

VOICE QUALITY AND MOULDING OF PHONOLOGIES :
A SUBSTANTIAL EVIDENCE

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ABSTRACT

The issue of voice quality/phonation types are not matters solely of individual peculiarity or emotional expression and thus safely to be ignored (Henderson)[2]. This paper while studying this issues with the help of tomograms proposes their relationship with phonology as manifested particularly in Gujarati and in some of the Western Indo Aryan languages such as Sindhi, Kutchi and Marathi.

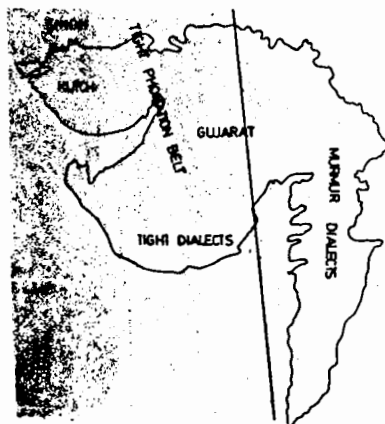
1. INTRODUCTION

Though it is accepted that the study of phonological systems have to presuppose the study of phonetic substance we still have to know which phonetic aspects should be considered relevant to phonology. This paper shows how voice quality and phonation types are essential phonic material to understand the phonology of language and extends some substantial support to Henderson's [2] views. The observation regarding the relationship between voice quality/phonation types makes it imperative for us to revise our descriptive apparatus. It is suggested that voice quality/phonation types can control and mould the phonology of language. This is once again like

the age old relationship between nature and culture and description which deprives the problem of one of the relata is doomed (MoI and Uhlenbeck)[10].

2. PHONATION TYPES IN GUJARATI

Gujarati very interestingly employs two distinct phonations: Murmur and Tight. Murmur has been taken for granted as feature associated with Gujarati since Pandit [11] and Jørgensen [4]. But the fact is that 40% of Gujarati speakers speak with tight phonation. These phonation based distinction of dialects coincides with the geographical divisions of Gujarat (See Map 1).



MAP 1

Dialects of Gujarati based on phonation types and tight phonation belt

These phonation types are like physiological habits of the speakers who with the vertical movements of larynx and muscular tension modulate the airflow. Murmur (breathy voice) occurs due to [ɦ] which can be independent phoneme or can be voiced aspiration of [bɦ, dɦ, ɖɦ, dʒɦ, ɡɦ]. Murmur has constant airflow due to cartilaginous gaps (Fujimura)[1] and strong activity of posterior cricoarytenoid along with maintained vibration of vocal folds (Sawashima and Hirose)[2], (Hirose and Gay)[3]. Tomograms taken of Gujarati speakers show the lowered position of larynx for murmur and raised position for tight. Raised larynx increases the tension of vocal fold surface (Stevens)[14]. Tight phonation is a physiological adjustment maintained through out the speech and has a high pitched quality. Having the reverse physiology from murmur this phonation automatically inhibits murmur. Recently conducted preliminary acoustic study of these phonations (Schiefer et al)[13] has been able to distinguish these two phonations with the help of two efficient parameters; amplitude of first and second harmonics and band widths of F1 and F2.

By general phonological criteria these laryngeal dimensions can be discarded as irrelevant to phonology. However their behaviour in Gujarati language opens up a new direction in studies of Gujarati phonology. Modi's studies [8],[9] were done with the intention of showing the non-segmental character of murmur. Murmur was considered a prosodic phenomenon interacting with the surrounding sonorant sounds such as :

- 1) ɦ + V 2) V + ɦ 3) V + ɦ + V

Here 'ɦ' gets partly deoralized (See Fig.1)

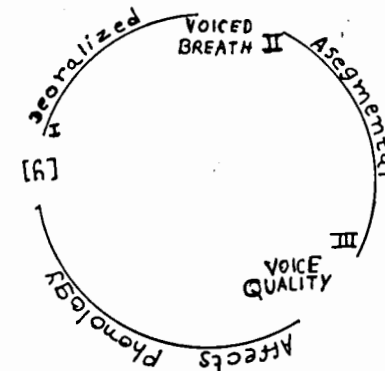


Fig. 1
Behaviour of 'ɦ'

Tight phonation dialects (TD) due to musculature tension show the tendency towards fortition process as opposed to murmur dialects (MD), where there is conspicuous laxing having lenition effects. It is suggested that constant pulling of these opposite tendencies in the language act like controlling factor on the 'normalization' of phonology. MD and TD are further subdivided depending upon their having six vowels [i, e, ə, a, o, u] or eight vowels [i, e, ε, ə, a, ɔ, o, u]. But Modi [8] has considered only six vowel-norms for Gujarati.

Perceptually different

/e/ /o/

Articulatory optimization

e ɔ jaw lowering

ε ɔ

æ ɔ

After Lindblom [7]

In TD the mid-vowels are higher than in MD. The fortition tendency is considered responsible for this (Modi)[8]. (It is worthwhile noting here that the speakers of TD with six vowels face great difficulty in pronouncing English [ε, æ] and [ɔ]). They

are a laughing stock of all Indians for having [e] vowel for 'rape' and 'wrap'). It is suggested that a process might have begun when the distance between [e-ε] and [o-ɔ] could have become phonemic but tight phonation might have counter balanced such a shift.

The next issue is that of nasalization, which has resulted from diachronic N-loss, nasalization (except for some onomatopoeic forms). In MD denasalization is under progress. But TD hold the fort of fortition. The tense musculature of tight phonation once again is favourable to nasalization and hence denasalization remains only as a subdialectal phenomenon.

One more of such phenomena is of voiced stops spirantizing in MD intervocally or when in cluster with liquids: e.g. [aβɪu] 'prestige', [aɣ|o] 'latch', [saβai] 'simplicity'. TD with inherent fortition does not allow such weakening of stops.

In short, denasalization and spirantization are prohibited from pervading the complete language. The tenseness and fortition of TD act as a preserving factor while as laxness and lenition of MD act as a weakening factor. Both phonation types work hand in hand: retaining-substituting preserving-effacing; thus balancing the phonemic inventory of language. They are relevant linguistic features as if purpose-built.

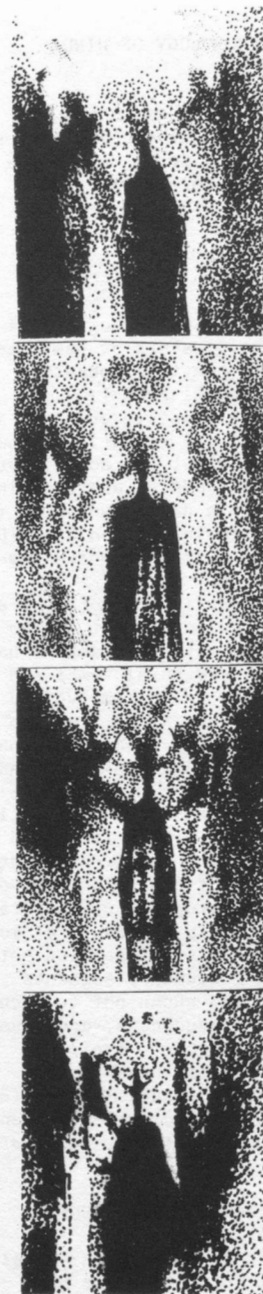
3. TIGHT PHONATION IN SINDHI AND KUTCHI

A little more support is extended to the hypothesis from two other Indo-Aryan languages: Sindhi and Kutchi. It is proposed that there is a tight phonation belt starting from Sindh (now in Pakistan) and spreading upto Northwest Gujarat (See the Map). Both these languages have implosives for which Ladefoged [5]

notes a slight downward movement of larynx after the closure is formed. Ladefoged [6] has seen the possibility of different phonations in languages having implosives. The conflicting gestures of raising and lowering of larynx can be possible due to the musculature tension of tight phonation. It is interesting to note that this phonation has added totally non Indo-Aryan sounds—the implosives—to the phonemic inventory of these languages (See tomograms of Sindhi and Kutchi speakers). The suggestion is that due to these sounds a distance has been created between the phonemic systems of these languages and other Indo-Aryan languages.

4. VOICE QUALITY AND DIACHRONICALLY ACQUIRED PRECISION OF SOUNDS

Finally it is shown how the maintenance of the precision of sounds is attained by the tension of tongue musculature in one of the standard dialects of Marathi spoken by Poona Brahmins with exceptional scholarship in Sanskrit. They attained perfection in uttering Sanskrit sounds by following the ancient phonetic treatises. They formed a speech habit where fronting and raising of tongue with tongue musculature tension was sustained throughout the speech. The oral cavity gets reduced and sounds are marked by 'fortisness'. The habit was so much entrenched into the system of the community that it got transferred into their Marathi. It is proposed that this voice quality has played a very important role in moulding of Marathi phonology; compared to any other Indo-Aryan languages Marathi has retained maximum sanskritic sound sequences. The normal diachronic tendencies of weakening such as, deletions of final vowels, cluster simplification, media vowel reduction found in all other Indo Aryan languages are totally absent in Marathi.



Tomograms:Gujarati:1=MD, 2=TD; 3=Sindhi, 4=Kutchi.

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