ABSTRACT

A phonological analysis of Bhopal Urdu has been presented in the thesis. The phonological analysis is based on the speech of artisans and other workers, residing in the city of old Bhopal in Madhya Pradesh in central India. The analysis is carried out and presented in terms of the five orientations as the principles of classification: namely, physiological mechanism, human behavior, communication, vision and acoustic medium.

The present phonological analysis of Bhopal Urdu is limited in scope both in the utilization of data and application of orienting principles. The data utilized in the illustrative examples and in the frequency counts is limited to monosyllables mainly, though polysyllabic words particularly bisyllabic words are also used occasionally as illustrative examples to reinforce the analysis arrived at on the basis of the monosyllabic words. Further, we have also limited ourselves to only four orienting principles, namely, physiological mechanism, human behavior, communication and vision. The fifth orientation is beyond the scope of the present study. Though on the basis of received knowledge on acoustics, we have made some comments in terms of acoustic medium, that tend to reinforce our phonological analysis arrived at through physiological mechanism.

The phonological analysis as motivated by the five orienting principles, was taken up in five chapters with a brief introduction. At the end we presented summary and results of the phonological analysis of Bhopal Urdu as presented in the various chapters of the thesis.

In the first chapter, entitled "Physiological Base of Bhopal
Urdu Phonology" an attempt has been made to determine the role of the physiological mechanism in the make up and distribution of phonological units of Bhopal Urdu. First we established sixty-one eight phonological units, that are produced by combining/articulators of and nine degrees/apertures. The phonological units are presented diagrammatically in the Phonological Grid, in terms of articulators and apertures. The Phonological units are broadly categorized into two types, namely, constrictions and openings. The constrictions include Ø aperture (stops), 1, 2 apertures (fricatives) and 3 aperture (liquids), while openings include 4-8 apertures (vowels). We have further divided phonological units, in terms of resonants and non-resonants. As such, vowels, liquids and nasals are labelled as resonants and stops and fricatives are called non-resonants.

We also dealt with the combinatorial pattern of phonological units in terms of the distribution of air source. It had been shown that combinations of phonological units that involve either strenuous release of air source or release greater amount of air source are not favored in Bhopal Urdu. We have also dealt with the repercussions of the asymmetry of vocal tract on the phonological system of Bhopal Urdu. It had been shown that it is the asymmetry of vocal tract which leads to elimination of standard Urdu vowels and their merger in Bhopal Urdu with the phonologically relevant vowels. The effect of asymmetry of vocal tract was also shown through the preference of teeth as point of articulation on 1 and 2 apertures, which involve releasing air through a narrow opening, and the perforated surface of the teeth greatly intensify their acoustic quality. We also established hierarchy of mobility of lingual articulators for consonants. Due to the triangular
shape, being less massy and lying at the free side, apex of the tongue is the most mobile articulator. Owing to their rectangular shape and being more flashy medium and dorsum are less mobile. Further, having the most complicated musculature system, medium is the least mobile articulator among apex, dorsum and labium. De facto placement of the labium is below the apex, above the medium and near to dorsum. Towards the end of the chapter it was shown that due to their greater physical mass only the medium and dorsum are used in the production of vowels, because in view of the big resonant cavities formed in their production, these heavier portions of the tongue are physiologically fit for the control.

The psychological or human behavior Base of Bhopal Urdu Phonology is geared to the explanation of the role of human behavior in the distribution of the phonological units of Bhopal Urdu on both the syntagmatic and paradigmatic levels. The phonological analysis of Bhopal Urdu in terms of human behavior characteristics was carried over in two parts. In the first part we demonstrated the relative preference of gross articulatory movement over fine articulatory movement in the production of consonants, while in the second part we provided human behavior justification for the phonological Grid, which was established in terms of physiological mechanism. In the first part it was established that production of consonants required fine articulatory movement if the consonants were produced by smaller and multidirectional changes of apertures, were characterized by use of multiple articulators or involve contact of an articulator at some remote
point of articulation. Likewise avoidance of fine articulatory movement was also established through preference of the use of the same point of articulation over change of the point of articulation for an articulator at some unfavorable position. Preference for gross articulatory movement was also established through enlargement of aperture in the post vocalic position, for consonants produced by an articulator at some remote point of articulation. The preference for gross articulatory movement was also established through enlargement of aperture in the post vocalic position, for consonants produced by an articulator at some remote point of articulation.

Later in the chapter we also justified the make-up of Phonological Grid of Bhopal Urdu in terms of preference for easy over rough articulatory movement, that is, phonological units that were less complex in terms of multiplicity of articulators, relative tenseness of articulator and combination of two or more apertures outnumbered those that involve fine articulatory movement in terms of either multiplicity of articulator or relative tenseness of the contact of articulator at some remote point of articulation or using two apertures in the production of a single unit.

In the third chapter role of communication in Bhopal Urdu Phonology was taken up on both the syntagmatic and paradigmatic levels. At the paradigmatic level we gave communicative justifi-
cation for the phonological units in the phonological Grid, (Diagram I-1), though the so-called positional variants were not established through communication, since they were established on the basis of physiological mechanism alone. The communicative based phonological units were established in terms of phonemic contrast in minimal pair situations. At the syntagmatic level we dealt with four aspects of Bhopal Urdu phonology. First it was shown that change in the order of the phonological units bring about change in meaning in CVC, CV and VC words. A second combinatory aspect of Bhopal Urdu explained in terms of communication was the occurrence of phonological units in various positions of the word. We established through frequency counts that physiologically and psychologically disfavored voiced, aspirated and nasalized units were more disfavored at the final position of the word than at the initial position. The greater disfavoring for voiced, aspirated and nasalized units is caused by the lesser communicative load of phonological units at the non-initial positions of the word. Later we also dealt with the occurrence of phonological units in terms of the hierarchy of mobility of articulators. It was shown through the frequency counts that there is much greater preference in the word final position for the consonants produced by the physiologically most mobile articulator apex in comparison to the consonants produced by less mobile articulators (labium, dorsum, medium). The greater preference for the apical consonants in the word final position is caused by lesser communicative need to utilize all phonological distinctions at the end of word. The fourth combinatory aspect dealt in terms of communication was the
contraction of standard Urdu bisyllabic words into monosyllabic words in Bhopal Urdu. The non-initial location of the syllabic reduction is caused by lesser communicative load of phonological units at the non-initial positions of the word.

Later in the chapter we explained elimination and merger of some standard Urdu phonological units in Bhopal Urdu. It had been shown that one consonant of standard Urdu, namely z is merged with z in Bhopal Urdu, and this merger is caused by communication, since the merged fricative carries least communicative load. Likewise, elimination and merger of eight standard Urdu vowels can best be justified in terms of communication. The eliminated standard vowels include four short vowels e e o o and four long vowels Ei Si. Since the eliminated standard Urdu vowels have the lowest frequency among all the short and long vowels of standard Urdu, therefore, the elimination and merger to four phonologically relevant vowels e: e: o: o: can best be justified in terms of communication. Further, the occurrence of standard Urdu short vowels e e o o is not only the lowest, but they are also limited in their occurrence to pre-h position. The elimination and merger of eight standard Urdu vowels into four vowels does create some homonymous pairs, but communication is facilitated in most cases by their differing from classes. At the end of the chapter we dealt with homonymy with particular reference to the loss of quite a few phonological units of standard Urdu and their merger with the neighboring phonological units in Bhopal Urdu. Despite the large percentage of homonymy, communicative process is not effected in Bhopal Urdu, for most of the homonymous pairs
can be set apart from each other in the context. Even further, communication is also facilitated by the fact that in case of some commonly used words potential homonymy is avoided by some apparently ad hoc phonological changes from standard Urdu to Bhopal Urdu.

In the fourth chapter, we dealt with the role of vision in Bhopal Urdu Phonology. It was demonstrated through frequency counts that in view of its visibility, the labial articulator is more preferred at the beginning of the word (where a word requires most communicative distinction), than at the non-initial positions of the word. Labial consonants occupy a place next to apex, the most mobile articulator, at the beginning of the word, but fell to the minimum at the end of word.

The fifth and the last chapter of the thesis highlights the value of acoustics in phonological analysis. We had presented acoustic rationale for lip rounding of the back dorsal vowels in terms of formant frequencies. However, our comments on acoustics are based on received knowledge.

At the end of the thesis we have provided with the summary and results of the thesis. We have specified various instances whereby these orienting principles interact with each other. The interaction of the orienting principles can take any direction from the physiological mechanism to psychology or between physiology and communication or it may be between physiology, psychology and communication. Since our comments on acoustics are based on received knowledge, therefore, we have not specified the interaction of acoustics with other orienting
principles. We have reviewed some of the important instances whereby two or more orienting principles are found to be interacting in providing justification for the observed asymmetry in the phonological patterns of Bhopal Urdu. It is found that in most cases there is a strong relationship in the explanation provided through physiological mechanism and human behavior and in many cases of the interaction of physiology and psychology, communication further justifies the disfavoring and favoring.

The present phonological analysis of Bhopal Urdu is based on the assumption that phonological units of a language are tied to one another in a non-random relationship both paradigmatically and syntagmatically. The units are organized in terms of their physiological, psychological, acoustic and communicative bases in the paradigm and are characterized by a value relationship. The arrangement of phonological units in the syntagm is also determined by their physiological, psychological communicative or acoustic traits. In other words, phonological characteristics of a language are fully motivated by the orientations. The evidence that we have presented in validating phonological analysis of Bhopal Urdu, proves this point beyond reasonable doubt. Therefore, the thesis may not only contribute to our understanding of the inner mechanism of Bhopal Urdu Phonology, but also to our understanding of the theory of phonology in general.

The thesis contains both theoretical and methodological innovations in the study of Bhopal Urdu Phonology. It abandons description in favor of explanation in terms of independently verifiable orientations, and presents quantitative procedures for validating the phonological analysis.