — but the real problem comes with vowel harmony alternation between /a:/ and /e:/.

¶16 We would have to claim that the low vs mid distinction between these two vowels, front vowels as they are both of them, accounts for their harmonic behaviour such that the mid alternant occurs in front contexts and the low alternant occurs in back contexts. This would make our account of Hungarian vowel harmony not only complex and obscure but also unmotivated and ad hoc.

¶17 Therefore we had better go back to the other possibility and rest content with the claim that the distinctive feature values of this language should be allowed to become more abstract than they used to be in that the ‘low front

unrounded long vowel' [aː] should simply go on to be phonologically classified as 'low back unrounded'.

¶18 Until and unless the ongoing change in terms of phonetic properties should, at some point in the future, actually overthrow the system of harmonic alternations, a possible but not very likely outcome, the best thing we can do is pretend that the vowel /aː/, despite its changing phonetic character, continues to be a back vowel as far as the phonology of the Hungarian vowel system and in particular its harmonic alternations are concerned.

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