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Phonological Behavior of Multiple Aspirated Consonants in Urdu

Abstract: Urdu words contain multiple aspirated consonants. The phonetic representation of these words varies from their phonemic representation. In some cases that variation occurs in certain context and hence is predictable while in most of the cases, it shows random behavior that is hard to predict or generalize into phonological rules. This paper tends to explore those rules and to explain the phonological behavior of aspirated consonants occurring at two or more than two places in Urdu words. These rules are complemented by various words present in Urdu vocabulary.

Keywords: Aspiration, assimilation, deletion, metathesis, epenthesis, phonotactic constraints.

1. INTRODUCTION

A substantial airflow to make the vocal cords vibrate a bit, despite their separation results in breathy voice. This breathy quality can be added on top of ordinary speech i.e. vowels and consonants to make them plosive or aspirated (Napoli, 1996, p.32). English has many aspirated consonants but doesn't assign any unique character to them. Fortunately Urdu assigns a separate consonant h to show aspiration. In Urdu, h following the letter represents aspiration generally, but it may represent a separate phoneme as well. There are believed to be as many as 15 aspirated consonants in Urdu (Khan, 1997). Among them only 10 aspirated consonants that are either stops or affricates, occur at multiple places in Urdu words while continuant aspirates and aspirated nasals doesn't occur at multiple places.

Urdu is quite persistent in orthography and pronunciation i.e. it shows little contrast in phonemic and phonetic representation but there are cases where they vary. The variation occurs due to some phonological reasons that are mainly governed by the motive of ease of articulation i.e. those features that require more articulatory effort are normally dropped either completely or are replaced with those requiring less articulatory effort. These variations are described through phonological rules and the main categories of these rules are assimilation, palatalization, loss (deletion), epenthesis (insertion), compensatory lengthening, metathesis (reordering) and dissimilation (Napoli, 1996, 73-99).

The aspirated feature is never assimilated to neighboring segments. Dissimilation and deletion widely occur with multiple aspirated sounds in Urdu. Compensatory lengthening that normally accompanies deletion rule doesn't occur with multiple aspirated sounds. The phenomenon of metathesis occurs but is not very common while epenthesis does not occur at all.

2. LITERATURE REVIEW

Most of the work done on aspirated consonants of Urdu is on the ones occurring in isolation in words i.e. a single aspirated consonant in a word. So the literature available regarding phonological rules of single aspirated consonantal words was reviewed and was applied on multiple aspirated consonantal words of Urdu to study their phonological behavior.

Phonological rules e.g. assimilation, deletion etc describe the phenomenon that why surface representation or physical form of a word differs from its underlying representation or logical form. These phenomena are explained as follow

Assimilation means that a sound changes to become similar to a near by sound (Napoli, 1996, 73-78). It doesn't occur in aspirated consonants (Nisar & Baqir, 2003).

In dissimilation a sound changes to become unlike a near by sound (Napoli, 1996). Dissimilation occurs in aspirated consonants. If two adjacent syllables contain the same aspirated consonant in their onset, dissimilation occurs and aspiration is removed from second consonant e.g. $/b^h a . b^h i/$ becomes $[b^h a . b i]$ (Nisar & Baqir, 2003), (Zia, 2002). However there is an exception to this rule that if the word has been formed by reduplication i.e. morpheme pluralization has taken place in the word formation process then dissimilation doesn't occur e.g. $/p^h u s / + /a/$ gives $/p^h u s . p^h u . s a/$ (Nisar & Baqir, 2003).

In deletion either a consonant or vowel is deleted completely or only a feature of timing slot is deleted in terms of metrical phonology. It can occur word initially, medially and finally. In case of aspirated consonants, deletion of aspiration never occurs word initially (Nisar & Baqir, 2003). Word medially it is deleted e.g. $[g a b^h . b^h a]$ becomes $/g a b . b a/$ but the exception to this rule are the words containing aspirated consonant between a vowel and nasal then feature of aspiration isn't deleted (Nisar & Baqir, 2003). Word finally, it is also deleted e.g. $[t^h a t^h]$ will become $/t^h a t/$ (Nisar & Baqir, 2003).

Metathesis is the phenomenon that transposes or reorders two sounds or sound sequence usually adjacent to each other (Napoli, 1996, p. 87). It occurs in words containing multiple aspirated consonants e.g. $/t k t^h . t^h a/$ becomes $[t k^h t . t a]$ etc (Nisar & Baqir, 2003).

Epenthesis is the insertion of a consonant or vowel or only a feature of timing slot is added in terms of metrical phonology. There is no indication of epenthesis in words containing multiple aspirated consonants.

There are two ways to represent these rules, linear generative phonology and geometric phonology while metrical phonology is used to describe stress pattern. Some

rules are better explained in other than one e.g. assimilation is better described in linear phonology while dissimilation in geometric phonology (Napoli, 1996, p.99).

Apart from phonological rules, some other descriptions include there is a period of voicelessness after the articulation of stop, during this period a burst of air comes out in aspirated stops (Hussain & Nair, 1995).

One of the theories regarding the aspirated continuants of Urdu is that they require more articulatory effort and hence they are replaced by the continuant followed by /h/ e.g. /d̪u.l^ha/ becomes [d̪u.l.ha], in this case feature of aspiration is lost and is promoted to /h/ consonant and the word is re-syllabified. (Nisar & Baqir, 2003). Again there is no indication of multiple aspirated sonorant consonants.

3. PROBLEM STATEMENT

Multiple aspirated consonants occur in a single Urdu word. What phonological rules are followed by aspirated consonants occurring in either adjacent syllables or different syllables of an Urdu word?

4. METHODOLOGY

Over 255 words containing multiple aspirated consonants were collected from the Urdu dictionary “Feroz-ul-loghat Urdu Jadeed New Edition”. They were transcribed both phonemically and phonetically. In order to remove ambiguities, these words were searched in other dictionaries like “Farhang-i-Asafiyyah” and “Nur-ul-Lughat”, final analysis was done on words found in at least two of these dictionaries. So after removing ambiguities, over 80 words containing multiple aspirated consonants separated by vowel or other consonants were analyzed e.g. /p^hə.p^hūḍi/ while over 70 words containing aspirated consonants adjacent to each other were analyzed e.g. /pəṭ^h.ṭ^həṛ/ etc. The English translation of these words was adopted from “Kitabistan’s Twentieth-Century Standard Dictionary”.

Apart from words containing multiple aspirated consonants, some words containing an aspirated consonant along with its un-aspirated counterpart were collected in order to have better understanding e.g. /b^hə.bək/ etc.

When the data had been gathered, it was used in sentences in such a way that it always came in the middle of sentences, attempting to hide the actual problem. Native speakers were interviewed regarding the phonetic representation of these sentences i.e. word and its carrier phrase but it was observed that if speakers were provided data in written form and then asked to pronounce it, they paid attention to its written form and tried to utter as much as possible according to orthography, especially in case of those words that are not commonly used, hence it wasn’t totally reliable. Along with this it was also judged by listening to native speakers day-to-day normal conversation that is unconscious and hence more reliable.

5. RESULTS

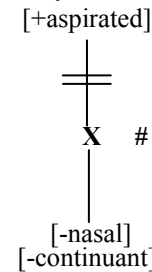
The analysis of the data showed that Urdu words don’t contain multiple continuant aspirates. Only two words were found that contained continuant aspirate /h/ multiple times in their phonemic representation which are /ə^h.l^həṭ/ and /ku^h.l^həṭ/ and they become [ə^h.ləṭ] and [ku^h.ləṭ] respectively. Urdu words have only aspirated stops and affricates (Appendix A). Most of the words have similar aspirated consonant rarely dissimilar.

Regarding, phonological rules, deletion and dissimilation are very common. Metathesis is quite rare while assimilation; epenthesis and compensatory lengthening are absent.

5.1 Deletion

Analysis of data showed that aspiration is deleted from aspirated consonant, word medially and word finally. Aspiration is never deleted at beginning of word.

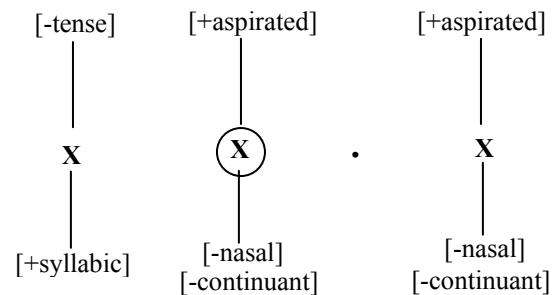
At word final position it is always deleted i.e. at coda position of last syllable e.g. /t^hja.səṭ^h/ becomes [t^hja.səṭ].



Rule 1. Deletion of aspiration from aspirated consonant at word boundary in words. “#” represents word boundary. The data that verifies the correctness of Rule 1 is given in Table B1 (Appendix B).

Word medially, aspiration is deleted either syllable initially or syllable finally or whole segment is deleted depending on the context.

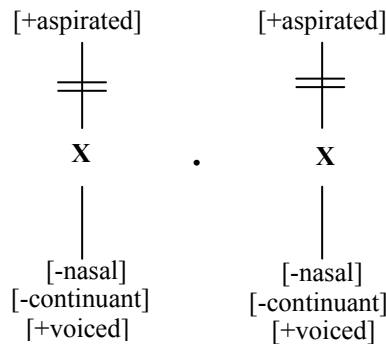
The word that begin with a vowel and that vowel precedes aspirated consonant in the first syllable, entire segment is deleted e.g. /uḍ^h.ḍ^həṃ/ becomes [u.ḍ^həṃ].



Rule 2. Deletion of entire segment word medially. “.” represents syllable boundary. The data that verifies the correctness of Rule 2 is given in Table B2 (Appendix B).

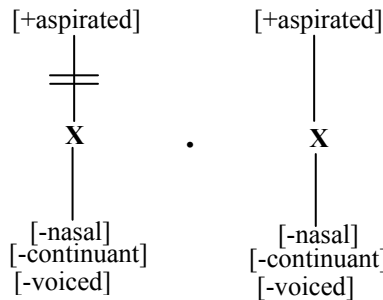
The words that begin with a consonant and the aspirated consonant at coda of first syllable is voiced while the other aspirated consonant at the onset of second syllable

is also voiced, then aspiration gets deleted from both consonants e.g. /b^heg^h.g^hi/ becomes [b^heg.gi].



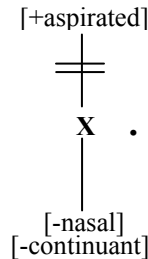
Rule 3. Deletion of aspiration both syllable finally and initially in case of voiced aspirated consonants. The data that verifies the correctness of Rule 3 is given in Table B3 (Appendix B).

The words that begin with a consonant and both of the aspirated consonants, one at coda of first syllable and other at onset of second syllable, are unvoiced, then aspiration gets deleted from consonant at coda of first syllable e.g. /tʃɪ^h.t^hi/ becomes [tʃɪ.t^hi].



Rule 4. Deletion of aspiration syllable finally in case of unvoiced aspirated consonants. The data that verifies the correctness of Rule 4 is given in Table B4 (Appendix B).

Aspiration gets deleted syllable finally in any other scenario e.g. /g^hag^h.ra/ becomes [g^hag.ra] etc but there are a few exception to this rule e.g. /t^hot^h.ni/ remains same. Here the rule is that if aspirated consonant is preceded by a vowel and is followed by a coronal nasal then aspiration isn't deleted.

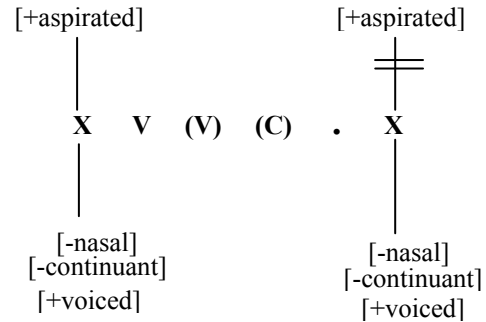


Rule 5. Deletion of aspiration syllable finally. The data that verifies the correctness of Rule 5 is given in Table B4 (Appendix B).

5.2 Dissimilation

Dissimilation occurs in those words where both aspirated consonants are similar and they occur at onset position of adjacent syllables.

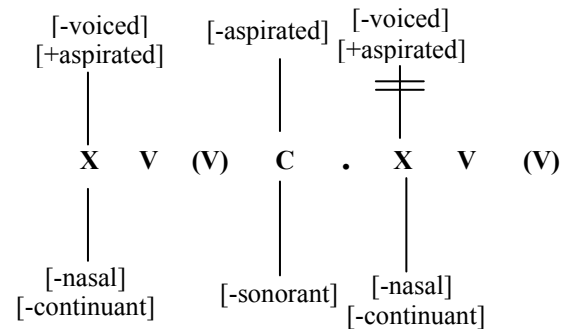
If the aspirated consonants are voiced then aspiration dissimilates e.g. /b^hur.b^hu.ra/ becomes [b^hur.bu.ra].



Rule 6. Dissimilation of aspiration syllable initially in case of voiced aspirated consonants. V represents single timing slot. The data that verifies the correctness of Rule 5 is given in Table C1 (Appendix C).

If aspirated consonant are unvoiced then aspiration doesn't dissimilate, provided that nucleus of both the syllables in which they occur, are identical e.g. /k^hɪl.k^hɪ.la.na/ remains same. The data that verifies it is provided in Table C2 (Appendix C).

However there are a few exceptions to this rule where aspiration is deleted e.g. /k^həɫ.k^hə.ɫa.na/ becomes [k^həɫ.k^hə.ɫa.na] and it follows the rule that if the coda of the first syllable has an obstruent consonant then aspiration is deleted from following consonant.



Rule 7. Dissimilation of aspiration syllable initially in case of unvoiced aspirated consonants. V represents vowel and they are same in both syllables. It could be short or long. The data that verifies the correctness of Rule 6 is given in Table C3 (Appendix C).

In rest of the cases, aspiration dissimilates. The data that verifies it is given in Table C4 (Appendix C).

All rules that have been discussed so far are those for the similar aspirated consonants, in case of dissimilar aspirated consonants, aspiration is always deleted word medially. The data that verifies it is provided in Table C4 (Appendix C).

5.3 Metathesis

There is only one examples that shows metathesis i.e. /ɪkʰt̪.ʰt̪ɑ/ becomes [ɪkʰt̪.ʰt̪ɑ] and it is of course insufficient to generalize it into a rule.

6. DISCUSSION

Regarding phonological rules; voicing and syllable structure play a very important rule. Aspiration is always deleted word finally and never deleted word initially. Word medially, it is deleted either syllable initially or finally depending on the following contexts.

- If the word begins with a vowel and has a geminate aspirated stop then the whole segment is deleted e.g. /əʈʰ.t̪ʰa.vən/ becomes [ə.ʈʰa.vən].
- If the word begins with a consonant and has a geminate voiced aspirated stop then aspiration gets deleted from both of the consonants e.g. /bʊd̪ʰ.d̪ʰa/ becomes [bʊd̪.d̪a].
- If the word begins with a consonant and has a geminate un-voiced aspirated stop then aspiration gets deleted from first consonant i.e. end of first syllable e.g. /ləʈʰ.t̪ʰən/ becomes [ləʈʰ.t̪ʰən] but there are a few exception to this rule. Line 12 and 24 of Table B4 (Appendix B), /d̪ʊkʰ.kʰi/ becomes [d̪ʊ.kʰi] and [məʈʰ.t̪ʰa] becomes /ma.ʈʰa/. In second case compensatory lengthening of the vowel /ə/ takes place after the deletion of the whole segment /t̪ʰ/.

Dissimilation occurs in following context

- If the word has same aspirated consonant at onset and coda of first syllable then the aspiration gets deleted at coda e.g. /d̪ʒʰəd̪ʒʰ.ri/ becomes [d̪ʒʰəd̪ʒ.ri]. There is an exception to this rule. Line 8 of Table B5 (Appendix B), /kʰokʰ.la/ becomes [kʰo.kʰla] by re-syllabification.
- If both aspirated consonant are voiced and they lie syllable initially in adjacent syllable then aspiration gets deleted from consonant in second syllable even if reduplication is there e.g. /d̪ʒʰn.d̪ʒʰəʈʰ/ becomes [d̪ʒʰn.d̪ʒʰəʈʰ]. It contradicts early work, in which it was stated that aspiration doesn't dissimilate in case of reduplication
- If both aspirated consonant are un-voiced and they lie syllable initially in adjacent syllable then aspiration does not dissimilate if reduplication is there e.g. [pʰəʈ.pʰə.ʈa.na] remains same but if the consonant at coda position of first syllable is not sonorant then aspiration dissimilates.

- In rest of the cases it gets deleted.

Another interesting observation was that when a voiced aspirated consonant occurs syllable initially in the first syllable and the same voiced un-aspirated consonant occurs syllable initially in adjacent syllable, the feature of voicing disappears from the un-aspirated consonant. Its possible explanation is the fact that there is a period of voicelessness after the articulation of stop, during this period a burst of air comes out in aspirated stops and this voicelessness assimilates to the next segment e.g. /bʰə.bək/ becomes [bʰə.pək], /d̪ʒʰɪ.d̪ʒək/ becomes /d̪ʒʰɪ.t̪ʰək/ etc. It is open for further experimentation.

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APPENDIX A

IPA	Letter	IPA	Letter
p ^h		q ^h	
b ^h		k ^h	
t ^h		g ^h	
d ^h		tʃ ^h	
ʈ ^h		dʒ ^h	

APPENDIX B

Table B1: Data point to verify correctness of Rule 1.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	ʈ ^h əʈ ^h	ʈ ^h əʈ	Crowd
2	ʈ ^h aʈ ^h	ʈ ^h aʈ	Splendor
3	ʈ ^h əʈ ^h	ʈ ^h əʈ	Pure
4	ʈ ^h ʊnʈ ^h	ʈ ^h ʊnʈ	Leafless branch
5	dʒə̌dʒ ^h	dʒə̌dʒ	Heat
6	tʃ ^h atʃ ^h	tʃ ^h atʃ	Dilute curd
7	tʃ ^h ja.səʈ ^h	tʃ ^h ja.səʈ	Sixty six

Table B2: Data point to verify correctness of Rule 2.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	ʊʈ ^h .ʈ ^h əl	ʊ.ʈ ^h əl	Shallow
2	əʈ ^h .ʈ ^h a	ə.ʈ ^h a	Eight (at cards)
3	əʈ ^h .ʈ ^h a.ra	ə.ʈ ^h a.ra	Eighteen
4	əʈ ^h .ʈ ^h a.vən	ə.ʈ ^h a.vən	Fifty eight
5	ətʃ ^h .tʃ ^h a	ə.tʃ ^h a	Good, sound, pleasing
6	ʊtʃ ^h .tʃ ^h u	ʊ.tʃ ^h u	Suffocation
7	əd ^h .d ^h a	ə.d ^h a	Half a bottle
8	ʊd ^h .d ^h əm	ʊ.d ^h əm	Noise, turmoil, disturbance
9	əd ^h .d ^h i	ə.d ^h i	Old coin equivalent to half "damri"

Table B3: Data point to verify correctness of Rule 3.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	bud ^h .d ^h u	bud.du	Simpleton, fool
2	bud ^h .d ^h a	bud.da	Old man
3	bəg ^h .g ^h i	bəg.gi	Carriage
4	geb ^h .b ^h a	geb.ba	Carpet with patched pattern

Table B4: Data point to verify correctness of Rule 4.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	bɪtʃ ^h .tʃ ^h u	bɪtʃ.tʃ ^h u	Scorpion
2	pɛt ^h .t ^h er	pɛt.t ^h er	Stone
3	pɛt ^h .t ^h a	pɛt.t ^h a	Young person
4	pʊt ^h .t ^h a	pʊt.t ^h a	Buttock
5	pɪt ^h .t ^h u	pɪt.t ^h u	Stooge
6	pɛt ^h .t ^h e	pɛt.t ^h e	Muscles
7	pɛtʃ ^h .tʃɐm	pɛtʃ.tʃɐm	Western
8	tʃɛt ^h .t ^h a	tʃɛt.t ^h a	Skin spot
9	tʃɪt ^h .t ^h a	tʃɪt.t ^h a	Pay roll
10	tʃɪt ^h .t ^h i	tʃɪt.t ^h i	Letter
11	dək ^h .k ^h en	dək.k ^h en	South
12	dʊk ^h .k ^h i	dʊ.k ^h i	Sad
13	kɛt ^h .t ^h a	kɛt.t ^h a	Catechu
14	gʊp ^h .p ^h a	gʊp.p ^h a	Bunch
15	gʊt ^h .t ^h i	gʊt.t ^h i	Complication
16	gɛt ^h .t ^h a	gɛt.t ^h a	Bundle
17	lɛtʃ ^h .tʃ ^h a	lɛtʃ.tʃ ^h a	Skein
18	lɛtʃ ^h .tʃ ^h en	lɛtʃ.tʃ ^h en	Signs
19	mɪt ^h .t ^h u	mɪt.t ^h u	Talkative child
20	mɛtʃ ^h .tʃ ^h er	mɛtʃ.tʃ ^h er	Mosquito
21	mək ^h .k ^h en	mək.k ^h en	Butter
22	mɛ.lɛt ^h .t ^h i	mɛ.lɛt.t ^h i	Liquorices
23	mɛt ^h .t ^h a	ma.t ^h a	Slow
24	hɛt ^h .t ^h i	hɛt.t ^h i	Handle

Table B5: Data point to verify correctness of Rule 5.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	p ^h ɛp ^h .ɾa	p ^h ɛp.ɾa	Lungs
2	t ^h o ^h .ni	Remains same	Animals pointed mouth
3	t ^h ɛt ^h .t ^h a	t ^h ɛt.t ^h a	Laughter
4	dʒ ^h ʊndʒ ^h .la.na	dʒ ^h ʊndʒ.la.na	Irritated
5	dʒ ^h ɛdʒ ^h .ri	dʒ ^h ɛdʒ.ri	Small earthen flask
6	tʃ ^h ɪtʃ ^h .la	tʃ ^h ɪtʃ.la	Shallow
7	tʃ ^h ɪtʃ ^h .ɾa	tʃ ^h ɪ.tʃ ^h ɛ.ɾa	Skinny part of flesh
8	k ^h ok ^h .la	k ^h o.k ^h la	Hollow
9	g ^h ag ^h .ra	g ^h ag.ra	Long skirt

APPENDIX C

Table C1: Data point to verify correctness of Rule 6.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	b ^h a.b ^h er	b ^h a.bər	A kind of plant yielding fiber for bed strings.
2	b ^h ɑ.b ^h i	b ^h ɑ.bi	Sister in law
3	b ^h ə.b ^h uṭ	b ^h ə.buṭ	Ashes
4	b ^h ur.b ^h u.ra	b ^h ur.bu.ra	Crisp
5	b ^h uɾ.b ^h u.ra.na	b ^h uɾ.bu.ra.na	Sprinkle
6	b ^h er.b ^h ənd̪	b ^h er.bənd̪	Upset
7	b ^h ər.b ^h ə.ɾa.na	b ^h ər.bə.ɾa.na	Play or beat tabla
8	b ^h ər.b ^h ũ.dʒa	b ^h ər.bũ.dʒa	One whose trade is parch grain
9	b ^h ən.b ^h oɾ.na	b ^h ən.boɾ.na	Gnaw
10	b ^h ɪn.b ^h ɪ.na.na	b ^h ɪn.bɪ.na.na	Buzz
11	dʒ ^h ā.dʒ ^h ən	dʒ ^h ā.dʒən	Anklet with small bells
12	dʒ ^h ɪr.dʒ ^h ɪ.ra	dʒ ^h ɪr.dʒɪ.ra	Flimsy
13	dʒ ^h ur.dʒ ^h u.ra	dʒ ^h ur.dʒu.ra	Shivering fit
14	dʒ ^h ər.dʒ ^h ə.ra.na	dʒ ^h ər.dʒə.ra.na	Shake suddenly
15	dʒ ^h əl.dʒ ^h ə.la.na	dʒ ^h əl.dʒə.la.na	Glisten
16	dʒ ^h əm.dʒ ^h ə.ma.na	dʒ ^h əm.dʒə.ma.na	Glitter
17	dʒ ^h n.dʒ ^h ət̪ ^h	dʒ ^h n.dʒət̪ ^h	Trouble
18	dʒ ^h ən.dʒ ^h oɾ.na	dʒ ^h ən.dʒoɾ.na	Shake to rouse
19	dʒ ^h un.dʒ ^h una	dʒ ^h un.dʒuna	Rattle
20	dʒ ^h un.dʒ ^h un.ja	dʒ ^h un.dʒun.ja	Fetters
21	dʒ ^h ən.dʒ ^h i	dʒ ^h ən.dʒi	Broken at top
22	ɖ ^h ug.ɖ ^h u.gi	ɖ ^h ug.ɖu.gi	Anxiety
23	g ^h ən.g ^h or	g ^h əŋ.gor	Dark cloud
24	g ^h uŋ.g ^h ət	g ^h ũ.get	Veil
25	g ^h ō.g ^h a	g ^h ō.ga	Couch shell

Table C2:

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	p ^h er.p ^h ən.ɖi	Remains same	Tricky
2	p ^h ər.p ^h ə.ɾa.na	Remains same	Flutter
3	p ^h us.p ^h u.sa	Remains same	Spongy
4	p ^h ən.p ^h ə.na.na	Remains same	Spread the hood and hiss
5	t ^h ər.t ^h ə.ra.na	Remains same	Shake
6	t ^h ər.t ^h ə.ri	Remains same	Vibration
7	ʃ ^h ən.tʃ ^h ə.na.hət̪	Remains same	Tinkle of small bells
8	k ^h ɪl.k ^h ɪ.la.na	Remains same	Giggle
9	k ^h ən.k ^h ə.na	Remains same	Cracked
10	k ^h ɪn.k ^h ɪ.na.na	Remains same	Wail with a nasal sound

Table C3: Data point to verify correctness of Rule 7.

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	p ^h et.p ^h ə.ɬa.na	p ^h et.pə.ɬa.na	Move wings rapidly
2	ɬ ^h uk.ɬ ^h u.ka.na	ɬ ^h uk.ɬu.ka.na	Hate
3	k ^h et.k ^h ə.ɬa.na	k ^h et.kə.ɬa.na	Knock

Table C4:

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	p ^h ə.p ^h o.la	p ^h ə.po.la	Blister
2	p ^h ə.p ^h ō.ɖi	p ^h ə.pō.ɖi	Mould
3	p ^h up.p ^h i	p ^h up.pi	Aunt
4	ɬ ^h u.ɬ ^h a.na	ɬ ^h u.ɬa.na	Pout
5	ɬ ^h ɪ.ɬ ^h er.na	ɬ ^h ɪ.ɬer.na	Shiver
6	ɬ ^h ɪ.ɬ ^h ek.na	ɬ ^h ɪ.ɬek.na	Come to sudden stop
7	ɬ ^h ə.ɬ ^h ol	ɬ ^h ə.ɬol	Ridicule
8	ɬ ^h ə.ɬ ^h ə.ra	ɬ ^h ə.ɬə.ra	Seller of vessels
9	ɬ ^h ɪ.ɬ ^h el.na	ɬ ^h ɪ.ɬel.na	Fly past with just a touch
10	ɬ ^h ə.ɬ ^h ū.ɖer	ɬ ^h ə.ɬū.ɖer	Mole
12	ɬ ^h ə.ɬ ^h o.ra	ɬ ^h ə.ɬo.ra	Childish
13	ɬ ^h u.ɬ ^h ek	ɬ ^h u.ɬek	A ceremony
14	k ^h ə.k ^h er	k ^h ə.ker	Vain
15	k ^h en.k ^h ar.na	k ^h en.kar.na	Clear the throat
16	k ^h o.k ^h a	Remains same	Stall

Table C5:

No	Phonemic Transcription	Phonetic Transcription	Meaning in English
1	b ^h a.k ^h a	b ^h a.ka	Dialect
2	p ^h ul.dʒ ^h ə.ɬi	p ^h ul.dʒə.ɬi	Small fountain like fire work
3	dʒ ^h ə.ro.k ^h a	dʒ ^h ə.ro.ka	Window