



# Urdu Letters to IPA and IPA to SAMPA

September 21, 2007

**CENTER FOR RESEARCH IN URDU LANGUAGE PROCESSING  
NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES, LAHORE  
PAKISTAN**

## Table of Contents

|   |  |   |
|---|--|---|
| 1 | Introduction.....                        | 4 |
| 2 | Conversion Table from IPA to SAMPA ..... | 5 |

## Revision History

| Name        | Change Date | Version | Description of Changes |
|-------------|-------------|---------|------------------------|
| Madiha Ijaz | 21-09-2007  | 1.0     | Initial document       |

# 1 Introduction

SAMPA (Speech Assessment Methods Phonetic Alphabet) is a machine-readable phonetic alphabet. SAMPA basically consists of a mapping of symbols of the International Phonetic Alphabet onto ASCII codes in the range 33.....127, the 7-bit printable ASCII characters.

Where Unicode (ISO 10646) is not available or not appropriate, SAMPA and the proposed X-SAMPA (Extended SAMPA) constitute the best robust international collaborative basis for a standard machine-readable encoding of phonetic notation.

(<http://www.phon.ucl.ac.uk/home/sampa/index.html>)

## 2 Conversion Table from IPA to SAMPA

The following table shows Urdu letters and diacritics, their corresponding IPA and then corresponding SAMPA.

| Urdu Orthography | IPA | SAMPA |
|------------------|-----|-------|
|------------------|-----|-------|

### Consonants

|      |                 |       |
|------|-----------------|-------|
| پ    | p               | p     |
| ب    | b               | b     |
| پھ   | p <sup>h</sup>  | p_h   |
| بھ   | b <sup>h</sup>  | b_h   |
| م    | m               | m     |
| مھ   | m <sup>h</sup>  | m_h   |
| ط, ت | t̪              | t_d   |
| تھ   | t̪ <sup>h</sup> | t_d_h |
| د    | d̪              | d_d   |
| دھ   | d̪ <sup>h</sup> | d_d_h |
| ن    | n               | n     |
| نھ   | n <sup>h</sup>  | n_h   |
| نگ   | ŋ               | N     |
| ٹ    | t               | t'    |
| ڈ    | d               | d'    |
| ٹھ   | t <sup>h</sup>  | t'_h  |
| ڈھ   | d <sup>h</sup>  | d'_h  |
| ک    | k               | k     |
| گ    | g               | g     |
| کھ   | k <sup>h</sup>  | k_h   |
| گھ   | g <sup>h</sup>  | g_h   |
| ق    | q               | q     |
| ع    | ʔ               | ʔ     |

|            |     |       |
|------------|-----|-------|
| ف          | f   | f     |
| و          | v   | v     |
| ث, ص, س    | s   | s     |
| ز, ظ, ض, ذ | z   | z     |
| ش          | ʃ   | S     |
| ژ          | ʒ   | Z     |
| غ          | ɣ   | ʔ     |
| خ          | x   | x     |
| ح, ه       | h   | h     |
| چ          | tʃ  | t_S   |
| چھ         | tʃʰ | t_S_h |
| ج          | dʒ  | d_Z   |
| جھ         | dʒʰ | d_Z_h |
| ر          | r   | r     |
| رھ         | rʰ  | r_h   |
| ڑ          | ɽ   | r'    |
| ڑھ         | ɽʰ  | r'_h  |
| ی          | j   | j     |
| ل          | l   | l     |
| لھ         | lʰ  | l_h   |
| وھ         | vʰ  | v_h   |
| یھ         | jʰ  | j_h   |

### Vowels

|    |   |   |
|----|---|---|
| ی  | i | i |
| ے  | e | e |
| ےٓ | æ | { |
| وُ | u | u |
| و  | o | o |
| وَ | ɔ | O |

|    |    |    |
|----|----|----|
| آء | a  | A  |
| .  | ɪ  | I  |
| ء  | ε  | E  |
| ء  | ʊ  | U  |
| ء  | ə  | @  |
| يـ | ĩ  | i~ |
| يـ | ẽ  | e~ |
| يـ | æ̃ | {~ |
| وـ | ũ  | u~ |
| وـ | õ  | o~ |
| اـ | ã  | A~ |
| وـ | õ  | O~ |

### Special symbols

|                   |   |   |
|-------------------|---|---|
| Syllable boundary | . | - |
| Stress marker     | ء | " |
| Word Boundary     | # | # |