NON-TONAL PROSODY AND NON-STANDARD TONETICS IN THE HIMALAYAS

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Many languages of the Himalayan region can be characterized as tonal, but these contrasts frequently involve contrasts in phonation as well. Other languages are described as lacking tone, but having contrasts in breathiness on the vowels or sonorants. This elaboration of locations for non-modal phonation is a trait of the greater Himalayan region. This paper examines the distribution of breathiness, and the implications that an areal-typological perspective bring to one understanding of prosody and linguistic history more widely in the Himalayan and South Asian region.

Keywords: phonation, Himalayas, tone, breathiness, substrate, kinanda, contact

1 Introduction

This paper argues that the Himalayas is the centre of an area that can be characterized by the phonological use of breathiness, and that this area represents the continuation of an ancient linguistic ecology that predates the dominance of the major language families that are now dominant in the region. As part of the argumentation for this thesis, I note that while many languages have tones that include specification for breathiness, the association of tonal contours and breathiness is centred on the Himalayas, and that the Himalayas is the only part of the world in which the association of breathy phonation with low (rising) pitch contours is (dramatically) violated. This, and the widespread use of non-modal phonations, suggests that breathiness was prior to tonality in the region, and that ancient diffusion spread the prosody.

2 Prosody: Non-segmental phonological information

In this section we examine the difference between segmental and prosodic phonological information. While all languages employ segmental contrasts, with the contrasts specified in the lexicon, some languages additionally employ lexically-specified prosodic contrasts. These two modes of phonological differentiation show very different behaviours, as described in Table 1. An example of the different behaviours can be seen in (1) and (2), showing data from English and Manipur. In (1) the different syllables and segments are largely independent of one another, with some positional allephony (aspiration in the onset of a stressed syllable, velarisation of the lateral in coda position). In (2) the segmentality identical words can be differentiated by tone, but the assignment of tone (represented with H = high and L = low) is not independent for each of the two syllables, with numerous possible combinations, among them HL-HL, not being possible well-formed words in Manipur, since tone is assigned at the word level, and HLHL is not a possible tone.

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<th>Segmental Contrasts</th>
<th>Prosodic Contrasts</th>
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<tr>
<td>All languages?</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Domain?</td>
<td>segment</td>
<td>variable</td>
</tr>
<tr>
<td>Relationship to other ones?</td>
<td>paradigmatic</td>
<td>synchronistic</td>
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<tr>
<td>Effects on (other) segments</td>
<td>possible</td>
<td>normal</td>
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Tone is not unique in showing these kinds of freedoms and restrictions. It is possible for other phonological traits to have a non-segmental domain, such as vowel harmony, consonant harmony and disharmony, nasalisation, and non-modal phonation types such as [voiceless], [nasalised], [creaky], [breathy], [stifl], [slack], [tense] and [lax] (eg., Gerrard and Kreiman 2001). We shall focus on the feature [breathy]. Breathy voice can be defined as a phonation in which the vocal cords vibrate, as they do in normal (modal) voicing, but are held further apart, so that a larger volume of air escapes between them', and it is characterized by a reduction (compared to modal voice) of the amount of energy in the lower part of the spectrum, and an increase in the amount of aperiodic high energy noise in the spectrum (eg., Gordon and Ladefoged 2001, Gerrard and Kreiman 2001). It is typically associated with low, and often slightly rising, pitch (Laver 1994,
Gordon and Ladefoged 2001). Depending on the language, breathiness can be contrastive on vowels, glides, liquids, nasals, fricatives or plosives, and it is subject to ‘leak’, and reanalysis. While the Nepali contrast in (3) is generally described as showing a phonological contrast between different initial consonants, the phonetic realization of the contrast is often deferred to the vowel. It is possible that breathiness is incipient as a contrastive element away from plosives in Nepali, given pairs such as seen in (4). It is also possible for a language to show contrasts at multiple levels; Balami (Gnutzum 2011) and Newar (Hale and Shrestha 2006) contrast breathiness on nasals, liquids and glides, while Gujarati contrasts breathiness on plosives and on vowels, as in (5) (Ladefoged & Maddieson 1996). In Kusunda we find three non-modal phonation types, which can appear ‘stacked’ on the same segment, as shown schematically in (6) (in addition, the language contrasts nasalization on vowels).

(3) a. भार [gʰa] ‘house’ [ga]– [kʰa]  
    b. नास [gʰa] ‘do’ [ga]  
    c. वर [kʰa] ‘tax’ [ka]  

(4) a. म /mo/, ‘1SG’ [ma]  
    b. शिक /ma/, ‘honey’ [ma]  

(5) a. बाल /bʰal/ ‘twelve’  
    b. बाल /bʰal/ ‘burden’  
    c. बाल /bʰal/ ‘outside’  
    d. बाल /bʰal/ ‘last year’  
    e. बाल /bʰal/ ‘early incoming’  

(6) a. modal  
    b. breathy  
    c. nasalised  
    d. tense  
    e. breathy, nasalised  
    f. breathy, tense  
    g. nasalised, tense  

Figure 1, from Mazzardou and Michaud (2008), shows the association of breathy voice quality with low pitch. The four contrastive pitches of Tamang have pitch traces approximately as shown: in addition, Mazzardou notes that ‘tone-1 and tone-2 words are high with a clear voice quality; tone-3 and tone-4 are low with a breathy voice quality.’ While the pitch traces for monosyllables shown in Figure 1 do not show a rise for Tone 4 (the low circles), when disyllabic data is taken into account it is apparent that this tone is specified as having a late rise (Figure 2).

3 The phonetic relationship between pitch and non-modal phonation

As stated earlier, breathiness is phonetically predictable on low, rising contours. An example of this can be taken from Bumthang, an East Bodish language of central Bhutan. In Bumthang two pitch heights are contrasted; high pitch cannot occur with breathiness, while (depending on onset segment type) low pitch can be associated with breathiness; an example of the contrast is /ma/25 ‘head of queue, front of line’, /ma/23 copular, and /ma/12 ‘edge’ (similar facts regarding prosodic contrast are reported for at least some varieties of
Sherpa – Kelly 2004). We have already seen the example of Tamang, in which two low (rising) tones are associated with breathiness, while the high (falling) tones have modal phonation. A more complex example comes from outside the Himalayan region, in the form of Shanghai Chinese (Zee 2003). In Shanghai five contrastive contours are found: high falling, high rise, high level, low rise, and low (rise) (51, 34, 7.13 and 127). Of these the two low rising contours are associated with breathy phonation.

And, conversely, from the greater Himalayan region we find counter-examples. In Gurung, closely related to Tamang, the high level tone and the low level tone are associated with modal phonation, while the high falling and low rise-fall have breathy phonation. That the low rise-fall is breathy is not a surprise, but the high falling tone being associated with breathiness is unexpected. Yet the same is found with Burmese: modal phonation is found with the short high tone, and the low rising tone; the long high tone is creaky, and the long high falling tone is breathy. Outside the Himalayan region breathiness is consistently associated with low (rising) tones, while in the Himalayan region this is attested, but the opposite is also attested. Outside the Himalayan region high, or falling, tones are categorically not associated with breathiness.

4 The distribution of tone and non-modal phonation

This section examines the geography of tone and contrastive phonation types. The data is drawn from Donohue et al. (2013).

Tone is found in approximately one third of the languages of the world, and is reliably reported on all continents except Australia (Donohue 2012), though the distribution within those continents is highly skewed. Map 1 shows the presence of tone (coded to show languages with more tonal oppositions in a darker shade). The Himalayas is clearly on the periphery of the highly tonal (South-)East Asian area. In terms of contrastive phonation, shown in Map 2, the Himalayas is firmly embedded in the middle of a zone that stretches from Southeast Asia to Afghanistan in which non-modal phonation types are found. This same area, including most of subcontinental South Asia, is also the area in which breathiness can be found not contrasting on syllable nuclei, but as a component of the segmental system of a language.

5 The diachronic relationship between pitch and breathy phonation.

We have seen that, in addition to being on the edge of the most tonally complex part of the world, the South Asia / Himalayas region also has the highest diversity of breathy behavior, in terms of the locations on which breathiness can be contrastive. Of the linguistic lineages found in South Asia/Himalayas with long histories, all seven exhibit contrastive breathy phonation (though it is arguably present in Dravidian only through the acquisition of Sanskrit loans). Of these families present both in the South Asia / Himalayas region and beyond (Indo-European, Tibeto-Burman, Austronesian), breathy phonation is robustly attested outside the South Asia / Himalayas region only in Austronesian languages (and there is is not associated with tone). In Tibeto-Burman languages outside the South Asia / Himalayas region breathiness is “well-behaved”, occurring only as a concomitant feature of low,
rising pitch contours. Given this skewed attestation, we must posit language contact. As the driver of the distribution of breathiness in the language families of the South Asia/Himalayas region. This accords with other well-described and discussed phonological and morphological traits that are attributed to contact, such as the distribution of reflexes steps, or the presence of ergative case marking, as well as numerous lexical items.

‘Contact’ is a complex notion (see, e.g., Donohue 2013). While ‘contact’ is perhaps most commonly used to refer to a situation in which two contemporary languages show some form of borrowing relationship, that is not the only sense to which ‘contact’ can apply. Importantly, a contact relationship can also exist between a vanished language and a contemporary language.

Given the distribution not only of the existence of contrastive phonation, but also the independence of non-modal phonation types from pitch contours, the simplest and most informative account of the data is to assume that register was prior to tone in the Himalayas. We can posit that an earlier language ecology, most directly represented by Kusunda and more indirectly by other central Nepalese languages, once prevailed over a much wider area in the South Asia/Himalayas region. Some modern linguistic features, such as contrastive breathiness (and perhaps contrastive phonation more generally), uvular consonants, and possibly other linguistic features such as prefixed verbal agreement, can be traced to these Indo-European, pre-Tibeto-Burman, and pre-Austroasiatic linguistic ecology (this is compatible with views such as Brench 2010). Breathiness has often been cited as a feature of a ‘South Asian’ linguistic area, but we have seen that breathiness is an ancient substantial feature that predates most South Asian language expansions, and is found beyond the ‘core’ of South Asia, into remote valleys of the Himalayas.

References


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