



3

Pharyngeals in Kurmanji Kurdish: A reanalysis of their source and status

Daniel Barry

Abstract: A noteworthy feature of a number of Western Iranian languages, including Kurmanji Kurdish, is the presence of contrastive pharyngeal sounds in inherited vocabulary. These pharyngeals are considered by many linguists working on Kurdish to be the result of contact with Arabic, coming into the language through Arabic loan vocabulary (Haig & Matras 2002). The Arabic contact source of these sounds seems likely, particularly given the fact that most of the Western Iranian languages which contain pharyngeals are in contact with Arabic at present or historically. However, as I demonstrate, the distribution of the majority of contrastive pharyngeals in inherited Iranian vocabulary in Kurmanji does not suggest a mere surface imitation of Arabic vocabulary, but a Kurmanji-internal phonological process modulated by familiarity with the phonetics of Arabic pharyngeals. A newly-identified sound pattern presented here is the association of what are arguably pharyngealized vowel phonemes in Kurmanji with pre-existing labial consonants and constraints determined by Kurmanji phonotactics. Following Blevins' (2017) model of "perceptual magnets", this effect is held to have emerged on a model of Arabic pharyngeals as external "perceptual magnets" for native speakers of Kurdish who had extensive exposure to Arabic sound patterns.

1 Introduction

Kurmanji Kurdish is an Indo-European language belonging to the Western Iranian branch of the Indo-Iranian family. It is spoken natively in a region known locally as Kurdistan, which is divided between the states of Turkey, Iran, Iraq, and Syria. Kurdistan is a region which contains several Kurdish varieties that are considered “dialects” of Kurdish much as the various splits in Chinese are identified as “dialects”, as well as two other Iranian languages (Hawrami and Zaza), which, for cultural reasons, are often referred to as “Kurdish”, although, in a linguistic sense, they are less-closely related, and the exact nature of their common ancestry is less clear (Haig & Öpengin 2014: 111). But, in any event, the exact pedigree of “Kurdish” by any definition is not uncontroversial among linguists (Haig & Öpengin 2014; Paul 2008). All of these languages have come into some degree of contact with local Arabic and Turkic varieties.

Together with the closely-related Sorani Kurdish, Kurmanji Kurdish is one of the westernmost Iranian languages, and is marked by a more prolonged direct contact with Arabic compared to most other Iranian varieties. It is not surprising then that the presence of pharyngeal sounds in both inherited and loan vocabulary in Kurdish has been ascribed to Arabic contact (Haig & Matras 2002), although others have ascribed it to pre-Islamic contact with Aramaic (Hoberman 1985: 229). Regardless of the source, the introduction of new phonemes into a language based on contact with an unrelated language, but extending into the inherited vocabulary, is a phenomenon with important theoretical implications for phonological theory. The case of Kurmanji pharyngeals in particular is important due to the cross-linguistic rarity of pharyngeal sounds and their geographical restriction to a small number of areas (Blevins 2004: 197). The difficulty of accounting for these sounds in the inherited vocabulary lies in the apparent lack of any consonantal or vocalic source in Proto-Indo-European (PIE), or any apparent correspondence in other Iranian languages (e.g. Persian, see Table 1).

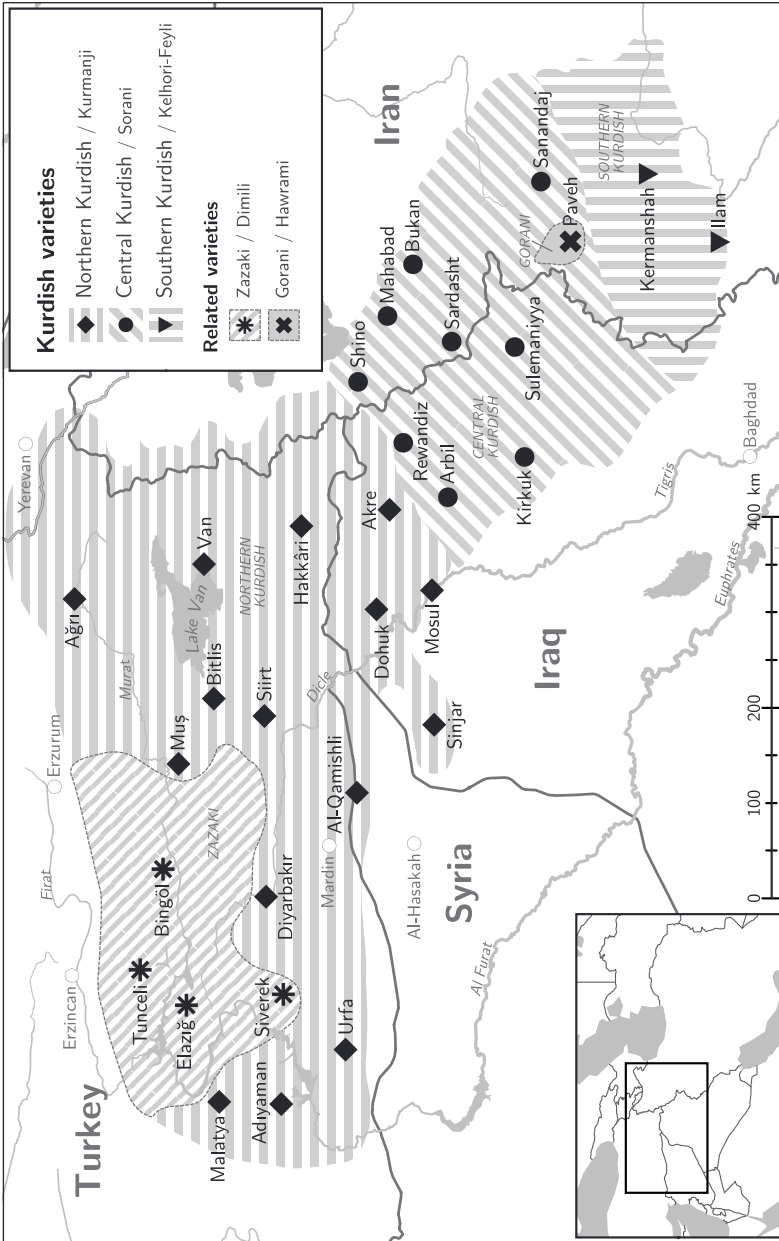


Figure 1: Linguistic map of Kurdistan (Haig 2018: 107)

Table 1: Selected Kurmanji pharyngeals with Persian cognates and Proto-Indo-European roots

#	Proto-Indo-European (Fortson IV 2010, unless noted)	PIE Gloss	Persian	Kurmanji Kurdish	Iranian Gloss (if different from PIE Gloss)
(a)	*n(e)b ^h -to- (Pokorny 2007)	'cloud'	[æbr]	[æwɾ]	
(b)	*h ₂ ek-men-	'stone'	[p'smɒn]	[æzman]	'firmament'
(c)	*ǵneh ₃ -	'to know'	[dɒ:n]-	[z'æn]-	
(d)	*septm	'seven'	[hæft]	[hæft]	
(e)	*megh ₂ -	'great'	[meh]	[mæz'in]	
(f)	*pek ^{wh} -	'to bake'	[poxt]	[pæht] ~ [pævt]	'baked' (past stem)
(g)	*tep- (Pokorny 2007)	'to be warm'	[tɒb]	[tæv]	Persian 'heat', Kurmanji Kurdish 'sun'
(h)	*sausō-	'dry'	[xɔk]	[hɪk]	'dry, arid', also 'solid' in Kurmanji Kurdish
(i)	*o ^ǵ -tō(u)	'eight'	[hæft]	[hæft]	

In Table 1, there is no obvious PIE sound that corresponds to pharyngeals in Kurmanji: syllabic nasals such as the one in *n(e)b^h-ro- became *a by the stage of Proto-Indo-Iranian (Fortson IV 2010: 204), thus in Kurmanji Kurdish we expect [æwr], much like the Persian [æbr] ('cloud'). While laryngeals are held to have left traces in Iranian languages (Fortson IV 2010: 228), their preservation as initial consonants within the family is not documented or posited, making items like [ʕæzma] ('firmament') anomalous versions of predicted forms like [azma]. Pharyngealized obstruents of the type found in Arabic also exist in some dialects of the language, posing similar problems based on reconstructed forms. In Sêrt and Bidlîs dialects, some examples of this in inherited vocabulary include [z^ʕæn]- and [mæz^ʕin], whose pharyngealized realization of Proto-Iranian *z- is straightforwardly from PIE *ǵ. PIE *ǵ is not regularly realized in these dialects with [z^ʕ] (cf. ǵeh₁, 'to beget', invariably non-pharyngeal, [zan] or [zajin]). PIE *s- is continued as /h/ in Iranian in general (ibid.), including in Kurmanji (cf. [havin] 'summer' < PIE *sem- 'summer', [hær] 'every' < PIE *solo-, Pokorny 2007. Thus, with their continuation of Proto-Iranian *h- as [h̥], items such as [h̥æft] ('seven') are exceptional. Items such as [pæht] ~ [pæft] ('baked') might appear to display a pharyngeal continuation of a PIE stop ([pæht] < *pek-), but in fact, the PIE *k is not continued in this root: generally, Proto-Indo-Iranian *k became *x when it preceded another "non-syllabic consonant" (Fortson IV 2010: 228), only to have *x deleted in just such contexts in Kurmanji Kurdish (cf. Persian [fero:xt], Kurmanji Kurdish [firot], 'sold', note the lack of pharyngeal or any other consonant before [t]). The pharyngeal in [pæht], therefore, is as lacking in explanation as the one in [tæʕv] ('sun'). Any inherited pharyngeal in Kurmanji Kurdish in an item such as [tæʕv] would imply a sound change to the effect of PIE *p > [ʕv], a sound change which can't be justified based on any data but this item. While in general the pharyngeals appear to make Kurmanji more irregular in its continuations than Persian, even in cases where the two languages are both irregular we have no clear indication of why Kurmanji has a pharyngeal: in items such as [hiʕk] ('dry'), Persian also has a guttural onset ([xoʃk]), which Paul (2008) terms one of the "unetymological" onsets. But this does nothing to account for the pharyngeals at large in Kurmanji. Persian also has onsets emerging *ex nihilo* as far as PIE is concerned, as in [hæft] ('eight') (Kurmanji [hæft]), but Kurmanji also has many *ex nihilo* onset h- which are not pharyngeal, which is often the case when breaking up onset clusters, e.g. Sorani Kurdish [æsteræ] ('star'), Kurmanji [histerik] (among other forms, but all differences between the Sorani and Kurmanji forms are regular except the onset h-, which is nonetheless not pharyngeal).

It should be noted that another reason to discount the idea of inherited pharyngeals is the fact that of the items in Table 1, most shift between dialects. As previously mentioned, some dialects contain pharyngealized obstruents of the type found in Arabic, but as these do not extend to all or perhaps even most dialects, they are not included in many phonological summaries of Kurmanji. Other dialects which may share the pharyngeal sound in items like [ʕæwr] may disagree on whether the items ‘seven’ and ‘eight’ both begin with [h], or if only seven does. I propose that this shift between dialects may indicate a relatively recent process of pharyngealization of inherited vocabulary, which may even be ongoing.

Some examples of the variation can be seen in Table 2, which shows pharyngeal items alongside non-pharyngeal cognates in Avestan (the earliest attested Iranian language), Modern Persian (a closer relative), and the Mêrdînî dialect of Kurmanji, whose speakers produce many pharyngeals but strongly object to some pharyngeal forms common in other dialects. Of particular note is the correspondence between Persian [v:] and a vowel-pharyngeal sequence in (c) and (d). Ordinarily, Persian [v:] corresponds to Kurmanji [ɑ]. Kurmanji [ɑ] is here not written with contrastive length, although, like its Persian counterpart, it is generally phonetically longer. Historically, this vowel was the long form of the vowel that became /æ/, but today the salience of length for native speakers is not clear (see Haig & Öpengin 2018, who use the term “full vowels”, noting the lack of phonemic length contrast). [æ], on the other hand, is not considered long in any sense, and the sequence [æʕ] appears as an innovation akin to diphthongization. In the Mêrdînî dialect in Table 2, instances of the “full vowel” [ɑ] are non-innovative. Note in particular (a), where the Persian cognate differs from the Mêrdînî dialect of Kurmanji (rather than the Persian and Mêrdînî forms being close to indistinguishable), but a more innovative pharyngeal form is still found in other dialects ([tæʕv]).

Existing research does not put forward any explanation for what appears to be the spontaneous emergence of pharyngeals or pharyngealization in various lexical items sometime in the historical timeline between Proto-Iranian (1500 BCE, Windfuhr 2009) and (the written attestation of) Kurdish¹. Works that mention the pharyngeals in inherited as well as loan vocabulary fail to go beyond an ascription of their presence to contact with a Semitic language, whether Aramaic (Hoberman 1985) or Arabic (Haig & Matras 2002). The restriction of pharyngeals to those Western Iranian languages in contact with

¹Varieties identified as Kurdish are attested from at least the 16th century (McCarus 2009).

Table 2: Selected Kurmanji pharyngeal forms with Persian and Avestan cognates

#	Avestan	Persian	Kurmanji Kurdish	Mêrdînî dialect of Kurmanji	Gloss
(a)	čašman-	[tʃ ^h æjm]	[tʃærv]	[tʃ ^h av]	'eye'
(b)	jaθra-	[zæhr]	[zæhr] ~ [zæʁr]	[zæhr]	'poison'
(c)	mairya-	[mɔ:r]	[mæʁr]	[mar]	'snake'
(d)	masya-	[mɔ:hi:]	[mæʁsi]	[masi]	'fish'

languages which natively possess pharyngeals (such as Arabic, Aramaic, and Caucasian languages) is consistent with this hypothesis. However, it does not, at least on its own, account for the pattern of realization as it actually exists, either in loan vocabulary or in inherited vocabulary in Kurmanji.

In this paper, I analyze pharyngeal sounds in Kurmanji inherited vocabulary as an example of contact-induced phonological change with a clear phonetic basis. I show that Kurmanji is relatively systematic in its phonological treatment of Arabic loan vocabulary and inherited vocabulary alike. Additionally, in contrast to the idea that there are pharyngeal consonants in the Kurmanji inventory, I argue that the distribution of these sounds is consistent with my analysis of underlying pharyngealized vowel phonemes (as rhetorically proposed, and immediately rejected, in Kahn 1976: 47), drawing on evidence from the syllable structure of the language.

I explain the historical emergence of pharyngeals in terms of phonetic re-categorization of vowels and /h/ in syllabic environments involving acoustically “flat” consonants (Jakobson et al. 1952; Ohala 1985), which include sounds that are labial, pharyngeal, or retroflex (which includes to some extent rhotics and postalveolars²). All of these sounds share the quality of lowering the F2 of adjacent vowels. I propose that contact with Arabic facilitates the evolution of a pharyngeal category through a perceptual magnet effect (Blevins 2017). A large proportion of Kurdish speakers have historically and are still presently exposed to Arabic to such an extent as to effect widespread bilingualism. Such speakers have been hearing and producing pharyngeals for an extensive historical period. With this contact influence, Kurmanji speakers increasingly developed a category of pharyngealized vowels and/or syllables, alongside an increasing store of lexicon loaned from Arabic with

²Depending on the analysis, all sibilants might be classed as “flat”, but in this paper only postalveolars are relevant to the analysis.

these sounds. Consequently, the conditions were created for sounds in inherited vocabulary to be reanalyzed as pharyngeal. Speech sounds which are not pharyngeal but which produce pharyngeal-like phonetic effects were and are the most likely candidates for such recategorization.

In my analysis, the result of this recategorization is that in both inherited and borrowed vocabulary, Kurmanji has developed syllables of certain restricted types which display pharyngealization. A seemingly inviolable restriction is that these syllables, regardless of their origin, are associated with one of two vowels. I posit that this restriction represents an expansion of the currently accepted vowel inventory of the language. These pharyngealized vowel phonemes might be represented as /æ̠/ and /ɪ̠/. This paper argues that all pharyngeal sounds of the language may be accounted for through reference to these two pharyngealized vowel phonemes.

In Section 2, I provide an overview of the phonological system of Kurmanji, providing justification for the aforementioned reanalysis of pharyngeals in the language. In Section 3, the evolution of pharyngeals in inherited Kurmanji words is explained in terms of the acoustic properties of pharyngeals in particular and the interaction between the perceptual magnet effect and areal sound patterns more generally (Blevins 2017), drawing from my own fieldwork and the published works of Chyet (2003) and Thackston (2006). While the majority of pharyngeals in Kurmanji occur either in Arabic loans or in inherited vocabulary as a result of the contact-induced sound change sketched above, a handful of words with pharyngeals cannot be analyzed in this way. These examples are accounted for in Section 4 as instances of non-phonetic change, motivated by analogy and sequential contamination with cardinal numbers (of the type seen across Indo-European, e.g. the initial *d*- of the Slavic word for ‘nine’ from the word for ‘ten’).

2 An overview of Kurmanji phonology

2.1 Vowel and consonant inventory

Kurmanji is generally analyzed as having eight vowels (Haig & Öpengin 2018; Thackston 2006). A generally accepted vowel inventory for the language is depicted in Table 3. While most of these vowels are relatively stable across Kurmanji dialects, three of them – /æ/, /ɪ/, and /ʊ/ – vary in quality across and within dialects (Thackston 2006). Of particular note is the diphthongization of /ʊ/ to [wɪ].

Table 3: Kurmanji vowel phonemes (based on Thackston 2006)

	Front	Back
High	/i/	/u/
Mid-high	/ɪ/ [ɪ] ~ [i]	/ʊ/ [ʊ] ~ [wɪ]
Mid	/e/	/o/
Low	/æ/ [æ] ~ [ɛ] ~ [ə]	/ɑ/

The system indicated in Table 3, with the internal variation accounted for, may also be said to incorporate the vowel system of Sorani Kurdish, one of the “points of unity” between Sorani and Kurmanji. Some examples of minimal pairs making use of these vowel contrasts can be seen in (1).

(1) Kurmanji vowel contrasts

- a) /i/ vs. /u/: /ʒir/ ‘clever’, /ʒur/ ‘room’
- b) /ɪ/ vs. /i/: /din/ ‘other’, /din/ ‘mad’
- c) /ʊ/ vs. /u/: /dʒoræ/ ‘argument, disagreement’, /dʒuræ/ ‘type’³
- d) /i/ vs. /e/: /zin/ ‘saddle’, /zen/ ‘mind’
- e) /o/ vs. /u/: /dor/ ‘around’, /dur/ ‘far’
- f) /æ/ vs. /e/: /k^hær/ ‘donkey’, /k^her/ ‘knife’
- g) /ɑ/ vs. /æ/: /dar/ ‘tree’, /dær/ ‘outside’

An eight-vowel system of the type seen in Table 3 is expected following the shift of the Middle Iranian diphthongs to vowel phonemes (i.e. *ai > /e/ and *au > /o/). The consonantal inventory of Kurmanji, on the other hand, is significantly more complex than expected, and is not necessarily agreed upon. Part of the difficulty lies in the fact that Kurmanji speakers, often being multilingual, will note contrasts of neighbouring languages which were not historically contrastive in Kurmanji itself. For example, some sources indicate a voicing contrast for velar fricatives, as exists in Persian, Armenian, some Turkic varieties, Arabic, etc., but in Kurmanji occurs only in loan vocabulary (e.g. [ɣæzəl], ‘gazelle’, which is in fact [xæzəl] for many speakers). The glottal stop, which is contrastive in Arabic and Aramaic, is sometimes counted as well, although it may only contrast in loan vocabulary from these languages in Kurmanji.

Table 4 contains those consonantal sounds for which I find ample evidence for their contrastive nature across Kurmanji in general. Pharyngeals are

³Chyet (2003).

omitted from this list of contrastive consonant sounds, not due to the existence of Kurmanji dialects which lack these sounds, but rather due to this paper's reanalysis of these sounds as the realization of a vocalic, rather than consonantal contrast.

Table 4: Consonant phonemes of Kurmanji

	Labial	Alveolar	Postalveolar	Palatal	Velar	Uvular	Glottal
Stop/affricate	p ^h p b	t ^h t d	tʃ ^h tʃ dʒ		k ^h k g	q	
Fricative	f v	s z	ʃ ʒ		x		h
Nasal	m	n					
Lateral		l					
Flap		r					
Trill		r					
Glide	w			j			

The three-way contrast between voiceless, aspirated, and voiced stops (including the affricate series) seen in Table 4 is a feature of many dialects of Kurmanji. An example of a minimal triplet may be found in /phir/ 'religious elder', /pir/ 'old woman', and /bir/ 'memory'. The aspiration contrast is only found in simple onsets; elsewhere, the only laryngeal contrast is that of voicing.

As is the case across a broad geography of Iranian languages⁴, there is also a uvular stop which does not contrast for laryngeal features⁵, which is contrasted with the other three dorsal stops, as seen in (2).

⁴In addition to several Western Iranian languages, /q/ is also found, without laryngeal contrast, in Yaghnobi (Bird 2007; Khromov 1972), Ossetian (in Iron dialect it regularly continues Proto-Iranian *g-, Thordarson 1989: 464), and most Pamiri languages (Edelman & Dodykhudoeva 2009: 779–780).

⁵This sound appears predominantly in Arabic and Turkic loan vocabulary. However, it is also to be found in some inherited vocabulary, e.g. [phaqɪʒ], 'clean', cognate to Persian /pɒ:ki:zæ/, 'tidy', and would be a worthy subject of study on its own.

- (2) Uvular stop contrasted with the velar stops
- a) /q/ vs. /k/ /qær/ ‘debt’, /kær/ ‘piece’
 - b) /q/ vs. /k^h:/ /qædær/ ‘fate’, /k^hædær/ ‘worry’
 - c) /q/ vs. /g:/ /qændz/ ‘good’, /gændz/ ‘young’

The analysis in Table 4 differs from other analyses of Kurmanji phonemes (such as Haig & Öpengin 2018; Thackston 2006) in not including the velar nasal [ŋ] as a phoneme. This is because [ŋ] only occurs syllable-finally, where it alternates with [ŋg] whenever followed by a vowel. I therefore analyze it as a coda realization of a cluster /ng/ (see Section 2.2).

Note that Kurmanji lacks contrastive geminates, or any true contrastive length for vowels or consonants. This is particularly noteworthy given that consonantal gemination is a feature of the phonology of several languages with which Kurdish is in long-standing contact, including Persian and Arabic.

2.2 Syllable structure and phonotactics

Relevant to my reanalysis of Kurmanji pharyngeals as emerging from an underlying feature is the structure of the syllable, in particular with regard to vowels, clusters and glides: the distribution of pharyngeals in terms of adjacent vowels figures heavily into my analysis, as does their relationship to clusters compared to consonants on the one hand and glides on the other.

Every Kurmanji syllable necessarily consists of one vowel (no other sonorant may serve as the nucleus). Syllables without phonological onsets do occur, such as those examples in Table 5. These are often low vowels, with /e/, /i/, and /o/-initial words being less common, /i/ being rarer still, and no words unambiguously beginning with /ʊ/ or /u/ (see Table 5, as well as Chyet 2003: 282, 631–632 especially noting the other possible forms of these words). While most vowels may appear possible word-finally, /i/ and /ʊ/, the mid-high vowels, are effectively limited to clitics, and /o/ is limited to a single suffix in most dialects (see Table 6). CVC syllables are common with all vowels, as shown in Table 7.

Table 5: Syllable-initial vowels in Kurmanji

#	Syllable type	Example word	Gloss
(a)	VC	[av]	‘water’
(b)	VC	[æv]	‘this’
(c)	VC	[ej]	‘pain’
(d)	VC	[ɪsterɪk]	‘star’
(e)	VCC	[ɪsk]	‘hiccup’
(f)	VC	[ol]	‘religion’
(g)	VCC	[ɔlm]	‘science’
(h)	V	[u]	‘and’

Notes d): Epenthetic initial vowel, more conservative form is [sterɪk], further innovation with h-initial [hɪsterɪk] is also common.

Notes g): More conservatively, this Arabic loan may be [ɪlm], which is not phonetically vowel-initial. Words generally do not begin with [ɔ].

Notes h): Enclitic, words generally do not begin with [u].

Table 6: Syllable-final vowels in Kurmanji

#	Syllable type	Example word	Dialectal variants	Gloss
(a)	CV	[ba]		‘wind’
(b)	CV	[dʒæ]	[dʒæh] ~ [dʒæhæ]	‘barley’
(c)	CV	[te]	[dɾhe]	‘comes, is coming’
(d)	CV	[tɾ]		‘what’
(e)	CV	[si]	[sih]	‘shadow’
(f)	CV	[zu]		‘quick, early’

Notes b): The CV form is innovative, but common. A copy vowel and consequent new syllable can result from preservation of the -h.

Notes c): [te] is the more innovative form, but it is very widespread.

Notes d): Most of the few words ending in [ɪ] are enclitics, multisyllabic words cannot end in [ɪ], this word is therefore exceptional.

Notes e): The h-coda is the more conservative form. I am unaware of a copy-vowel form, cf. (b).

Table 7: CVC monosyllabic words in Kurmanji

#	Syllable type	Example word	Gloss
(a)	CVC	[bar]	‘load’
(b)	CVC	[mæt]	‘paternal aunt’
(c)	CVC	[zer]	‘gold’
(d)	CVC	[gɪl]	‘mud’
(e)	CVC	[jin]	‘blue’
(f)	CVC	[dʒox]	‘yoke’
(g)	CVC	[qum]	‘sand’

All consonants in Table 4 except the flap /r/ may appear as simple onsets, although /j/ is rare word-initially. In the analysis of Kurmanji as possessing two pharyngeals (/ʕ/ and /ħ/), these too are permissible onsets. All consonants except the aspirated obstruents in Table 4 may appear as simple codas. The pharyngeals do not generally appear as simple codas word-finally, and the general context for post-vocalic pharyngeals is intervocalic (which may be analyzed as onset).

In addition, syllables may end in consonant clusters, and, according to Haig & Öpengin (2018: 170), begin with them. Whether a given cluster is permissible or not is inconsistent across Kurmanji dialects, with some allowing for almost no clusters, breaking them up via regular processes of epenthesis. As this appears to have little bearing on pharyngeals in the language, this is not treated in detail here.

In general, the syllable structure of Kurmanji is under-analyzed (Öpengin, personal correspondence). Karimi-Doustan (2002) gives the maximal syllable for Kurdish as (C)(C)V(C)(C). To this I would add that there are two items ([stran] ‘song’ and [stru] ‘horn’) which apparently allow for a [str] onset cluster, bringing the theoretical maximal syllable to (s)(C)(C)V(C)(C). Examples of Kurmanji syllables containing various clusters are shown in Table 8 and Table 9.

As previously mentioned (in Section 2.2), simple onsets may consist of any consonant except the flap /r/. In onset clusters consisting of two consonants, these may either be obstruent-liquid clusters, such as [dreʒ], or clusters which consist of a fricative followed by a non-fricative consonant, such as [spi] or [ʒmar]. The maximal three-consonant onset seems to invariably consist of [str].

Table 8: Final clusters involving stops, both oral and nasal

#	Syllable type	Example word	Gloss
(a)	VCC	[æwk]	'thingamajig'
(b)	VCC	[ard]	'flour'
(c)	VCC	[isk]	'hiccup'
(d)	CVCC	[ʃæjb]	'shame'
(e)	CVCC	[dʒæʒn]	'festival'
(f)	CVCC	[k ^h æsk]	'green'
(g)	CVCC	[kævn]	'old' (of things)
(h)	CVCC	[jærm]	'shame'

Table 9: Initial clusters involving stops, both oral and nasal

#	Syllable type	Example word	Gloss
(a)	CCV	[spi]	'white'
(b)	CCVC	[zmar]	'number'
(c)	CCVC	[dreʒ]	'long'
(d)	CCVCC	[brusk]	'lightning'
(e)	CCCV	[stru]	'horn' (of an animal)
(f)	CCVC	[stran]	'song'

Simple codas may consist of any consonant (although in many dialects /h/ is an exception). Coda clusters consist of any non-stop consonant (including glides) followed by any fricative, or (non-aspirated) oral or nasal stop.

In both onset and coda clusters, there are no known instances of clusters containing an aspirated stop, or containing two fricatives. Additionally, affricates may not occur in initial clusters. Obstruent-obstruent clusters are voiceless, while obstruent-nasal clusters are voiced (e.g. [dʒæʒn], 'festival', c.f. Persian /dʒæʃn/).

The Sonority Sequencing Principle states that sonority must not rise between the syllable peak and any other part of the syllable (Blevins 1995). This principle is violated in two ways in Kurdish. Firstly, in common with other Iranian languages, nasal stops can follow voiced fricatives in the coda (e.g. [dʒæʒn], [kævn] in Table 8). Secondly, in common with other Indo-European languages, /s/ may precede lower sonority sounds in onset position (e.g. [spi], [stran] in Table 9), a trend which seems to have been extended to other fricatives in Kurdish, particularly as one moves southwards. Indeed,

onset cluster constraints become more relaxed the further south one goes, to the point where initial stop-stop clusters are claimed to be accepted in at least some varieties of Sorani Kurdish, e.g. [kteb] (Haig & Öpengin 2018: 170).

2.3 Glides and pharyngeals in Kurmanji

Some analyses of Kurmanji refer to the pharyngeals as “fricatives” (Haig & Öpengin 2018; Thackston 2006). If this is taken at face value, it raises a third issue for the sonority sequencing principle, as pharyngeals may precede sonorants in coda position, as in [bæħr], also pronounced [bæʁr] (see Table 10, where all post-vocalic instances of [ħ] may be voiced). This would mean that, in addition to the permissibility of coda fricative-nasal clusters, pharyngeal “fricatives” on their own would allow for another violation of the Sonority Sequencing Principle, with sonorants in general. If pharyngeals were indeed fricatives, they would pattern unusually in another respect, in that they would be the only fricatives capable of forming fricative-fricative clusters (see [tæʁv] in Table 1, [tʃæʁv] in Table 2). This may, however, simply be a misnomer of convenience. Esling (2010: 695) explains the lack of contrast between pharyngeal approximates and fricatives cross-linguistically through a lack of acoustic salience of such a contrast, combined with the articulatory difficulty in producing pharyngeal frication. With such a distinct class of pharyngeal fricatives being hypothetical, it is most likely that, in keeping with the sonority constraints of Kurdish, pharyngeals are indeed glides or approximants, and not fricatives.

If the pharyngeals are indeed glides and not fricatives, their purported voicing contrast would make them the only sonorants in the language with such a contrast. However, a real voicing contrast for pharyngeals in Kurmanji is not obvious. Firstly, there is the lack of any minimal pairs, either in onset position where the “contrast” is usually noted, or in coda clusters where the posited voiceless /ħ/ is often realized as voiced [ʁ], even when the following consonant is a voiceless obstruent, as in [pæʁt] ~ [pæħt]. This post-vocalic pattern mirrors the sonorant /h/, which is not held to contrast for voicing in any context, but phonetically has variable voicing post-vocally. Indeed, post-vocally the voiced form of the pharyngeal is more common, with the voiceless form almost invariably produced with an epenthetic vowel of some sort, in common with the treatment of etymological coda /h/ more broadly (recall [dʒæh] ~ [dʒæhæ] in Table 6). In the analysis which follows, I suggest that [ħ] is the surface realization of an underlying /h/ phoneme, produced in the environment of a *pharyngealized vowel*.

Table 10: Coda clusters containing glides and pharyngeals

#	Syllable	Example word	Gloss
(a)	CVCC	[sæwɾ]	‘cloud’
(b)	CVCC	[ræwɟ]	‘condition’
(c)	CVCC	[p ^h æjv]	‘word’
(d)	CVCC	[hæwɪ]	‘effort’
(e)	CVCC	[hæjɸ]	‘revenge’
(f)	CVCC	[bæɾɾ] ~ [bæhɾ]	‘sea’
(g)	CVCC	[zæɾɾ] ~ [zæhɾ]	‘poison’
(h)	CVCC	[pæɾt] ~ [pæht]	‘baked’ (past stem)

2.4 Patterning of Pharyngeals in Kurmanji

In order to ground a reanalysis of phonetic pharyngeals as the realizations of pharyngealized vowel phonemes, it is crucial to investigate the distribution of pharyngeals relative to the vowels. Most pharyngeals in inherited vocabulary are directly adjacent to the vowel /æ/, with a few adjacent to /ɪ/. No such vocalic constraint applies to any of the other consonants or glides in the language.

Most of the inherited [æ] syllables with a pharyngeal contain a labial (see Table 1 and Table 2), and the [ɪ] syllables contain postalveolars. The word for ‘paradise’, [bæhɪɸt] (Table 2) contains one of each syllable type on either side of the pharyngeal. Evidence for this from the vocabulary and explanations for exceptional cases will be provided in Section 3.

Crucially for the plausibility of this position, in its phonetic realization, a pharyngealized vowel must generate a pharyngeal in a permissible syllabic position for a glide. All phonetic instances of [h] are analyzed as the realisation of an underlying pharyngealized vowel phoneme in the environment of an underlying /h/ phoneme, which together generate the surface [h]. With the [h] sound, this takes the place of an underlying /h/. Note that like /h/, /j/, and /w/, the pharyngeals do not seem to occur in onset clusters (see Table 10).

3 Pharyngeals in Kurmanji

3.1 Motivation for pharyngeals in inherited vocabulary

Kurmanji presents a puzzle with two inter-related parts. Firstly, how did inherited vocabulary items such as those in Table 1 and Table 2 come to contain pharyngeals? More specifically, how did this happen when no specific sound change from an earlier Iranian language can be proposed to account for the pharyngeals? Secondly, why are pharyngeals restricted in their distribution with regard to adjacent vowels, as described in Section 2.4?

Table 11: Some hypothetical but unattested pharyngeals in inherited vocabulary

#	Actual item	Unattested pharyngeal form(s)	Gloss
(a)	[ɑgɪr]	*[ʕɑgɪr], *[ʕæɡɪr]	‘fire’
(b)	[dɔr]	*[dɔʕr], *[dɪʕr]	‘pearl’
(c)	[gædæ]	*[gæʕdæ]	‘vagrant’
(d)	[hek]	*[hɛk]	‘egg’
(e)	[hostɑ]	*[hɔʕɑ]	‘expert’

In order to answer these questions, it is useful to consider the absence of pharyngeals in other contexts. Note that all of the items in Table 11 could contain pharyngeals and broadly conform to Kurmanji syllable structure, but the pharyngeals should surface in the context of an appropriate vowel adjacent to a labial consonant. As mentioned in Section 2.4, pharyngeals must be adjacent to the vowels [æ] or [ɪ], while in the hypothetical items *[ʕɑgɪr], *[dɔʕr], *[hɛk] and *[hɔʕɑ], they are not. The lack of attestation of innovative forms such as *[ʕæɡɪr] (for ‘fire’) contrasts with attested innovative forms such as [mæʕr], which exist alongside forms such as [mar] (see Table 2 in Section 1).

Furthermore, the pharyngeal forms in Table 11, including those with an appropriate vowel, such as *[gæʕdæ], may be ill-formed because they lack a labial consonant adjacent to the pharyngeal. This paper seeks to explain not only the presence of pharyngeals in inherited vocabulary items where they do occur, but also their absence in items such as those in Table 11, where they do not.

3.2 Arabic origins of the vocalic constraint

The first constraint on pharyngeals in inherited vocabulary is, as previously mentioned, that pharyngeals must be adjacent to one of two vowels, [æ] or [ɪ]. This constraint seems to be inviolable, even if other vowels are observed in more conservative, non-pharyngeal forms. Some examples of such dialectal innovations, of a pharyngeal emerging with a shift in the vowel to accommodate it, may be seen in Table 12, where pharyngeal forms replace the conservative forms vowel with the permissible form. [ɑ] shifts to [æ], and [ɪ] replaces a round vowel in the non-pharyngeal Sorani forms. The [o] in [hoj] is transparently a different vowel, for the treatment of [wɔ] ~ [wɪ] as a vowel unit, recall that these forms are analyzed as allophones of /ɔ/. [wɔ], [wɪ], and [ɔ] do not contrast in Kurmanji or Sorani Kurdish, as all apparently represent a single round or labialized mid-high vowel phoneme. Word-initially, [wɪ] is common in transcriptions of Kurmanji, while [wɔ] is common in phonetic transcriptions of Sorani. In both varieties, [ɔ] is the allophone which surfaces in non-initial position (see Table 3).

Table 12: Vowel shift in pharyngeal vs. non-pharyngeal contexts

#	Pharyngeal form	Non-pharyngeal form	Context notes	Gloss
(a)	[bæsdʒan]	[badʒan]	Shift occurs within Kurmanji	'eggplant'
(b)	[bæslif]	[balif]	Shift occurs within Kurmanji	'pillow'
(c)	[hɪj]	[hoj]	Non-pharyngeal form is Sorani	'wits, reason'
(d)	[hɪjk]	[wɪjk] ~ [wɔjk]	Non-pharyngeal form is Sorani	'dry, arid, solid'
(e)	[mæhin]	[mahin]	Shift occurs within Kurmanji	'mare'
(f)	[tjæv]	[tj ^h av]	Shift occurs within Kurmanji	'eye'

The vowel pairs in question fall into natural classes; the two low vowels, /æ/ and /a/, and the two mid-high vowels, /ɪ/ and /ɔ/ (see Table 3), are paired for merger into the two pharyngealized vowels which share these features. In pharyngeal syllables, the low vowels merge into a single pharyngealized low vowel, which I write /æ^ʕ/, although the choice of "æ" is arbitrary.

trary and not based on a particular “frontness”: it could just as easily be analyzed as /a^ɕ/ or /e^ɕ/⁶, but the orthographic low vowel in pharyngeal syllables in written Kurmanji tends to be the same symbol used for /æ/, implying an indigenous association (hence the [æ]s throughout this paper). Likewise, the two mid-high vowels merge into a single pharyngealized mid-high vowel /i^ɕ/.

But why the association between the vowels /æ/ and /i/ and pharyngealized syllables in the first place? Arabic, the language from which the pharyngeals are held to have spread, has a three-vowel system with a two-way length contrast (/a/, /i/, and /u/, short and long). The exact quality of Arabic vowels varies between Arabic dialects, and (as happened historically in Iranian languages as well) differences in vowel length have effected changes in vowel quality.

The short vowels in Arabic loanwords are relatively straightforward. In Kurmanji, Arabic /a/ is realized as Kurmanji /æ/, and, in my analysis, in pharyngeal syllables it is realized as the pharyngealized low vowel phoneme /æ^ɕ/. At first glance, it would appear that Arabic short /i/ and /u/ merge into Kurmanji /i/. But given that the Arabic dialects with which Kurmanji is in contact are generally North Mesopotamian, “the majority” of which merge earlier /i/ and /u/ into a single schwa phoneme (Watson 2002: 21, citing Jastrow 1980: 54), it might be more accurate to say that Kurmanji has taken this dialectal Arabic schwa phoneme in as /i/. The “two-short-vowel system” of Arabic dialects (Watson 2002: 22) perfectly mirrors the two-pharyngeal-vowel system I propose here. The greater frequency of pharyngeal /æ^ɕ/ than pharyngeal /i^ɕ/ may partially be explained by the fact that /i/ is the default epenthetic vowel in Kurmanji; and/or by its frequency in Arabic loans being augmented by modern Arabic final shortening (Holes 2004: 61) in items such as [inʃæɫæ] (‘God willing’) < Qur’anic Arabic /inʃa:ʔaħħa:h/, [mæʃnæ] (‘meaning’) < Qur’anic Arabic /maʃna:/.

The Arabic long vowels present their own puzzle. As in Arabic, whose long /i:/ is realized as [i] in Kurmanji, there is no contrast between /ij/ (Arabic /ij/) and the “full vowel” /i/. This is in contrast to the uniformity of the triangular vowel system of Arabic as it is usually presented, and indeed presents a similar issue of uniformity of Kurmanji vowels, unless we can demonstrate that Kurmanji “full vowels” are all perceptually indistinguishable from diph-

⁶Likewise there is no significance to the pharyngeal symbol being positioned after the vowel in the underlying form. It could just as easily be before or on top of the vowel, as the vowel itself has a pharyngeal association.

thongs⁷. But under this assumption, how would the other Arabic long vowels be analyzed? Can Arabic long /u:/ be phonemically /ɔw/ to Kurmanji speakers? Combined with the [wɪ] allophone of /ɔ/, this would imply that Kurmanji speakers cannot perceive a contrast between initial [u] and [wɪw], or final [u] and [ɔw]⁸. Finally of course, there is the regular correspondence of Arabic /a:/ to Kurmanji /a/, which contrasts with both /æ/ and /æ̤/ in Kurmanji.

Even leaving aside the anomalous nature of Kurmanji /i/ (and Arabic /i:/), Arabic long vowels still present a unique problem for pharyngeals. So far as I am aware, the inherited vocabulary of Kurmanji lacks a single example of a pharyngeal whose only adjacent vowel is a “full vowel”. Of the Kurmanji “full vowels”, two (/e/ and /o/) can be assumed to lack an association with pharyngeals because these phonemes are not to be found in many varieties of Arabic, and are certainly absent in Qur’anic Arabic. The remaining three “full vowels” (/a/, /i/, /u/), however, are all known to regularly correspond to the Arabic long vowels (/a:/, /i:/, /u:/). As the Arabic language is rich in pharyngeals and possesses a templatic morphology which does not allow for a different space in the syllable structure for pharyngeals than for, e.g. oral stops, this would not appear to suggest any problem for a lack of pharyngeal association with these vowels. So what has become of Arabic loans with a pharyngeal adjacent to an Arabic long vowel and no short vowel?

A significant portion of the vocabulary is eliminated by the requirement to not have a short vowel on either side of the pharyngeal, but several common monosyllabic items may still be offered as evidence. From front to back and top to bottom, I will present an example for each of the Arabic long vowels in terms of the colloquial Arabic and the Kurmanji realizations.

For Arabic /i:/, an unavoidably common item is /ʕi:d/, ‘holiday’. Loaned into Kurmanji, an epenthetic vowel [æ] is not only observed phonetically but standardised in orthography, implying a salience to the [æ] vowel, while the historical nucleus /i/ has become the coda glide /j/: [ʕæjd] (note Chyett 2003: 184, 283: no <îd> form is found in the <E> or <î> sections). Vowel lowering in a pharyngeal context is a pattern in Arabic (Watson 2002: 46), and a diphthongisation of /i:/ similar to the Kurmanji pattern is attested even in South Semitic languages, e.g. Mehri, a South Arabian language (Watson

⁷In fact, we do not find such a pattern. Other than /i/, the other “diphthong equivalent” vowel is the round mid-high vowel /ɔ/, whose unround equivalent has no diphthong allophone, just as the high round vowel /u/ does not.

⁸However absurd or plausible this may sound to the reader, it is an empirical question that may be tested empirically.

2012: 26), such that we may claim the reason for a lack of association between Kurmanji /i/ and pharyngeals is that this pattern had already become dominant in the dialects of Arabic with which Kurmanji was in contact. Potential counter-examples could represent dialects in closer contact with Arabic dialects which allow for such sequences, or could simply represent etymological spellings or learned pronunciation. But in any event, this pattern is expected in articulatory terms, as /i:/ is a front and high vowel, in contrast to the low and back quality of pharyngeal sounds, such that the mouth must “travel through” an intermediary to reach its articulatory target. Thus, Kurmanji speakers by and large would only hear and only produce a pharyngeal with an intermediary vowel in such contexts.

The other two Arabic long vowels, /u:/ and /a:/, are both back, and /a:/ is low. In these cases, we should not expect such a strong need for the pharyngeal to “travel”. Some distinct Kurmanji treatment of these vowels is widespread, for example Arabic /ru:h/ > Kurmanji [rɪh]. However, this is not the general trend. Note for example, the Arabic /ħu:t/ (‘whale’), whose long vowel is preserved in the expected “full vowel” form with the pharyngeal lost: [hut]⁹. Likewise, the extremely common Arabic /ħa:l/ (‘status’) is reported without a pharyngeal, but much more frequently it is reported with pharyngeal and the “full vowel”. My own doubts about this pronunciation aside (I am convinced I only ever hear [ħal] or [ħæl]), this is one of the few Arabic loan items on which consultants of various dialect backgrounds agreed on its pharyngeal onset and “full vowel” nucleus.

Variation exists across the language with regard to the pharyngeals as with other features. But in both inherited vocabulary and Arabic loan vocabulary, pharyngeal syllables are overwhelmingly [æ]-nucleic, and to a lesser extent [ɪ]-nucleic. This distribution motivates my analysis of two additional vowel phonemes, namely the pharyngealized vowels /æ^ʕ/ and /ɪ^ʕ/. If pharyngeal-[a] syllables are indeed present in items such as [ħal], a third /a^ʕ/ phoneme would need to be posited.

It is noteworthy that in dialects such as that of Mêrdîn (see Table 2), which are adjacent to large Arabic-speaking populations to this day, these pharyngeals (or pharyngealized vowels in this analysis) have penetrated the inherited vocabulary to a lesser extent than in dialects such as that of Qers, which sits on the outskirts of the Kurmanji-speaking area, and where the neighbor-

⁹Except in two Soviet sources, in opposition to all non-Soviet sources consulted by Chyet 2003: 266, 281. Counter-intuitive though this would be, it would imply a dialectal outlier in Caucasian Kurdish, which may have been in contact with the related Tat language, with a similar vocabulary but distinct rules for pharyngeals (including in inherited vocabulary).

ing languages are pharyngeal-free varieties of Turkish and Armenian. Possibly, in the absence of reinforcement from Arabic speakers, the distinction between inherited and Arabic loan vocabulary has become more blurred, as bilingualism shifted from Kurdish/Arabic to Kurdish/Turkish. The more that pharyngeal sounds are associated with the native phonology rather than a stratum of vocabulary, the more the Arabic pharyngeal consonants fade away, and the more that speakers mainly hear the pharyngeal effects on the vowel, rather than the brief “consonantal” segment.

3.3 Phonetic motivation for pharyngeal syllables: “Flat” consonants and formants

In addition to my proposed constraint on adjacent vowels, another apparent constraint on pharyngeals in inherited vocabulary is that the pharyngealized vowel must be adjacent to a “flat” consonant. “Flat” consonants include both labials and pharyngeals (Jakobson et al. 1952; Ohala 1985), which share the quality of lowering the F2 of the adjacent vowel. This phonetic effect has been observed to effect categorical changes in adjacent vowels. For example, in Chilcotin, flat consonants result in allophonic tongue root retraction on adjacent vowels (Cook 1993). This follows, since retraction of the tongue root is a feature of pharyngeal articulation (Esling 1999) and pharyngeal muscles must be contracted to produce retracted vowels and consonants (Fulop et al. 1998).

It is to be noted that the majority of pharyngeals in the inherited vocabulary of Kurmanji Kurdish are found in the coda of [æ]-syllables with a labial onset, or in the onset of an /æ/-syllable with a labial coda (see items in Table 1, Table 2 and Table 10). This shows not only a strong association between labials and pharyngeals, but also that the association must cross the syllable (through its nucleus, the vowel). Further, pharyngeals have the quality of raising F1 (Ghazeli 1981), which means that the “flat” effect might be more perceptually salient adjacent to lower vowels, like /æ/, which possess a higher F1.

The labial-pharyngeal association is also not unique to Kurmanji. In “a number of modern Arabic dialects”, it has been observed that “labialization” in the form of “lip-protrusion or lip-rounding” is an “enhancing feature” for pharyngeals and pharyngealized oral consonants (Watson 2002: 269). Speakers of genetically and geographically diverse languages which lack pharyngeal articulation natively have been observed to substitute labialization for pharyngealization in Arabic words (Jakobson et al. 1952: 31, Holes 1995: 56).

Cross-linguistically, very few languages contrast labialization and pharyngealization, presumably due to their perceptual similarity (Blevins 2004: 136).

In the following section, I suggest that this perceptual similarity has facilitated a pharyngeal articulation in most of those items which today contain a pharyngealized vowel in inherited Kurmanji vocabulary.

3.4 The perceptual magnet effect

The rarity of the areal diffusion of a feature such as “pharyngeal” notwithstanding, the process by which such a phonological feature might spread is quite common. This is the perceptual magnet effect, which is frequently involved in patterns of areal sound change (Blevins 2017: 98). Blevins’s hypothesis is as follows:

Areal sound patterns are due to perceptual magnet effects within one language, where the perceptual magnets themselves are sounds from another language. As a consequence, their evolution may mimic that of internal phonetically based sound change.

In the case of Kurmanji Kurdish, the sounds from another language are the pharyngeals of Arabic, which have entered into Kurmanji Kurdish through widespread bilingualism or language shift with Arabic, a phenomenon currently absent from most other Iranian languages, in spite of heavy lexical borrowing from Arabic in earlier historical periods. As a consequence of the perceptual magnet effect, Kurmanji Kurdish speakers articulated most pharyngeal Arabic borrowings with some form of pharyngeal articulation, interpreted as pharyngeal syllables centered on certain vowels (identified and explained in Section 3.2). With these syllables present in the language, they could then act as perceptual magnets for similar syllables in the inherited vocabulary. Over time, Kurmanji Kurdish speakers identified certain syllables as pharyngeal based on phonetic criteria, such as the perceptual similarity of the formant frequencies of labial-adjacent low vowels with pharyngeal-adjacent vowels. This hypothesis explains not only the pharyngeal syllables identified with low vowels and labials, but also the few cases of inherited items with a high vowel and no labial, which also have an apparent phonetic motivation with another flat consonant type, the postalveolars.

3.5 [ɪ] and postalveolars

Most pharyngeals in both inherited and Arabic loan vocabulary are found in syllables with an [æ]-nucleus. The minority of other cases are [ɪ]-nucleic, which in inherited vocabulary are all followed by an postalveolar in the syllable coda, in addition to the [ɪ] corresponding to a round vowel in other Iranian varieties. These items might gain a pharyngeal association due to a conspiracy of phonetic factors, including:

1. an originally rounded vowel, /ʊ/, where lip-rounding represents a possible perceptual feature confusable with pharyngealization;
2. the articulatory phonetics associated with tongue root retraction, which may be present in mid-high vowels, particularly pharyngeal constriction (Fulop et al. 1998);
3. the F2-lowering effect of /ʃ/, which, while less pronounced than that of labial stops, may be significant in these contexts.

None of these three properties appears sufficient to lead to reinterpretation as pharyngealization by Kurmanji speakers on its own: one does not, for example, see mid-high vowels developing pharyngealization across inherited vocabulary, nor do most instances of /ʃ/ or /tʃ/ result in pharyngealization. However, when these features are found together in one syllable, as in the items in Table 13, they seem to have such an effect.

Table 13: [hɪ]-initial syllables in the inherited vocabulary of Kurmanji

Kurmanji Kurdish	Sorani Kurdish	Persian	Gloss
[hɪj]	[hoj]	[hoːj]	‘intellect’
[hɪjk]	[wɪjk] ~ [wɔjk]	[xojk]	‘dry, arid, solid’

4 Exceptional cases

4.1 Arabic words

As the source of the pharyngeals in Kurdish in general is held to be contact with Arabic, it comes as no surprise that most pharyngeals in Kurmanji Kurdish are to be found in Arabic words, and conversely, that Arabic pharyn-

geals are preserved when they are loaned into Kurmanji. This generalization, however, fails to capture the full extent of the facts. Table 14 illustrates several cases of Arabic-origin items in Kurmanji which either contain a pharyngeal that was not in the Arabic (such as Arabic /maʔmu:r/ > Kurmanji [mæʕmur] ‘officer, official’), do not contain a pharyngeal that was present in Arabic (such as Kurmanji [hærem] ‘region’, ultimately from Arabic /ħari:m/), or exhibit a pharyngeal in a different part of the syllable than in the Arabic (such as Kurmanji [ʕærd] ‘ground’ < Arabic /ʔard^ʕ/).

Table 14: Arabic items in Kurmanji which contain a pharyngeal in one or both languages

#	Kurmanji	Alternate forms	Arabic	Pharyngeal change?	Gloss
(a)	[ʕærd]	[ʕærz]	/ʔard ^ʕ /	✓	‘ground’
(b)	[ʕilm]	[ɔlm], [ʕælm]	/ʕilm/		‘knowledge’
(c)	[hærem]		/ħari:m/	✓	‘region’ (Arabic: ‘harem’)
(d)	[hæq]		/ħaqq/		‘right(s), truth’
(e)	[mæʕmur]	[mamur]	/maʔmu:r/	✓	‘official, officer’
(f)	[mæʕnæ]	[manæ]	/maʕna:/		‘meaning’

Most of these forms are equally consistent with Arabic items being reanalyzed in accordance with a Kurmanji syllable structure which recognizes pharyngealized vowels or syllables, as they are with pharyngeal consonants in Kurmanji. Retention of pharyngeals in position, as in [ʕilm] ~ [ʕælm], [hæq], or [mæʕnæ] in Table 14, could equally result from the analysis of pharyngeal consonants or from my reanalysis of pharyngealized vowels. For example, the expected consonant-for-consonant loan form of Arabic /ħaqq/ in a Kurmanji with pharyngeal consonants is [hæq]. An underlying /æ^ʕ/ as the nucleus of a /h/-onset, /q/-coda syllable would result in /h/ being realized with its [h̥] allophone in my analysis in Section 2.4. Likewise, if the underlying form for ‘knowledge’ is /ʕ^ʕilm/, the only syllabic slot for the pharyngeal is the onset, its position in the original Arabic. The same may be said for the coda position of a pharyngeal predicted for an underlying /mæ^ʕnæ/ (‘meaning’).

[ʕærd] (‘ground’) is a different case, however. The change is quite extreme from the original Arabic, with a pharyngeal as the onset approximant replac-

ing of the pharyngealization of the coda obstruent. This coda, while permissible in Arabic phonology, is not in line with the syllable structure of most Kurmanji dialects, which lack pharyngealized obstruents as phonemes and cannot have approximant-final clusters, or any three-consonant clusters. The [ʕærd] form, however, is the expected result of the Arabic pharyngealized obstruent's F2 lowering effect on the adjacent vowel being interpreted as a pharyngealized vowel phoneme (/æ^ʕrd/), which would generate an onset [ʕ] in the surface form.

At first glance, [mæʕmur] ('officer, official') appears to contain a pharyngeal approximant which has replaced an Arabic glottal stop. As Kurmanji is not generally held to have a contrastive glottal stop, likely this syllable was reanalyzed as pharyngeal due to the presence of /m/, a labial, both before and after the vowel, in line with the strong perceptual similarity of the flattening effect of labials and pharyngeals on adjacent vowels. One of the few other Arabic items in Kurmanji with a labial on each side of a vowel is the common men's name *Muhammad*, sometimes pronounced [mæʕmæd]. In my analysis, both of these items may be analyzed as beginning with /mæ^ʕm/ in Kurmanji, with a single pharyngealized vowel phoneme /æ^ʕ/ between the two nasals.

[hærem] ('region') is predicted as a pharyngeal owing to the presence of a permissible vowel next to an original pharyngeal sound in Arabic. Arabic /ħar/ syllables ought to be realized as [ħæɾ] in Kurmanji. Despite the ultimately Arabic source, this item may be a loan through Persian. The Arabic source word /ħari:m/ translates more or less to 'harem' in English: compare the Persian /ħæri:m/ may be used with a meaning closer to 'sanctum' or 'frontage'. Indeed, with the non-'region' meanings, this Arabic root's Kurmanji descendants do surface with pharyngeal articulation (e.g. Arabic /ħara:m/ > Kurmanji [ħæɾam], 'forbidden').

4.2 Exceptional cases – analogy and contamination

A small number of inherited words in Kurmanji contain pharyngealized sounds for reasons not explainable by the phonetic principles outlined in Section 3. We must account for these items through an alternative account.

In the item [zæħɾ] ~ [zæɾ] ('poison', Table 2 and Table 9), no labial is to be found that might explain the pharyngeal quality of this item, which is widespread among Kurmanji dialects. A particularly rare syllable type may have strengthened the perceptual magnet effect on the few items with this common syllable structure. Three Kurmanji items of which I am aware end

in -VhR (all of them with the same vowel, [æ]), two of which are inherited ('poison' and [tæɦl] ~ [tæɣl], 'bitter'), and the third is a common Arabic loan item: [bæɦr] ~ [bæɣr] ('sea', also used for lakes in some varieties). The two native items with a similar structure (/tæɦl/ and /ʒæɦr/) may have undergone analogical change as a result, so that these three lonely friends became more similar: -æ^shR.

Another item without a labial but with a widespread pharyngeal pronunciation is [hæft] ('eight', Table 1). [hæft] was likely pharyngealized due to sequential contamination¹⁰ by [hæft], 'seven'. The latter is hardly a bold claim, as the initial /h/ in the West Iranian item for 'eight' is itself originally a case of contamination from the item for 'seven' in the first place (note the lack of any initial in the Proto-Indo-European *ok̑-tō(u), see Table 1). Under this account, the relationship between the initials in 'seven' and 'eight' from Old Iranian (e.g. Avestan) to New West Iranian broadly mirrors that between Sorani and Kurmanji Kurdish (see Table 15).

Table 15: 'Seven' and 'eight' in various Iranian varieties

Avestan	Persian	Sorani Kurdish	Kurmanji Kurdish	Gloss
hapta	[hæft]	[hæwt]	[hæft]	'seven'
ašta	[hæɣt]	[hæɣt]	[hæɣt]	'eight'

Contamination of numerals is also attested in other numeral sequences in Kurmanji, with 'twelve' and 'sixteen' both containing unetymological nasalization of a vowel, in both cases following numerals in sequence with nasalized vowels that are the result of a post-vocalic /n/ at an earlier stage of the language, as illustrated in Table 16. While this implies the existence of a nasalized vowel phoneme in the language, this is quite marginal, attested only in these numerals.

Note that just as with the glottal or pharyngeal in the word for 'eight' in Table 15, a phonological feature (nasalization) is carried forward to the subsequent numeral in the count.

Although this work has attempted to provide a "pan-dialectal" analysis of Kurmanji, the pharyngealized obstruents, attested only in some dialects (Bidlîs, Sêrt), are worth mentioning here because of another apparent ex-

¹⁰Not merely analogy, by which phonological similarity draws items phonologically closer (Garrett 2015), some discursive similarity, in this case sequence, causes phonological contamination of one item by another.

Table 16: ‘Eleven’, ‘twelve’, ‘thirteen’, ‘fifteen’, ‘sixteen’, and ‘seventeen’

Proto-Indo-European	Avestan	Kurmanji	Gloss
*oṓnos-dekṓm-	aēvan-dasa-	[jãzdæ]	‘eleven’
*duṓ-dekṓm-	duwa-dasa-	[dãzdæ]	‘twelve’
*trei-dekṓm-	ṓri-dasa-	[sezdæ]	‘thirteen’
*penkwe-dekṓm-	panca-dasa-	[pãzdæ]	‘fifteen’
*suxeṓs-dekṓm-	xšvaš-dasa-	[jãzdæ]	‘sixteen’
*septm-dekṓm-	hapta-dasa	[hãvdæ]	‘seventeen’

ception. Consider the item [mæz^ʕm], ‘great’, whose /z/ → [z^ʕ] shift would appear in line with the analysis up to this point, both in terms of syllable structure for a pharyngealized vowel (it is preceded by [æ]), and in terms of the labial /m/ on the other side of the vowel. So it would appear that pharyngealized obstruents in surface forms of inherited vocabulary in these dialects simply add several coronal obstruents (/t/, /d/, /s/, /z/, those whose pharyngealized equivalents are attested in Arabic) to /h/ to create a group of consonants on which pharyngealization may “land”. To this clean argument I immediately counterpose [z^ʕæn]-, ‘to know’ (see Table 1). [z^ʕæn] ([zan] in most dialects) has the coronal and non-flat nasal /n/ instead of a labial or indeed any flat consonant. This could, however, be accounted for due to association with the semantically and phonologically similar Arabic verb /z^ʕann/, ‘to suppose’ or ‘to reckon’. Arabic verbs are regularly loaned into Kurmanji with an *-in* infinitive form: the infinitive of [zan] is [zanin]), formally similar to the result of the loaned Arabic /majʔ/, ‘to walk’ > Kurdish [mæʃin].

5 Conclusions

The existence of pharyngeal articulations in Kurmanji might be expected due to the long history of contact and likely bilingualism between speakers of Kurdish and speakers of Semitic languages, particularly Arabic. However, as previously discussed, pharyngeals in inherited vocabulary, being non-etymological, must be accounted for by a different process to simple lexical borrowing.

Thus far, I have put forth several hypotheses about pharyngeals in inherited vocabulary in Kurmanji:

1. Pharyngeals have arisen spontaneously in many syllables containing a low vowel and a labial, or a round mid-high vowel and [ʃ], due to their combined effect on the formant frequencies approximating the effects of pharyngealization.
2. Exceptional cases can be explained in terms of phonological analogy or the influence of contamination with other, already pharyngeal items in the language.
3. Kurmanji pharyngeals occur in permissible contexts for approximants, with the voiceless [ħ] replacing /h/ where it occurs.

These generalizations make predictions which are generally born out in practice in Kurmanji. However, exceptions may still be found which necessitate further study into this pattern. For example, /baʃ/ ('good') is a common root that contains a labial consonant and a low vowel, but it has never been reported with a pharyngeal, and speakers of various dialects reject [bæʃ] as a possible pronunciation of the word (in their dialect or any other with which they are familiar). Further restrictions may be posited to explain such cases. There are no apparent cases of pharyngeal-voiceless fricative clusters (-VʃS) in the language, including in Arabic loans where they might be expected: [maf], 'right(s), entitlement' is generally agreed to derive from Arabic /miʃa:f/, but is never realized as [mæʃ] in Kurmanji.

This paper set out to explain the appearance of pharyngeals in Kurmanji in phonetic and phonological terms. Previous analyses fail to account for the process of incorporation of pharyngeals into the phonology vis-à-vis inherited vocabulary, although this phenomenon is noteworthy. While linguists are willing to assume discrete, compartmentalized phonologies or phonological rules for loan vocabulary and inherited vocabulary (Hall 2013: 238–239, 246–250), the varied and possibly expanding store of inherited items with pharyngeals implies a unified phonology.

An interesting consequence of the analysis has been the necessity of reinterpreting the pharyngeal sounds not as consonants, but as pharyngealized vowels, owing to the apparent constraint on which vowels may serve as nuclei for pharyngealized syllables. My claim is that, synchronically, Kurmanji contains two additional pharyngealized vowel phonemes, /æ^ʕ/ and /i^ʕ/.

Pharyngeals, whatever their origin, are salient in Kurmanji, and speakers of the language (as well as their linguistic neighbors) are acutely aware of this sound, and view it as a differentiating feature between the "Kurdish accent" and the "Turkish accent" or "Persian accent" (but not the "Arab

accent”, which may explain their exclusion from the Latin script orthography). Saliency is often ranked as an important criterion in determining the sounds of a language, but without minimal pairs, the contrast between pharyngeal and non-pharyngeal vowels in Kurmanji, however intriguing, would be a case of a “quasi-phonemic contrast” (Hualde 2004; Scobbie & Stuart-Smith 2008). Do minimal or near-minimal pairs exist to contrast pharyngeal and non-pharyngeal vowels in Kurmanji?

One difficulty in locating minimal or near-minimal pairs in the language is that one of the posited pharyngealized vowel phonemes, /ɪ̤/, is relatively rare. Many Arabic words with a high vowel adjacent to a pharyngeal find /æ̤/ forms in Kurmanji, which is perhaps expected given that pharyngeal articulation has an F1 raising effect reminiscent of vowel lowering (Ghazeli 1981). Of the few inherited items which contain /ɪ̤/ (Table 13), none have a non-pharyngeal equivalent in loan vocabulary.

The more common /æ̤/ would seem the more fruitful place to look for minimal pairs. And in spite of the capacity for new items to become pharyngealized, we see the emergence of a small number of consistent minimal and near-minimal pairs with the low pharyngeal vowel, as in (3).

- (3) Minimal and near-minimal pairs with the low vowels /æ̤/, /a/, and /æ/
- a. /æ̤rd/ [ʕærd] ‘ground’, /ard/ [ard] ‘flour’
 - b. /æ̤vdan/ [ʕævdan] ‘slaves’ (oblique), /æv dan/ [ævdan] ‘gave them’
 - c. /hæ̤van/ [hævan] ‘pieces’ (oblique), /hæval/ [hæval] ‘friend’

The rarity of pharyngeal sounds cross-linguistically and their complex evolution in Kurmanji Kurdish makes the language crucial for the study of areal sound patterns. Significant variation exists within the language, including with regard to pharyngeals, making all Kurdish varieties valuable to continued research. This work cannot be delayed, as many dialects of the language are under threat by ongoing assimilation, the result of the repression, migration, and the language policies of the modern states in control of the four parts of Kurdistan, which have followed Kurmanji speakers into the diaspora. This is particularly true for Turkey, with its large Kurmanji-speaking population whose language transmission has been severely threatened by decades of denialism, a generation-long total ban on their language, and whose fundamental rights to education in and propagation of their own language are still unrecognized and impeded to this day.

To conclude, it is hoped that this small study underscores the importance of preserving, documenting, learning, and passing on this geographically, historically, and culturally significant language, and all under-recognized, under-studied, and threatened languages. If a language such as Kurmanji, with its millions of speakers, can lose so much linguistic ground over the past century, and can, in the early 21st century, still have so much linguistic work to be done as this study on one corner of its phonology implies, we can only imagine the state of even smaller and less known languages, within the Iranian language family, within the Middle East region, and around the world.

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