

# The “problem” of pharyngealisation and its role in the sound systems of North-East Caucasian languages

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Inherent in the typologically unusual sound systems for which the Caucasian languages are renowned, pharyngeals and pharyngealisation are among the properties which are both under-researched and theoretically challenging. Many Caucasian languages have a remarkable array of uvulars and pharyngeals. Our focus here is the “pharyngealisation” reported in many of the North-East (Nakh-Dagestanian) Caucasian languages.

Notably, Caucasian “pharyngealisation” seems to differ from the “pharyngealisation” for which various Semitic languages are known. There are many reports of pharyngealised vowels in North-East Caucasian languages being comparatively centralised (front vowels are retracted, while back vowels are fronted),<sup>1</sup> an observation which led Trubetzkoy, in his survey of North-East Caucasian sound systems published in 1931, to refer to this “pharyngealisation” as *emphatische-mouillierung* (“emphatic palatalisation”).

Acoustically, the effect of so-called pharyngealisation on vowels in North-East Caucasian has been shown to involve the raising of F1 and lowering of F2 of front vowels (generally *i*, *e*), but in contrast, the raising of both the first and second formants of non-front vowels (generally *a*, *o*, *u*).<sup>2</sup> Moreover, F3 has also been observed to be lower in pharyngealised vowels than in non-pharyngealised vowels, although this is known to be a characteristic of retroflexion / rhotacisation.<sup>3</sup> In terms of articulation, it has been observed that pharyngealisation in North-East Caucasian languages involves tongue-root retraction *and* tongue-body advancement.<sup>4</sup> This results in flattening of the tongue, if not actual sulcalisation of the tongue body opposite the uvula.

An interesting further effect of pharyngealisation can be seen in consonantal patterning. For example, in Lak, velars and *l* are palatalised in words with pharyngealised vowels.<sup>5</sup> Moreover, Bezhta is said to have an active system of harmony, whereby there are “two series of morphologically distributed phonemes”:<sup>6</sup>

(1) *a o u i s z c c'*

(2) *ä ö ü i e š ž č č' ʃ ħ*

Within a phonological word, segments from series 1 and 2 do not co-occur. Notably, series 2 contains pharyngealised vowels, pharyngeals and palatals. Typically, where affixal vowel alternations in various North-East Caucasian languages involve “pharyngealisation”, the trigger can be seen to be either stem-final pharyngeals / (pharyngealised) uvulars, or pharyngealised stem vowels, as is the case in Dargwa.<sup>7</sup>

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<sup>1</sup> Catford (1977: 294), Comrie (2005: 2), among works by other researchers on individual languages.

<sup>2</sup> See e.g. Maddieson *et al* (1996) on Tsez, and Catford (1983, 1994) on Udi.

<sup>3</sup> Catford (1994: 59) remarks on the similarity with the rhotacised vowels (e.g. [ɚ]) of some North American Englishes, commenting that ‘it is not surprising that Americans (so I was told by the Moscow phonetician, S. Kodzasov) think they hear an /r/ in the sound of these vowels.’

<sup>4</sup> Exemplified by the x-rays in Gaprindashvili (1966); cf. also Catford (1983: 348; 1994: 58–9).

<sup>5</sup> Anderson (1997: 974). See also Kodzasov’s (1987: 143) discussion of epiglottopharyngealisation.

<sup>6</sup> Kibrik & Testelefs (2004: 221–2). Note that that *i*, which is present in both series, is derived from both Proto-Tsez *\*i* and *\*i*.

<sup>7</sup> Van den Berg (2001); Sumbatova & Mutalov (2003).

Thus, with respect to phonological patterning, acoustic cues and articulatory target, Caucasian “pharyngealisation” clearly contrasts with that of languages like Arabic (across the dialects). That is, in Arabic, the articulatory target seems to be tongue-root retraction, the acoustic correlates most often involve F1 and F2 approximation, and palatality is generally antagonistic to pharyngealisation.<sup>8</sup>

In this poster, I present data from a variety of North-East Caucasian languages showing that the effect of “pharyngealisation” is more accurately characterisable as palato-pharyngealisation. That is, phonologically speaking, that both the features [palatal] and [pharyngeal] are in play. In the representational framework I employ, this equates to the phonological elements [I] and [A].

However, this is not the whole story. If the effect of “pharyngealisation” is more strictly palato-pharyngealisation, then what of the pharyngeals in such languages? That is, since the pharyngeal consonants seem an inherent part of this palato-pharyngealisation, are they really (phonologically) only pharyngeals? Thus, the final part of this poster brings into view the overall sound systems of the North-East Caucasian languages, showing that identification of the phonological representations of pharyngeals and uvulars is crucial in seeking to understand the nature of “pharyngealisation” contrasts.

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<sup>8</sup> Bellem (2007). “Pharyngealisation” is not the only correlate of “emphasis” but one of the most salient and widely investigated.