

## Existence of Aspirated l, r and ? in Urdu Language

### Abstract

Existence of aspirated l, r and ? (r?, r? and r?) has always been controversial in Urdu language. This paper discusses the existence of these aspirations in Urdu. Experiments have been conducted to investigate the phonetic and phonemic existence of r?, r? and l?. From the data it has been found that Urdu speakers do not use phonemes r? and r? in their speech however l? still exists with limited use.

### Keywords

Dissimilation, Metathesis, Aspiration, Allophones

### 1. INTRODUCTION

Urdu is a Turkish word, meaning “an army” or “cantonment”. It is written in Turk dictionary as “Ordu”. The word Urdu was first found in written form in ‘Tuzk-e-Babri’ (a book written by the Mughal emperor Baber) (Abdul, 1992).

Urdu is a Neo-Indo-Aryan language and according to most of the writers it is derived from Burj Bhasha. Unlike most of the languages, Urdu is rich in aspirated sounds, however there is a big argument on the existence of certain aspirations e.g. m?, n?, r? etc (Abdul, 1992). This paper aims to explore the aspirated versions of r, ? and l.

### 2. LITERATURE REVIEW

The aspirated sounds in Urdu are called r?r?r?r? (m?hap?ran). It is taken from Iranian, meaning the phonemes, which are spoken by supplying power from the chest (Bukhari, 1991).

There are 15 aspirated sounds in Urdu i.e. p?, b?, t??, d??, t??, r?, ??, d??, n?, m?, k?, g?, l?. A few people add j? and w? to it and a few people take out l? and r? from the above mentioned list. These aspirated sounds truly belong to Indian sub-continent as they are neither spoken outside this area nor are they spoken in any other Aryan or Semitic language. Nearest relation of the Aryan languages is with Persian but there is no existence of aspirated sounds in this language and not even in any other European Aryan language except a few gypsy tribes which have moved out from Indian sub-continent to settle in Europe a long time ago. Aspirated sounds in Punjabi are different and relatively less in number as compared to Urdu. Pashto is also not much fond of aspirated sounds (Haqi, 1996).

Dr. Sohail Bokhari in ‘Lisani Muqalat’ discusses the reasons of gradual disappearance of aspirated phonemes in Urdu. The most obvious reason is that these alphabets are not much used in words (Bukhari, 1991).

Another important reason of their extinction is that the native speakers have been writing Urdu in Arabic font. Arabic fonts do not contain the symbols of these aspirated alphabets and so they were divided into the respective voiced/unvoiced phoneme and ‘h’. Thus the Urdu speakers ruined their pronunciations by reading these symbols in books and confiding in them e.g. s?rhana (pillow) was originally s? r?ana and p?ha? (mountain) was p?a? (Bukhari, 1991).

The phoneme of s? was divided (in ‘s’ and ‘h’) before coming in Arabic font, this was perhaps the Aryan effect because neither their language contained these heavy sounds nor their fonts contained their symbols (Dr. Bukhari, 1991).

According to Dr. Sohail Bokhari no word starts from ? and ??, however if they do come in word initial they are replaced by?? and ?? (Dr. Bukhari, 1991).

Dr. Mehboob Alam Khan discusses the existence of these alphabets in word initial, medial and final positions in “Urdu ka sauti nizaam”. According to him the existence of aspirated r?, ?? and l? is as follows (Mehboob, 1997):

r?

Use of r? in Urdu is nearly finished.

Word initial: no word starts from r?

Word medial: s?r?ane, g?jar?wi~, bar?wa~

Word Final: no word ends at r?.

??

Word initial: ?? does not come in word initial position.

Word medial: sa??I, b? ??a, si??i.

Word final: k? ??, ri??, ba??, dā??.

l?

Word initial: no word starts from l?.

Word medial: koI?u, k? l?a?i, t?? l?a, d? l?a

Word final: no word ends at l?.

### 3. METHODOLOGY

#### 3.1 Speakers

To carry out the acoustic analysis five male and five female native speakers of Urdu having ages from 20 to 21 were chosen for recordings. It was taken care that all

of them were inhabitants of Punjab (Pakistan) and belonged to Punjabi speaking families having Urdu as their first language.

For phonological analysis syllabification of 16 words was carried out by 10 male and 10 female native speakers of Urdu. They were first trained for syllabification of Urdu words and then actual words (containing rʔ, ʔʔ and lʔ) were given to them for syllabification.

### 3.2 Data

Minimal pairs of words for rʔ, ʔʔ and lʔ were used in sentences for the acoustic analysis.

Minimal pairs are given below:

Table 1 Minimal pairs of words for rʔ, ʔʔ and lʔ

Words	Minimal Pairs
rʔwas (? ʔʔʔ): Inhabitant	rʔwas (? ʔʔʔ): A kind of fish
gʔʔʔa (ʔʔʔ): Trench	gʔʔa (ʔʔʔ): buried
kʔʔʔi (ʔʔʔʔ): Embroidered	kʔʔi (ʔʔʔ): severe
tʔʔ lʔa (ʔʔʔʔ): Stove	tʔʔ la (ʔʔʔ): Cloak
dʔʔlʔa(ʔʔʔʔ): Groom	mʔʔla (ʔʔʔ): God

Each speaker recorded 10 sentences in 5 different sequences.

For phonological analysis 16 words (containing rʔ, ʔʔ and lʔ) were given to the native speakers for syllabification after shuffling them in ordinary Urdu words. There were 4 words containing phoneme rʔ, 10 for ʔʔ and 2 for lʔ. For word initial, medial and final positions of aspirated phonemes different words were selected from different dictionaries (Dehlvi, 2002) (Neyer, 1989) (Urdu Dictionary Board, 1990).

### 3.3 Software

Recordings were done and analyzed using Praat and Winsnoori software.

### 3.4 Feature analyzed

In acoustic analysis the difference of aspirated stops and continuants was observed. Any difference in the duration of these phonemes after aspiration was also measured. Spectrograms of r, l and ʔ were compared with the spectrograms of rʔ, lʔ and ʔʔ to notice any change. The spectrograms of recorded sentences were analyzed to find out the appearance of any aspiration if a person speaks rʔ, lʔ and ʔʔ, and if aspiration appears then whether it appears with ʔʔ and ʔ in the word or with some other phoneme.

In phonological analysis it was observed if people mentioned the syllable boundaries as r.h, l.h and ʔ.h or they mentioned these phonemes in a single syllable

(which would mean they took rʔ, lʔ and ʔʔ as single phoneme).

## 4. RESULTS

- ʔ Words containing rʔ, ʔʔ and lʔ as well as minimal pairs of words for these phonemes have been found in dictionaries.
- ʔ More than 50 % native speakers took rʔ and lʔ in single syllables during syllabification.
- ʔ From the spectrograms it was observed that more than 50 % speakers speak lʔ while rʔ almost doesn't exist acoustically.
- ʔ Acoustically and phonetically observed that if ʔʔ is followed by a vowel in a word then dissimilation occurs and ʔʔ is converted to phonemes of ʔ and h otherwise ʔʔ is found in the language e.g. pe ʔʔai is spoken as peʔhai.

## 5. DISCUSSION

### 5.1 Phonemic Analysis

Phonemic analysis of rʔ, ʔʔ and lʔ words containing these phonemes were found in 'Urdu lughat', 'Fehung-e-asfia' and 'Urdu lughat (tareekhi usool per)'. Existence of rʔ, ʔʔ and lʔ word initially, medially and finally is discussed below:

*rʔ word initially:* rʔ doesn't exist word initially these days but it used to exist in ancient Urdu in words like rʔwas (inhabitant) and rʔidʔna (to be happy).

*rʔ word medially:* rʔ has been found word medially in words like barʔwa~ and terʔwa~.

*rʔ word finally:* rʔ doesn't exist word finally.

*ʔʔ word initially:* No word beginning with ʔʔ was found in dictionaries.

*ʔʔ word medially:* It exists word medially in words like kaʔʔna, pʔʔʔao.

*ʔʔ word finally:* ʔʔ exists word finally in kʔʔʔ and riʔʔ.

*lʔ word initially:* lʔ doesn't exist word initially these days but it existed in old Urdu in words like lʔwar (small) and lʔisna (to plaster).

*lʔ word medially:* It exists word medially in words like kolʔu, kʔʔlʔaʔi, tʔʔ lʔa, dʔʔ lʔa, tʔilʔar (place having birds of prey), tʔilʔwa~s (to make sounds like bird of prey).

*lʔ word finally:* lʔ exists word finally in words like tʔilʔ (bird of prey).

Aspirated versions of l, r and ʔ are separate phonemes and not allophones of l, r and ʔ since their minimal pairs exist. Minimal pairs are given in table 1.

## 5.2 Phonological Analysis

In phonological analysis speakers were asked to syllabify the following words:

Table 2 reveals the following phonological rule:

C            ↗    C    .h    /\_ .V  
 [+asp]            [-asp]  
 [+retroflex]

Table 2 Data from syllabification of words

Words	Number of speakers who Aspirated the phonemes	Number of speakers who didn't aspirated the phonemes
tʔ lʔa (ʔʔʔʔ): Stove	13	7
T ʔrʔwaː (ʔʔʔʔʔʔ) Thirteenth	15	5
ʔʔʔai (ʔʔʔʔ): Two and a half	3	17
dʔ lʔa (ʔʔʔʔ): groom	8	12
baʔrʔwaː (ʔʔʔʔʔʔ) Twelfth	12	8
bʔ ʔʔja (ʔʔʔʔ): An old woman	15	5
sʔrʔna (ʔʔʔʔ): Pillow	2	18
pʔʔʔao (ʔʔʔʔ): Teach	2	18
tʔʔʔna (ʔʔʔʔ): To climb	15	5
pʔndʔrwaː (ʔʔʔʔʔʔʔ): fifteenth	15	5
kʔʔʔi (ʔʔʔʔ): Embroidered	3	17
bʔ ʔʔa (ʔʔʔʔ): An old man	7	13
riʔʔ (ʔʔʔʔ): Backbone	19	1
Kaʔʔna (ʔʔʔʔ): To embroider	17	3
pʔʔʔai (ʔʔʔʔ): Studies	1	19
pʔʔʔna (ʔʔʔʔ): To study	17	3

Table 3 shows the data retrieved from syllabification. More than 50 % speakers mentioned syllable boundary after or before rʔ and lʔ showing that these two phonemes exists phonologically. In case of ʔʔ it was observed that when ʔʔ is followed by a vowel then dissimilation occurred and speakers converted ʔʔ into ʔ and h otherwise it was taken as a single phoneme.

Table 3 Results from syllabification of words containing rʔ, ʔʔ and lʔ

Phoneme	Aspirated %	Non aspirated %
ʔʔ	Vowel	16
	Consonant	81.6
lʔ	52.5	47.5

rʔ	55	45
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## 5.3 Acoustic Analysis

Data retrieved from recordings of minimal pairs of words is given below:

Table 4 Data from acoustic analysis of rʔ, ʔʔ & lʔ

Words	Deletion of aspiration	Dissimilation	Metathesis	Aspiration
ʔ ʔʔʔʔ (rʔwas)	31.91%	68.08%	0%	0%
ʔʔʔʔ (tʔ lʔa)	23.40%	21.27%	0%	55.32%
ʔʔʔʔʔ (dʔ lʔa)	31.25%	41.67%	0%	27.08 %
ʔʔʔʔ (gʔʔʔa)	51.06%	40.42%	6.38%	2.13%
ʔʔʔʔ (kʔʔʔi)	64%	26%	0%	10%

It was observed that in case of rʔ and ʔʔ more than 50% speakers dissimilated (separated rʔ into r and h), exchanged phonemes (metathesis) or deleted aspiration. Very few speakers spoke rʔ and ʔʔ but more than 50% of the speakers spoke aspirated l. Average duration of aspirated and non-aspirated r, ʔ and l is given below:

Table 5 Average duration of rʔ, ʔʔ and lʔ

Phonemes	Average Duration (m sec)	
	Aspirated	Non aspirated
R	No aspiration found	20
ʔ	33	23
L	80	40

It was observed that average durations of rʔ, ʔʔ and lʔ were greater than that of r, ʔ and l.

### 5.3.1 Spectrum of aspirated l and ʔ:

Spectrogram of lʔ (ʔʔ) is shown in the figure below:

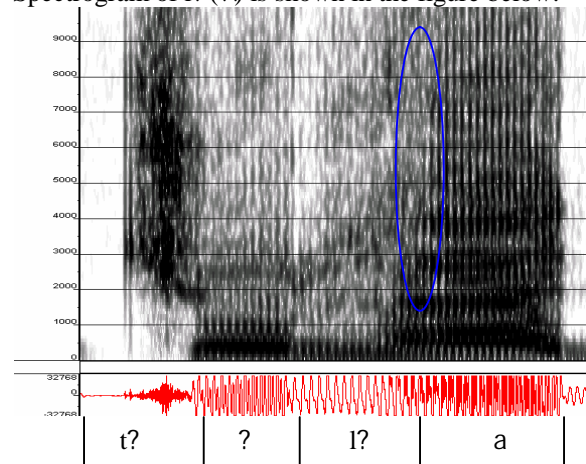


Figure 1: Spectrogram of lʔ (ʔʔ)

Spectrogram of 'l' (ʔ) is shown in the figure below:

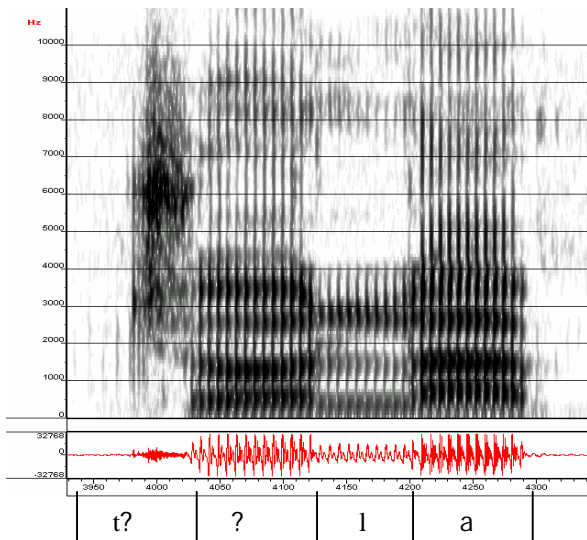


Figure 2: Spectrogram of 'l' (?)

In the above diagram we can easily see the breathy formants of the phoneme as well as the upcoming vowel and the aspiration above the formants, which is marked by a circle as compared to the spectrum of 'l' where there is clearly no aspiration.

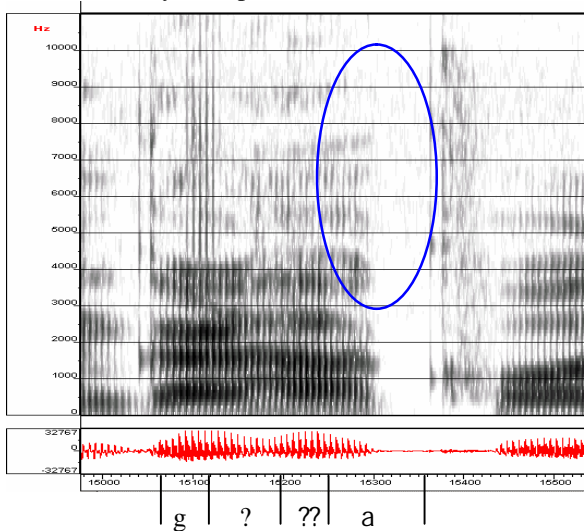


Figure 3: Spectrogram of ?? (?)

The formants of ?? are not much different from ?. The difference between the two is that the formants of ? are breathy and it also distorts the formants of the upcoming vowel.

## 6. CONCLUSION

Urdu language has many aspirated sounds from which existence of r?, ?? and l? is still ambiguous. Some experiments have been conducted to remove this ambiguity. It has been found that r?, ?? and l? exist phonemically since words containing these phonemes are present in dictionary. Urdu speakers were asked to syllabify words containing r?, ?? and l? and recordings of sentences containing words having these phonemes has also been done. As a result it was found that more than 50

% of the speakers still use l? in their speech; r? is no more spoken these days while ?? is spoken only when it is not followed by a vowel in the word.

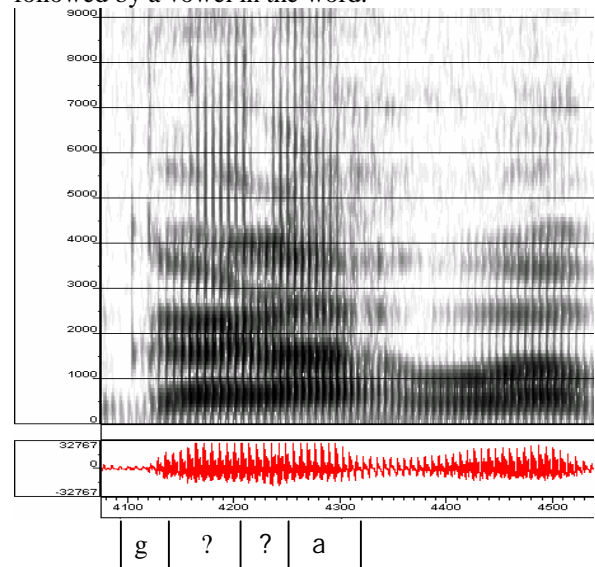


Figure 4: Spectrogram of ? (?)

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