

Asymmetries in aspiration

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Background: Aspiration is traditionally considered to be the result of a spreading of the vocal folds coordinated with an oral consonant, which can result in the characteristic glottal frication being realized after the consonant release (postaspiration) or before its onset (preaspiration). Representational phonological models like Feature Geometry (Clements, 1985; Clements and Hume, 1995) or Articulatory Phonology (Browman and Goldstein, 1986, 1992) do not require the laryngeal and oral elements to be crucially ordered, allowing for variable phonetic realization of aspiration in some languages: Icelandic (Árnason, 2011), Scottish Gaelic (Nance and Stuart-Smith, 2013; Ní Chasaide, 1985), Mongolian (Svantesson et al., 2005), and Purépecha (Tarascan; Chamoreau, in press) are all examples of languages where the relative ordering of aspiration and oral occlusion is variable (though non-contrastive). However, this representationally symmetrical relationship between pre- and postaspiration is at odds with the actual phonological patterning of these two types of laryngealization. Preaspiration is cross-linguistically much rarer than postaspiration, and exhibits interactions with consonantal length and weight that are not observed in postaspiration.

Proposal: In order to account for the relative rarity of preaspiration, as well as its affinity for weight in several respects, I argue that what is described as “preaspiration” is better accounted for phonologically as a separate coda fricative.

Discussion: Aspiration that surfaces phonetically preceding its “associated” oral segments exhibits some trends that are unexpected if we assume it is the phonological mirror image of aspiration that is realized afterwards. The primary asymmetries here are that (1) preaspiration bears moraic weight while postaspiration does not; and (2) preaspiration is cross-linguistically rare, while postaspiration is common, which suggests an underlying structural difference.

In the case of (1), preaspiration appears as a frequent consequence of degemination or as an alternative to compensatory vowel lengthening, both synchronically and diachronically. This is the origin of preaspiration historically in Icelandic (Thráinsson, 1978), as well as a synchronic alternation in Andalusian Spanish (Torreira, 2007, 2012) and Italian (Stevens and Reubold, 2014). The ability of aspiration to bear the phonological weight of a deleted segment in these cases goes hand in hand with phonetic evidence showing that preaspiration is often moraic: in Icelandic, the duration of preaspiration varies in the same way a coda fricative would as a result of stress, and is inversely correlated with the length of the preceding vowel; Icelandic preaspiration is often argued to be a coda /h/ in modern analyses for this reason (Árnason, 2011).

This paper presents additional phonetic data from North Saami (Odden, 2005), which features both pre- and postaspiration in a complex system of weight-based consonant gradation, allowing measurement and comparison of aspiration and segmental /h/ under varying degrees of moraic weight. Specifically, the language features long and short preaspiration, which alternate with each other and with the absence of aspiration as the morphological expression of case (Bals Baal et al., 2012). The phonetic evidence presented from North Saami further highlights the distinctness of pre- and postaspiration, and shows that preaspiration behaves for all phonological purposes like a separate coda segment.

As far as the rarity of preaspiration, we would not expect this to be the case if it were structurally the mirror image of postaspiration. This is recognized by Silverman (2003), who argues that the two types of aspiration are aerodynamically quite distinct, and that preaspirates are prone to either fortition (through enhancement with oral constriction) or loss. Clayton (2010) makes the same observation from a different angle, arguing that preaspiration is difficult to innovate rather than easy to lose. Based on the phonological evidence considered here, this paper argues a third position: preaspiration is never an analogue to postaspiration, but rather its appearance before the segment makes it phonologically part of the preceding syllable.

Conclusions: Although many common phonological frameworks treat postaspiration and postaspiration as fundamentally symmetrical, the phonological patterning of these laryngeal features suggests that only postaspiration is “true aspiration”, while preaspiration is essentially not aspiration, but rather a distinct preceding coda segment.

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