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Phonological Analysis of /l/ in Different Environments in Najdi Arabic

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الملخص

تبحث هذه الدراسة في الاختلافات الصوتية للصوت لام /l/ في اللهجة العربية النجدية، حيث تدرس نوعين من هذا الصوت أحدهما بلعومي [l^h] والآخر حنكي [l^h]. ويُعنى البحث بدراسة خصائص صوت اللام الذي يلي أو يسبق الحروف اللهوية [χ, ʁ, q] والصوامت البلعومية [t^h, s^h, ð^h] ومن ثم مقارنة النتائج مع ما ناقشه فيرغسون (١٩٥٦) فيما يتعلق بالمواضع التي يمكن التنبؤ بها للصوت المفخم [l^h] في اللغة العربية والذي يأتي قبل أو بعد الصوامت المفخمة وبعد الأصوات اللهوية، ولقد أظهرت نتائج الدراسة (١) أن الصامت الحنكي [g] والصوامت اللهوية، والصوامت البلعومية تنشر سماتها الصوتية لتؤثر على صوت اللام /l/ في اللهجة العربية النجدية، (٢) أن الصوامت اللهوية والحنكية هي تنوعات صوتية حرّة ، (٣) يقتصر تأثير انتشار الصفة اللهوية للصوت لام على الصوامت اللهوية الاحتكاكية فقط دون غيرها محدثةً الصوت [l^h] وذلك بسبب توسع مخرجها للهويّ، أما صامت الوقف للهويّ /q/ فهو لا يؤثر على صوت اللام على خلاف نظيره الحلقى /g/. كما توصلت الدراسة إلى أن الصوامت المفخمة تنشر سماتها البلعومية إلى اليمين واليسار لتؤثر على صوت اللام مما يؤدي إلى تفخيمه [l^h]، غير أن هذا الانتشار اختياري.



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Abstract

This study investigates the phonetic variations of lateral /l/ in Najdi Arabic. Two lateral varieties are considered: pharyngealized [l^ʕ] and velarized [ɫ]. Data of /l/ following and/or preceding uvulars [χ, ʁ, q], and pharyngealized consonants [t^ʕ, s^ʕ, ð^ʕ] are observed. Results are then compared to what has been discussed in Ferguson (1956) regarding the predictable environments for emphatic [l^ʕ] in Arabic: before or after emphatic consonants, and after uvulars. Results show that: 1) uvulars, velar [g], and pharyngealized consonants spread their features to affect lateral /l/ in Najdi. 2) Uvulars and velars are in free variation, and 3) only fricative uvulars spread uvularization to /l/ resulting in [ɫ]. Uvular stop /q/, on the other hand, does not spread uvularization to laterals, instead its velar counterpart /g/ does. Pharyngealized consonants are found to spread pharyngealization both rightward and leftward to /l/ resulting in [l^ʕ]. Interestingly, this spread is optional.

Keywords: Najdi Arabic, pharyngealization, phonetic variation, phonology, uvularization

The effect of spreading of two important phonological processes; namely pharyngealization and uvularization, on the alveolar lateral approximant /l/ in Najdi Arabic is the main focus of this paper. No study, at least to my knowledge, has been conducted on the effect of pharyngealization and uvularization spread on adjacent consonants, particularly laterals in Najdi. This study aims to fill a gap within the study of Arabic Phonology by presenting an analysis of possible environments that can cause such spread in Najdi. The purpose is to document some new and specific features of Najdi Arabic by observing words that include pharyngealized and uvular consonants in their roots.

There has been a heated debate about the distinction between the two phonological processes: pharyngealization and uvularization. As a result, it is important to present a side of the argument and show the agreed upon distinction between the two phonological processes before addressing the main issue of this study.

Some linguists group these processes along with others, such as velarization and glottalization, under the term *Emphasis*. There are many different definitions for emphasis in the literature. A detailed one is found in Lehn (1963):

Emphasis is the co-occurrence of the first and one or more others of the following articulatory features: (1) slight retraction, lateral spreading, and concavity of the tongue and raising of its back (more or less similar to what has been called velarization), (2) faucal and pharyngeal constriction (pharyngealization), (3) slight lip protrusion or rounding (labialization), and (4) increased tension of the entire oral and pharyngeal musculature resulting in the emphatics being noticeably more fortis than the plain segment. (pp. 30–31)

Moreover, Hoberman (1995) explains that emphasis is found in most Semitic languages including Arabic. He defines emphasis as a phonological feature that is realized sometimes as pharyngealization, glottalization, uvularization, or velarization.

McCarthy (1994), on the other hand, argues that there is a difference between emphatics and pharyngealized consonants. He shows that both emphatics and pharyngealized consonants require a constriction in the upper pharynx, but unlike emphatics, pharyngealized consonants are affected by some back segments (uvulars, such as [q], [χ], and [ʕ]), and thus should be called uvularized.

Similarly, Zawaydeh (1997), in her study of uvularization spread in Ammani-Jordanian Arabic, uses the term *uvularized* consonants to refer to pharyngealized consonants like [s^ʕ, t^ʕ, d^ʕ] and *uvulars* to refer to uvular consonants such as [ʁ, χ, q]

One thing that is definite, however, is that both processes; pharyngealization and uvularization, involve a constriction in the pharynx. It is the part where constriction occurs that highlights the difference between the two processes.

Some linguists differentiate between the two categories (namely pharyngealized consonants and uvulars) by observing their effect on adjacent vowels and segments. Specifically, they look at the values of the first and second formants; F1 and F2, of the following vowels and sonorants. They found that pharyngealized consonants cause a drop in the value of F2 in vowels and sonorants in general, and a raise in the value of F1 in the segments that are affected by the spread. Uvulars, on the other hand, were also found to cause a drop in the F2 values of the affected segments, but the drop was weaker compared to the pharyngealization spread effect (Ghazeli, 1977; Herzallah, 1990; Younes, 1983).

Other linguists, show the difference between the two phonological processes by observing the co-occurrence of primary and secondary articulators involved in their

production. Davis (1993,1995) introduces the feature *Retracted Tongue Root* [RTR] that is only found in pharyngealized and uvular consonants. He claims that in pharyngealized consonants, this feature is realized as a secondary feature while in uvulars it is the primary feature.

Al-Ani (2014), Ghazeli (1977), and Herzallah (1990), also address the issue of primary and secondary articulations where they claim that pharyngealized consonants undergo a retraction of the tongue back as a secondary feature accompanying primary articulation somewhere in the vocal tract. Contrary to pharyngealized consonants, uvulars experience a retraction of the tongue root. They also agree that both categories have something in common which is the articulator 'uvula'. This articulator is the secondary articulator for pharyngealized consonants, and the primary one for uvulars.

Due to the involvement of two articulators in the production of pharyngealization and uvularization: the dorsum and the pharynx, various features are proposed to account for the difference. Herzallah (1990) suggests the features [DORSAL] and [PHARYNGEAL] to refer to pharyngealization. Other features include [+LOW, +BACK] (Chomsky & Halle, 1968), [+CONSTRICTED PHARYNX] (McCarthy,1986), and [RTR] (*Retracted Tongue Root*) (Davis, 1993,1995).

For the purpose of this study, the feature *pharyngealization spread* is used to describe the allophonic pharyngealized [l^ʕ] after pharyngealized consonants [t^ʕ],[s^ʕ], and [ð^ʕ], and the feature *uvularization spread* is used to describe the allophonic velarized [ɮ] following or preceding uvular consonants such as [χ],[ʁ] and [q].

Literature Review

Pharyngealized and velarized lateral, [l^ʕ] and [ɮ], respectively, have been described as allophonic varieties of the phoneme /l/ in the phonology of Classical Arabic and most dialects (Ferguson, 1956). Although, some arguments arose regarding the possibility of treating the pharyngealized lateral as a separate phoneme, the fact that there are expected environments where the pharyngealized sound occurs along with the absence of real minimal pairs, all indicate that [l^ʕ] is just an allophone of the phoneme /l/ in Najdi. Ferguson (1956) sheds light on three possible environments where the pharyngealized [l^ʕ] appears: The first environment is when Arabic pharyngealized consonants [s^ʕ], [d^ʕ], [t^ʕ], and [ð^ʕ] exist in a word. The second environment is associated with the different forms of the word 'God' [ʔalʕlʕah]. The last environment in Ferguson's study is what he describes as an unexpected environment such as with the uvulars [χ, ʁ, q], or in borrowed words. The same environments have been reported in other studies such as in Elshafei (1991) where he observes Modern Standard Arabic and Classical Arabic, as well as in Shar and Ingram (2010) in their study of Asiri, a Saudi dialect.

Interestingly, McCarthy (1994) explains that some segments have a similar emphasis effect, and he describes them as guttural phonemes. These include: pharyngealized consonants [s^ʕ], [d^ʕ], [t^ʕ], [ð^ʕ], the uvulars [χ], [ʁ], [q], and the velar [g]. This might explain the unexpected environment described by Ferguson (1956) in which pharyngealized [l^ʕ] occurs after uvulars.

In a description of such phenomenon, Norlin (1985) explains that when pharyngealization occurs, it can spread to adjacent sounds or syllables. He refers to such process as the *feature-spread effect* and concludes that this effect is mostly noticed on following and preceding vowels that are adjacent to the pharyngealized consonant. Moreover, Davis (1993) discusses pharyngealization spread and notes that when a word includes a

pharyngealized phoneme, neighbouring sounds get affected and become pharyngealized too. He further elaborates that dialects differ regarding the extent to which these neighbouring sounds are affected. In his study, he examines Cairene Arabic, a dialect spoken in Egypt, and concludes that when a pharyngealized segment occurs, the entire phonological word is produced as completely pharyngealized.

Moreover, Almasri and Jongman (2004) study the effect of pharyngealization on Arabic vowels and they conclude that such effect cannot be spread to all vowels; instead, it is mostly associated with the central vowel [a] not the other two vowels, [i] and [u], of Arabic. This is compatible with what has been found in Najdi when the three vowels [a], [i], and [u] occurring after pharyngealized consonants were examined and acoustically measured. Results are presented in Figure 1, Figure 2, and Figure 3 in the following section.

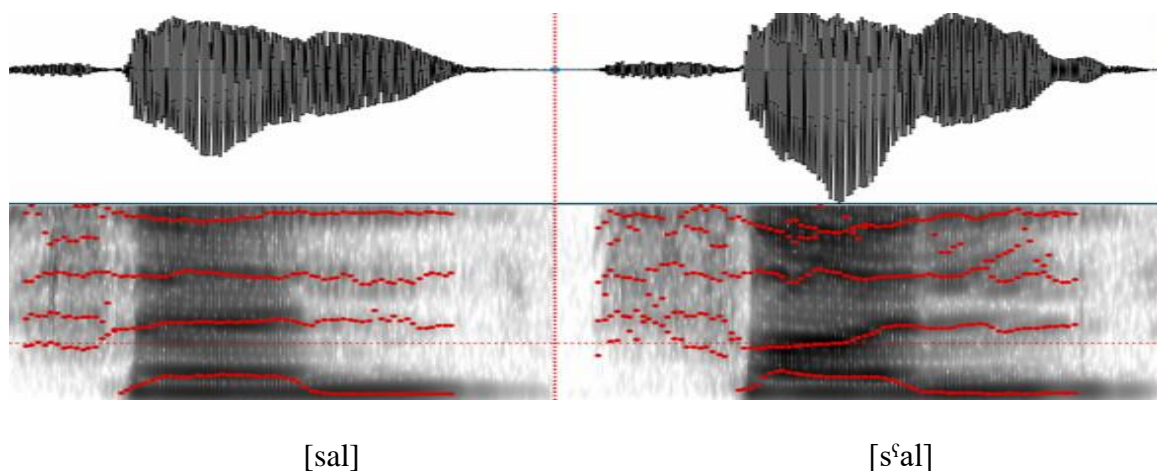
The pharyngealization effect reported in Ferguson (1956) and McCarthy (1994) not only involves the effect of pharyngealization on the central vowel [a], but also on /l/ resulting in [l^h]. Ferguson (1956) also suggests that the effect of pharyngealization that results in changing the low central vowel [a] to the low back vowel [ɑ] could account for the distinction of [l] and [l^h] since [ɑ] always precedes the pharyngealized [l^h]. McCarthy (1994) also includes, in his study, that there is a back variant of [a] when immediately following or preceding the pharyngealized consonants [s^h], [d^h], [t^h], and [ð^h], the uvulars [χ], [ʁ] and [q], and the velar [g]. Interestingly, these same environments are what have been found to change the lateral /l/ to be emphatic in Najdi.

The Effect of Pharyngealization Spread on Following Vowels [a], [i], and [u]

In an attempt to test the validity of Almasri and Jongman (2004) findings regarding their conclusion that emphasis in Arabic is mostly associated with the central vowel [a], not the other two vowels [i] and [u], I recorded myself producing all three vowels of Najdi [a], [i], and [u] following pharyngealized consonants. A discussion of each vowel is presented below:

Figure 1

The Effect of Plain and Pharyngealized Consonants [s] vs. [s^h] on the Low Central Vowel [a] on Monosyllabic C^hVC Words: [sal] ‘tuberculosis’ vs. [s^hal] ‘pray’



The effect of voiceless pharyngealized alveolar fricative [sʕ] on this particular vowel is very much noticeable on the lowering of its F2 values as shown in the second part of Figure 1. Results show a clear lowering of F2 values when the pharyngealized consonant [sʕ] precedes the vowel [a] in CʕaC. The exact values of all vowels involved are listed in Table 1 below.

Table 1

(F1) and (F2) Values of Monosyllabic Words of Najdi Arabic

Monosyllabic words	F1(Hz)	F2(Hz)
[sal]	607	2041
[sʕal]	715	1448
[ti:n]	375	2638
[tʕi:n]	436	2651
[tu:b]	496	1130
[tʕu:b]	504	1070

Results support what other linguists conclude in their studies about the effect that emphatic consonants have on adjacent vowels, syllables or sometime the entire word (Almasri & Jongman, 2004; Alesh, 1987; Davis, 1993; Watson, 1999).

Figure 2 and Figure 3 below present minimal pairs of the forms CaC and CuC that are recorded and acoustically measured to examine the effect of emphatic consonants on the adjacent high front and high back vowels, [i] and [u] respectively. Results show that emphasis has no effect on these two vowels as both values of F2 reported are minimally affected.

Figure 2

The Effect of Plain and Pharyngealized Consonants [t] vs. [tʕ] on the High Front Vowel [i] in Monosyllabic CʕiC Words: [ti:n] ‘figs’ vs. [tʕi:n] ‘mud’

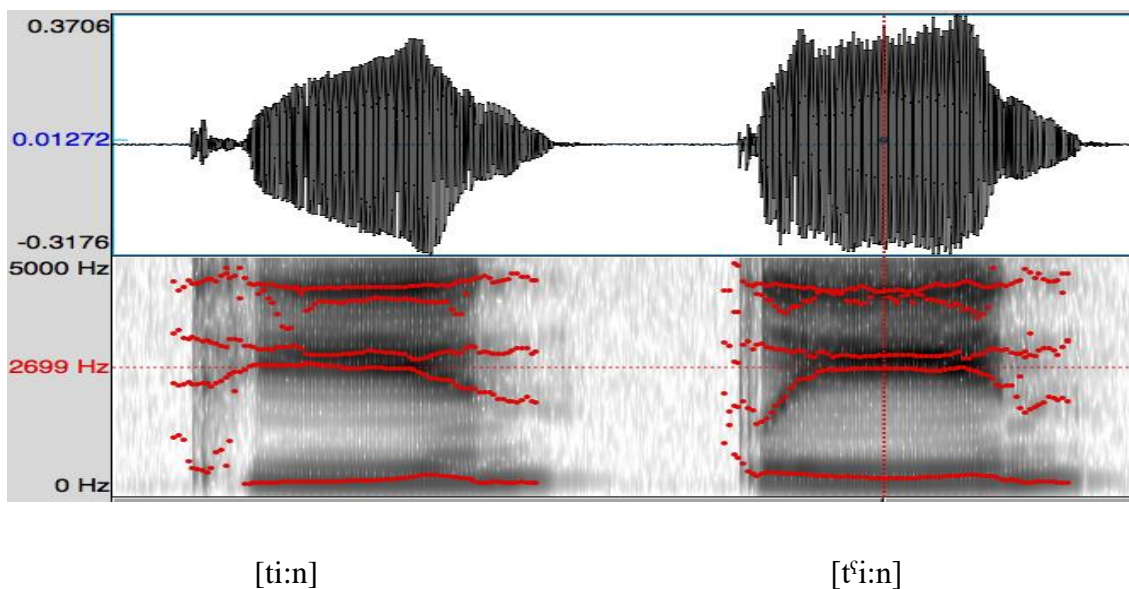
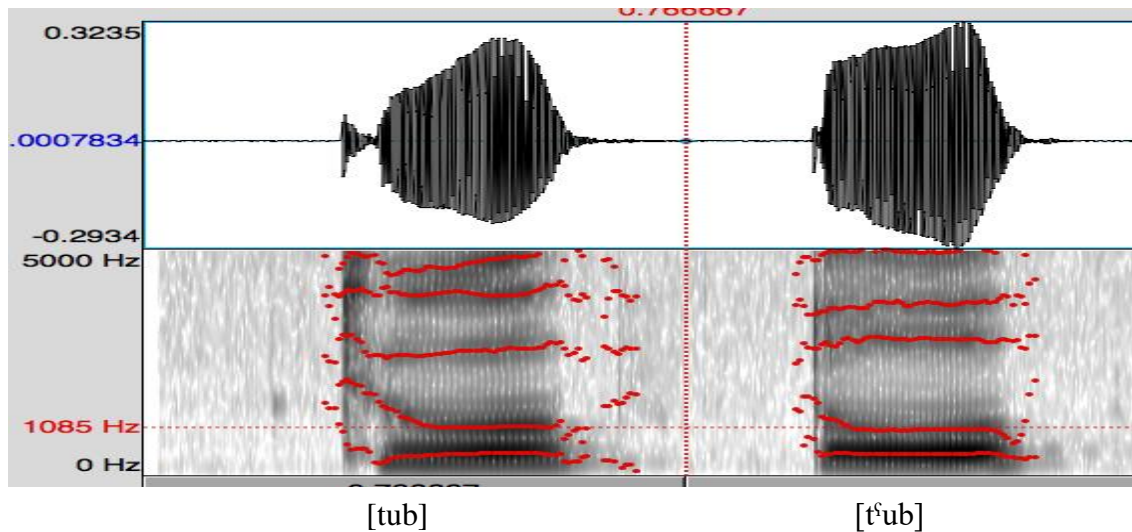


Figure 3

The Effect of Plain and Pharyngealized Consonants [t] vs. [tʕ] on the High Back Vowel [u] in Monosyllabic C^huC Words: [tu:b] ‘repent’ vs. [tʕu:b] ‘brick’



Although pharyngealization does not spread to affect the adjacent vowels [i] and [u] completely, it is worth noting that the onset of these vowels is minimally affected by this possible spread. In the second part of Figure 2, a drop of F2 values is noticed at the beginning of the vowel onset. Due to the absence of such drop in the first half of the spectrogram where the plain [t] is involved, it is highly suggested that such drop exists as a result of a pharyngealization effect when the pharyngealized [tʕ] precedes the vowel [i]. Note though that such effect does not last long as the F2 resumes its steady status afterwards reflecting no strong effect on this vowel compared to [a].

Similarly, the second part in Figure 3 also shows a pharyngealization effect at the beginning of the vowel onset where a drop of F2 values occurs. However, this drop is relatively weaker compared to the first part of the spectrogram where the plain [t] precedes the high back vowel [u].

Acoustic analysis of these three spectrograms shows that pharyngealization is highly associated with the production of the low back vowel [a], which is similar to what other linguists found. Furthermore, such pharyngealization spread is also noticed on other vowels, but unlike the vowel [a], the effect of pharyngealization on adjacent [i] and [u] is only noticed at the beginning of the vowel onset as a minor lowering of its F2 values, then the F2 resumes its steady status.

Language Inventory

Najdi dialect is one of many other dialects that are spoken in Riyadh, Saudi Arabia, and there are different varieties of Najdi depending on the region where it is spoken. These varieties are Northern Najdi, Central Najdi, and Southern Najdi. Central Najdi spoken by Najdi people residing in Riyadh is the focus of this paper. Najdi consists of twenty-seven consonants whose place and manner of articulation are indicated in the table below:

Table 2*Najdi Consonant Inventory chart [based on Najdi Dialect]*

	Bilabial	Labiodental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosives	b			t d			k g q			ʔ
Pharyngealized				t ^ħ						
Nasal	m			n						
Fricative		f	θ ð	s z	ʃ			χ ʁ ħ	ʕ	h
Pharyngealized			ð ^ħ	s ^ħ						
Tap				ɾ						
Lateral				l						
Approximant	w					j	w			

Three emphatic consonants [t^ħ] [s^ħ], and [ð^ħ] along with their plain counterparts [t], [s], and [ð] are found in the inventory of Najdi.

Traditionally, Arabic has been known as *Lughat Al- d^ħaad* (the language of d^ħaad), which stands for the letter *d^ħaad*, the voiced pharyngealized dento-alveolar stop [d^ħ]. The significance of this term is because Arabs believe that pharyngealization is a unique characteristic that marks their language and is rarely found across other languages (Alosh, 1987). However, this unique voiced pharyngealized dento-alveolar stop [d^ħ] is absent in the Najdi inventory. As a result, words that contain this sound in Standard Arabic are produced with the voiced dental pharyngealized fricative [ð^ħ] instead. For example, the word ‘lost’ is [d^ħaʕ] in Standard Arabic but [ð^ħaʕ] in Najdi (Ingham, 1994).

The Study

Two allophonic variations of lateral /l/ are examined in Najdi; velarized and pharyngealized /l/ and /l^ħ/, respectively. Environments that might trigger their existence are examined in this paper. Uvular consonants are expected to cause uvularization spread that affects the lateral /l/ and add the feature [+VELAR] to it. Similarly, pharyngealized consonants are expected to spread pharyngealization to adjacent segments including /l/ and add the feature [+PHARYNGEAL] to it. This can be better shown using *Autosegmental Theory*. In the following example, the lateral /l/ acquires the feature [+PHARYNGEAL] through feature spreading of the preceding pharyngealized consonant [s^ħ].

(c) But:

*ɣa:hi

*ɣaɭajah

*ɣɭab

*ɣlaðˤ

*ɣalatˤ

(d) No *spread*:

ɣulam ‘boy’

ɣu:l ‘monster’

Data in 3(a) show that the voiced uvular fricative /ɣ/ and the voiced velar fricative /ɣ/ are in free variation in Najdi provided that both phonemes occur in the same environment: word initially and before a low central vowel /a/. Najdi is not the only dialect where the two categories: velars and uvulars, interfere. Herzallah (1990) reports that in certain dialects of Arabic, namely Cairene Arabic and Northern Palestinian Arabic, the two uvulars /χ/ and /ɣ/ are recognized as velars [x] and [ɣ] rather than uvulars.

Examples in 3(b) show that plain lateral /l/ is only allowed to occur before or after the velar fricative /ɣ/, but never before or after the uvular /ɣ/. A violation to these two environments leads to unpronounceable forms as in 3(c).

Data also show a *feature-spread effect* introduced by Norlin (1985) where the coronal uvular fricative /ɣ/ spreads the feature of uvularization to the adjacent vowel and lateral adding the feature [+VELAR] to the lateral /l/ changing it from being a plain /l/ to a velarized [ɬ]. This is what Ferguson (1956) describes as the unexpected environment where uvulars trigger the environment of a velarized [ɬ].

Note that the last two examples of 3(b): [ɣaɭatˤ] and [ɣalatˤ], show that the uvular fricative /ɣ/ is what causes /l/ to be velarized by spreading uvularization rightward, not the pharyngealized alveolar stop /tˤ/ considering that plain [l] occurs before [tˤ] in [ɣalatˤ].

Finally, data in 3(d) prove that the uvularization spread is blocked by the two vowels [i] and [u] as plain /l/ occurs following /ɣ/.

(4) The voiceless uvular fricative /χ/:

(a) Pronunciation variants:

χaɭi ‘uncle’

xali ‘uncle’

(b) Examples:

xal ‘vinegar’

xa:li ‘empty’

χaɭasˤ ‘finished’

xallasˤ ‘finished’

χaɭaf ‘came after’

χaɭasˤ ‘finished’

(c) But:

*xaɮ

*xa:ɬi

*χalaf

(d) No spread:

χil	‘lover’
χulasʕah	‘summary’
χilal	‘through’
χuluq	‘manners’

Similar to the uvular /ɤ/, data in 4(a) show that the voiceless uvular fricative /χ/ and the voiceless velar fricative [x] are in free variation in Najdi as their environments are overlapping; both occur word initially and before a central vowel [a]. Note that for the word ‘uncle’ in 4(a), [χaɬi] and [xali], both the velar [x] and uvular [χ] are used to indicate the same meaning, however, the use of one over the other requires spreading of the uvularization feature to affect the lateral /l/ resulting in [ɬ].

Examples in 4(b) show that plain lateral /l/ is only allowed to occur before or after the velar fricative /x/, but never before or after the uvular /χ/. A violation of these two environments leads to unpronounceable forms as in 4(c). Examples in 4(d) again show no uvularization spread to /l/ when the two vowels [i] and [u] are involved.

Generally, the velarized variety of the lateral [ɬ] is associated with the uvular consonants /ɤ/ and /χ/ while the plain variety is associated with the velars /ɣ/ and /x/. Besides the difference in the place of articulation of these two consonants, uvulars have the feature [+RTR] as the primary articulator while velars do not (Davis, 1993,1995). This could explain why only uvulars trigger such emphasis spread.

(5) The voiceless uvular fricative /q/:

(a) Pronunciation variants:

qa:lib	‘module’
ga:ɬib	‘module’

(b) Examples:

qalɕah	‘castle’
gɬu:b	‘hearts’
gaɬam	‘pen’
ga:ɮ	‘he said’
qalil	‘few’

s ^ʕ al ^ʕ b	‘solid’
s ^ʕ al ^ʕ a:l ^ʕ ah	‘name of a city’
l ^ʕ as ^ʕ g	‘tape’
s ^ʕ al ^ʕ ah	‘living room’
s ^ʕ al ^ʕ a:h	‘righteousness’
s ^ʕ al ^ʕ a:h	‘prayer’
s ^ʕ al ^ʕ un	‘barber shop’
s ^ʕ al ^ʕ iħ	‘good person’

(c) No spread:

!s ^ʕ ali:b	‘cross’
!s ^ʕ alb	‘solid’
!s ^ʕ ala:lah	‘name of a city’
!las ^ʕ g	‘tape’
os ^ʕ u:l	‘roots’
as ^ʕ i:l	‘original’
s ^ʕ amil	‘certain’
s ^ʕ ajil	‘angry’

The existence of a minimal pair as in 6(a) clearly shows that the pharyngealized alveolar fricative [s^ʕ] is a distinct phoneme in Najdi. The effect of pharyngealization spreads from the pharyngealized consonant to affect other adjacent consonants by adding the feature [+PHARYNGEAL] to them. Examples in 6(b) show that pharyngealized [s^ʕ] spreads its pharyngealization effect both rightward and leftward resulting in [l^ʕ], which is described as [+PHARYNGEAL, LATERAL, APPROXIMANT, SONORANT].

Furthermore, some Najdi speakers would produce plain laterals after the pharyngealized fricative [s^ʕ]. Although this is acceptable in Najdi, it is not preferred and this is why some examples in 6(c) are marked with an exclamation mark. The last two examples in 6(c) show that the two vowels [i] and [u] block the pharyngealization spread, thus we have plain /l/ instead of [l^ʕ].

None of the previous studies, at least to my knowledge, tackle the issue of optional pharyngealization spread after pharyngealized consonants. Other pharyngealized consonants need to be observed to see if this optionality in spreading is generalized over all pharyngealized segments in Najdi or unique to the voiceless pharyngealized alveolar fricative [s^ʕ]. This might also justify why a plain /l/ is allowed to precede the pharyngealized [s^ʕ] in the word [xallas^ʕ] ‘finished’ in the data of the voiceless uvular fricative /χ/.

(7) The voiced pharyngealized dental fricative /ð^ʕ/

(a) Minimal Pairs:

ð ^ʕ al ^ʕ	‘got lost’
ðal	‘humiliated’
ð ^ʕ aɤ	‘got lost’

ðaɤ	‘became popular’
ð ^ɣ am	‘hugged’
ðam	‘vilified’
(b) Examples:	
ð ^ɣ a:l ^h im	‘unfair’
ð ^ɣ al ^h	‘lost’
ð ^ɣ l ^h uɤ	‘ribs’
ð ^ɣ al ^h a:m	‘darkness’
(c) No spread	
!ð ^ɣ a:lim	‘unfair’
!ð ^ɣ al	‘lost’
!ð ^ɣ luɤ	‘ribs’
!ð ^ɣ ala:m	‘darkness’
nuð ^ɣ u:l	‘envious’
ð ^ɣ ilɤ	‘a rib’

The minimal pairs in 7(a) show that the voiced pharyngealized dental fricative [ð^ɣ] is a distinct phoneme in Najdi. The effect of pharyngealization spreads from the pharyngealized consonant to affect other adjacent consonants including /l/ by adding the feature [+PHARYNGEAL] to it. Examples in 7(b) clearly show that pharyngealized /ð^ɣ/ spreads pharyngealization effect to /l/ resulting in [l^h].

Similar to [s^ɣ], production of plain /l/ after pharyngealized /ð^ɣ/ is allowed, but not preferred as shown in 7(c). The last two examples in 7(c) prove that pharyngealization spread is blocked by the two high vowels [i] and [u].

(8) The voiceless pharyngealized alveolar stop [t^ɣ]

(a) Minimal Pairs:

t ^ɣ al ^h	‘he took a glance’
tal	‘hill’
t ^ɣ il	‘take a glance’
til	‘pull up someone very quick’

(b) Examples:

t ^ɣ al ^h ab	‘request’
t ^ɣ al ^h fah	‘glance’
l ^h at ^ɣ if	‘nice’
t ^ɣ al ^h ib	‘student’
t ^ɣ al ^h iq	‘divorce term’
t ^ɣ al ^h aq	‘aimed’
t ^ɣ al ^h iɤ	‘went outside’

(c) No spread	
!tʕalab	‘request’
!tʕallah	‘glance’
!latʕif	‘nice’
tʕu:l	‘length’
banatʕil	‘trousers’

Similar to the other two pharyngealized consonants, pharyngealization is spreading both rightward and leftward to /l/ resulting in [lʕ]. Examples in 8(c) show that just like the other pharyngealized consonants, plain /l/ after pharyngealized [tʕ] is allowed, but not preferred. The last two examples in 8(c) show that no spreading takes place when the high front vowel [i] and the high back vowel [u] follow the pharyngealized consonant and precede the lateral /l/; i.e, these two vowels block such spread.

General Discussion

Ferguson (1956) discusses three possible environments where the emphatic /l/ appears in Arabic: The first environment is when Arabic emphatic consonants [sʕ], [dʕ], [tʕ], and [ðʕ] exist in a word. The second environment is what he describes as an unexpected environment such as with the uvulars [χ, ʁ, q], or in borrowed words. The last environment is associated with the different forms of the word God [ʔalʕʕah]. Only the first two environments are compared to the results of this study. Due to the absence of the voiced dento-alveolar stop [dʕ] in Najdi, this consonant is eliminated.

Findings of this study show that similar to what Ferguson (1956) suggested, pharyngealized consonants and uvulars affect the lateral /l/ in Najdi. Results show that only uvular fricatives [χ] and [ʁ] are found to spread uvularization to /l/ resulting in [ɬ], but never the uvular stop /q/. Instead, the velar [g] does the spreading. A remarkable finding in this study is that uvulars and velars are in free variation in Najdi as their environments overlap with one another. Furthermore, the voiceless uvular stop /q/ is replaced by [g] in almost all instances where /q/ should appear in the language, with few exceptions.

Pharyngealized consonants [ðʕ], [sʕ], and [tʕ] are found to spread pharyngealization to laterals resulting in [lʕ] with a feature of [+PHARYNGEAL]. This is compatible with what Ferguson indicated in his study. However, the spreading is noticed to be optional in Najdi.

Conclusion

In summary, this study investigated the possible phonetic variations of the lateral /l/ in Najdi. Two varieties of /l/ were observed: the pharyngealized [lʕ] and velarized [ɬ]. Results show that uvulars and velars are in free variation in Najdi and that only fricative uvulars spread emphasis to laterals resulting in [ɬ]. The remaining uvular stop /q/ does not. Instead, its velar variant [g] causes such spread. Results also show that all Najdi pharyngealized consonants spread pharyngealization both rightward and leftward to lateral /l/ resulting in [lʕ]. Interestingly, this spread is optional in the dialect.

Bio

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