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ARTÍCULO

On the phonology and origin of the labialized dorsal consonants in Seri

Fonología y origen de las consonantes dorsales labializadas en seri

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Abstract

This study examines the phonology and historical development of the labialized dorsal consonants in Seri (*Cmiique Iitom*), a language of northwestern Mexico. This language has a rare contrast between velar and uvular fricatives, each with labialized counterparts, forming six voiceless dorsal phonemes. It is shown that labialized consonants originated historically through the loss of round vowels in three main contexts: posttonic syllable, the third person indirect object prefix, and the emphatic realis prefix. Phonetic phenomena such as anticipatory labialization and postlexical spread are presented in detail. The study also discusses the Seri orthography, which preserves distinctions critical to the language's structure.

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Keywords: dorsal consonants, uvular fricative, labialized consonants, historical development, internal reconstruction

Resumen

Este estudio examina la fonología y el desarrollo histórico de las consonantes dorsales labializadas en el seri (*cmiique iitom*), una lengua del noroeste de México. Esta lengua presenta un contraste poco común entre fricativas velares y uvulares, cada una con su contraparte labializada, formando seis fonemas dorsales sordos. Se demuestra que las consonantes labializadas surgieron históricamente por la pérdida de vocales redondeadas en tres contextos principales: la sílaba postónica, el prefijo de objeto indirecto de tercera persona y el prefijo de realis enfático. Se presentan detalles fonéticos como la labialización anticipada y la propagación posléxica. Además, se analiza la ortografía del seri, que preserva distinciones críticas para la estructura del idioma.

Palabras clave: consonantes dorsales, fricativa uvular, consonantes labializadas, desarrollo histórico, reconstrucción interna

1. Introduction

The Seri language (*Cmiique Iitom*) of northwestern Mexico is one of the few languages in Mexico that has a voiceless uvular fricative as a phoneme in contrast with a velar fricative, and perhaps the only one that has this contrast robustly in native words (not loanwords).[1] Moran &

[1] ISO 6393 code: sei. The language is the only one in the Seri genus (Haspelmath *et al.* 2008). While Eberhard *et al.* (2025) list the language as 6b (threatened) on the EGIDS scale, it should now be considered 7 (in transition) because most of the youngest generation is not learning the language at all.

McCloy (2019) list it as the only one, but that source does not include Yatzachi el Bajo Zapotec (Butler 1980), although in the latter, the contrast may only exist due to recent loanwords. In fact, Seri has two uvular fricatives: one plain and one labialized.[2] The dorsal consonant inventory consists of six voiceless phonemes: a velar plosive, a velar fricative, and an uvular fricative, each with a labialized counterpart.[3] This article discusses the phonetics and phonological analysis of these sounds, of interest in themselves, and also the evidence of how the labialized consonants came to exist. Not surprisingly, the loss of an adjacent round vowel is the source of the labialization, but three major contexts are identified.

2. Present-day inventory of dorsal consonants

While this article focuses on the dorsal consonants, it is appropriate to see them against the backdrop of the complete phonological inventory (see Marlett *et al*. 2005). The consonants and vowels are given in Tables 1 and 2. With regard to the consonants, presented here following the style of the International Phonetic Association (IPA 1999), it is argued

[2] Yatzachi el Bajo Zapotec also has labialized dorsal fricatives.

[3] The modern language does not have a labial-velar approximant phoneme. It is possible that such a sound, or a bilabial approximant, occurred in the historical period and was the source of what was called the chameleon consonant in Marlett (1981a) and the abstract consonant in Stemberger & Marlett (1983). Recent unpublished work by Mikhael Zhivlov has claimed that the consonant written as <v> and <b> in some early word lists, such as Bartlett (1852) and Pinart (1879), is in fact that consonant. The language also does not have a velar nasal as a phoneme, despite the proposal in Moser & Moser (1965: 55), but rather a velar allophone of /m/, the unmarked nasal in the language. See Marlett (1981b) and Marlett *et al.* (2005). Another allophone of /m/ is a nasalized labial-velar approximant that occurs when /m/ follows a tautosyllabic velar plosive, as in /ˈkmaːm/ [ˈkw̃āːm] ‘female, woman’.

that the glottal stop functions as a sonorant consonant with respect to the formation of syllables as it patterns with the nasals and the palatal approximant. The tap occurs only in loanwords; the lateral approximant is found only in a handful of words.

Table 1. Consonant inventory

	Bilabial	Alveolar	Post-alveolar	Palatal	Velar	Uvular	Glotal
Plosive	p	t			k k^w		ʔ
Nasal	m	n					
Tap		ɾ					
Fricative	ɸ	s ɬ	ʃ		x x^w	χ $χ^w$	
Approximant				j			
Lateral approximant		l					

The vowels are presented in Table 2 as they function phonologically in the system, based on how verbs conjugate and how ablaut rules work in the language. Diphthongs also occur frequently. What are perceived and written as single state vowels of triple length also occur occasionally, some of which are clearly vowel clusters.

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Table 2. Vowel inventory

	Front	Back
High	i iː	o oː
Low	ɛ ɛː	a aː

2.1. Distribution

Modern Seri has six dorsal consonants, as shown in Table 1. I use the label "uvular" rather than "back velar" (Moser & Moser 1965), although the latter term may be more accurate.

Data supporting the robust contrasts between these consonants are presented in Marlett *et al.* (2005) and Marlett (in preparation), as well as in Moser & Moser (1965) (with the understanding that other facts are analyzed differently now). They contrast clearly in various positions, as shown in Tables 3–6.[4] The distribution of labialized consonants is skewed because of their historical development, as shown in §3, but their contrasts are also easily shown.

[4] Many of the verbs are presented here in the dictionary citation form, which employs the prefix /k-/, the realis nonnegative, nonpassive, subject-oriented nominalizing prefix. Thus the word /ˈkoxoʃ/ is morphologically /ˈk-oxoʃ/, and literally 'one who flees'; such a form is used commonly in relative clauses (Marlett 2012) and also with a simple declarative or interrogative enclitic to express progressive aspect. Verbs do not appear without inflection. Infinitival forms exist but are morphologically more complicated as well as very limited in their distribution. Body part and kinship nouns have obligatorily bound stems. The term /ˈitak/ 'its bone' in Table 6 includes the prefix /i-/ for third person possessor; this vowel is absent phonetically before /j/-initial stems, as in /jaˈʃakʷʃ/ 'its beak' in Table 7.

Table 3. Word-initial examples of plain dorsal consonants

k	ˈkaːtk	‘grasshopper’
	ˈkiːt	‘*Carditamera affinis* (clam)’
x	(loanwords or words that have variants with /χ/)	
χ	ˈχat	‘hail’
	ˈχɛpɛ	‘sea’
	ˈχiːmɛ	‘sardine’

Table 4. Word-medial examples of plain consonants

k	ˈʔakat	‘shark’
x	ˈkoxoʃ	‘to flee’ (/k-/ nominalizer)
	paˈxaːs	‘squid’
χ	ˈʔaːχat	‘creosote bush’

Table 5. Preconsonantal coda examples of plain consonants

k	ˈkpokt	‘to be full’ (/k-/)
	ˈkoːkp	‘to grow’ (/k-/)
x	ˈkaːxk	‘to yawn’ (/k-/)
	ˈkkoxp[5]	‘to jump’ (/k-/)
χ	ˈʔaχt	‘*Crassostrea columbiensis* (oyster)’
	ˈkoːχp	‘to be white’ (/k-/)

[5] Like other false geminates in the language, /kk/ is phonetically realized as a long consonant.

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Table 6. Word-final examples of plain consonants

k	ˈkʔak	‘to be blind’ (/k-/)
	ˈitak	‘its bone’ (/i-/ is third person possessor)
x	ˈʃaːx	‘cave’
	ˈkoːtax	‘ant’
χ	ˈʔaχ	‘fresh water’
	ˈkataχ	‘to go’ (/k-/)

Table 7. Coda examples of labialized consonants

k^w	maˈjoːk^w	‘yellow-crowned night heron’
	jaˈʃak^{w}ʃ	‘its beak (of bird)’
x^w	ˈkaːx^w	‘seep willow’
	ˈkox^{w}ʃ	‘to be rounded’ (/k-/)
$χ^w$	ˈkʃaχ^w	‘to talk about’ (/k-/)
	ˈkopχ^{w}t	‘to be loose’ (/k-/)

Plain velar fricatives are essentially unattested in word-initial position except for loanwords and a few words in which they alternate with uvular fricatives in the speech of some community members, for example [xoŋˈxɛːʃiʃ] ~ [χoŋˈxɛːʃiʃ] ~ [χoŋˈxɛːʃix] ~ [moˈχɛːʃiʃ] ‘ocotillo’.

No prefix contains the velar fricative; the uvular fricative appears in the realis emphatic prefix /χo-/.

Both velar and uvular fricatives occur in suffixes that relate to plurality of subject or action, although the velar fricative tends to be more common.

Only uvular fricatives occur in enclitics: Emphatic /=χo/ and the ubiquitous Unspecified Time (or something like that) /=χ/.

Many nouns ending in /x/ use a mutation rule that changes that sound to /ɬ/ as part of their pluralization strategy, as noted in Moser & Moser (1976); for example, /ˈχaʃox/ 'mountain lion', /ˈχaʃɬk/ 'mountain lions'.

The velar and uvular fricatives are not clearly distinguished from each other in the transcriptions found in Bartlett (1852). Both fricatives are sometimes written as <ch> and sometimes as <h>. Bartlett also struggled with transcribing the lateral and postalveolar fricatives. The transcriptions in Pinart (1879) typically use <x'> for the plain uvular fricative, while the velar fricative has a variety of complex representations, sometimes overlapping with that used for the lateral fricative.

2.2. Phonetics

The back consonants do not have any significant variation in pronunciation, although some phonetic details are important to note. At this point, I also introduce facts relating to the pronunciation of the labialized consonants.

Like other plosives, the velar plosive has a variety of possible realizations in prepause position: unreleased, slightly aspirated, or voiceless nasal release (Moser & Moser 1965: 53).

The pronunciation of the plain velar fricative does not require special comment. See the representations of two words ending with this sound,

from PRAAT, in Figures 1–2. It is seen that the fricative coda is noisy but has fairly tight oscillations.[6]

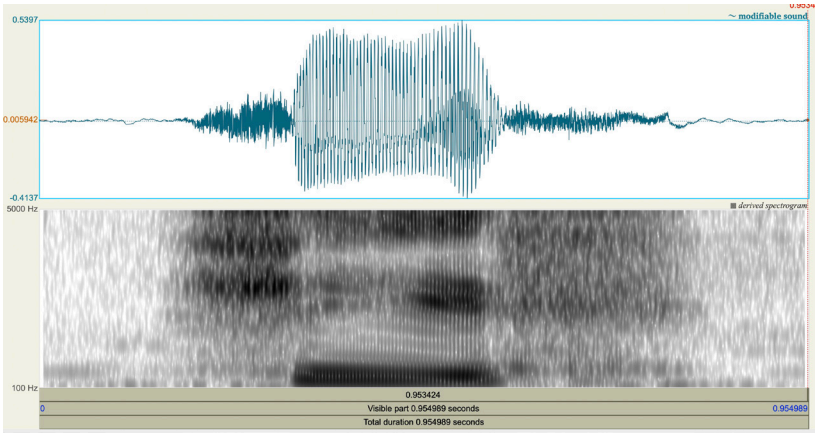

Figure 1. The word /ˈʃiːx/ ‘blue palo verde’, ending with a velar fricative

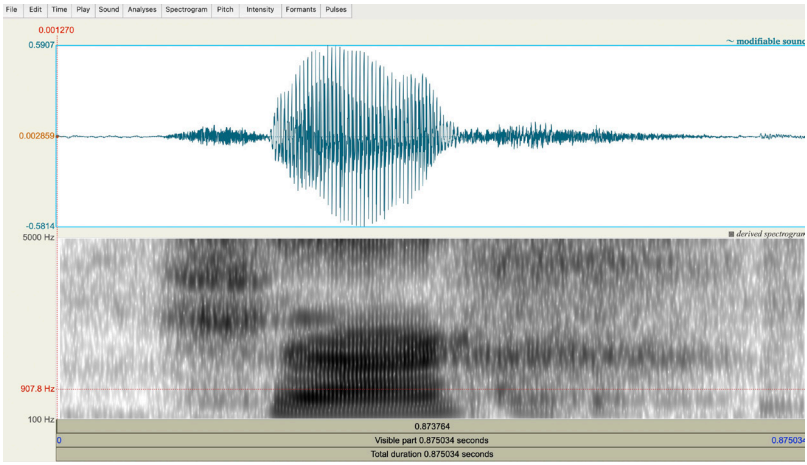

Figure 2. The word /ˈʃaːx/ ‘cave’, ending with a velar fricative

[6] The acoustic properties of these fricatives could certainly be the focus of further detailed examination.

The labialized velar fricative is notably free of significant velar friction, such that Moser & Moser (1965: 53) described it as a consonant that "varies from lightly spirant to vocoid articulation"; they used the Americanist symbol <W> for it. The relationship between it and the plain fricative was not clear until some years later.

The uvular fricatives are straightforward in their pronunciation. They were described in Moser & Moser (1965: 53) as featuring "marked trilling of the uvula", but this is not always the case. The pronunciation of these common consonants is often strong—perhaps one reason for the historical references to the "guttural" aspect of the language (Pajeken & Ruperti 1861, Bancroft 1886, among others)—but for some speakers, it is difficult to fully appreciate the contrast with the velar fricatives, enough so that I sometimes simply have to ask which they are pronouncing. Nonetheless, the contrast between velar and uvular fricatives is very robust. See the representations of two words ending with this sound, from PRAAT, in Figures 3-4. It is seen that the final segment, especially in Figure 3, has more turbulence with larger oscillations than that for the velar fricative seen in Figures 1-2.[7]

[7] I have not documented the extent of variation in production of these sounds in the community. While the pronunciation given here of the uvular fricative is typical, in my view, it also seems to be slightly exaggerated because of the context in which it was obtained.

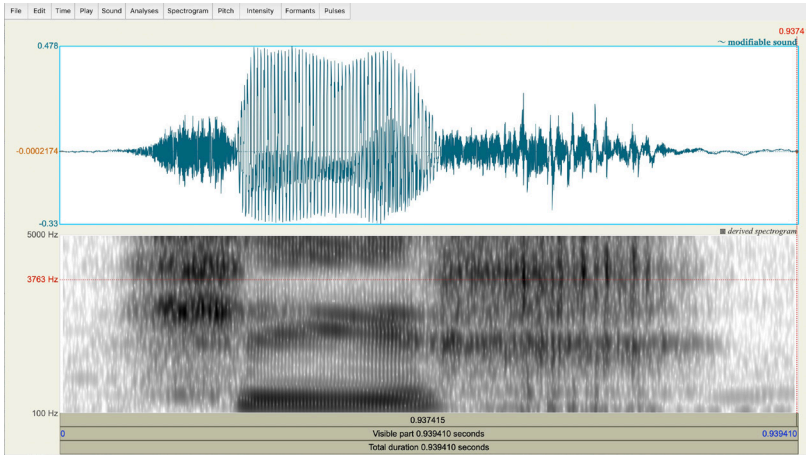

Figure 3. The word /ˈʃiːχ/ 'thing', ending with a uvular fricative

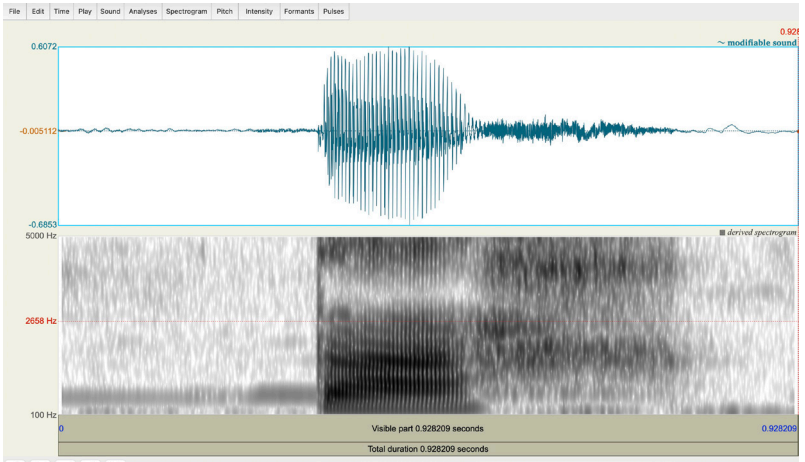

Figure 4. The word /ˈtaːχ/ 'those', ending with a uvular fricative

The high front vowel, perhaps especially when long, diphthongizes slightly to a close central vowel when it precedes a tautosyllabic plain uvular fricative (Moser & Moser 1965: 55). Compare the forms in (1).

(1)	a.	ˈʃiːx	[ˈʃiːx]	‘blue palo verde’
	b.	ˈʃiːχ	[ˈʃiɨχ]	‘thing’
	c.	ˈktiːχp	[ˈktiɨχp]	‘to squeeze liquid from’ (/k-/)

Like other consonants in the language, these are given more forceful pronunciations when they follow a stressed vowel (short or long). Such a pronunciation is perceived as a measurable increase in length when the consonant precedes a vowel. See the examples in (2), all of which end with the declarative enclitic as a simple context that provides a vowel. (This lengthening is not included in other phonetic representations in the present work.)

(2)	a.	ˈkiː[kː] iʔa	‘s/he is planting it’ (/k-/)
	b.	ˈki[kʷː] iʔa	‘s/he is killing it/him/her’ (/k-i-/)[8]
	c.	ˈʃaː[xː] iʔa	‘it is a cave’
	d.	ˈkaː[xʷː] iʔa	‘it is a seep willow’
	e.	ˈʔa[χː] iʔa	‘it is water’
	f.	ˈkʃa[χʷː] iʔa	‘s/he is talking about it’ (/k-/)

The labialized consonants are typically pronounced with anticipatory labialization when they occur in a closed syllable (Moser & Moser 1965: 54, note 7). This is written in the following examples with a very short

[8] Transitive subject nominalizations have the prefix /i-/ following the nominalizer /k-/, although this vowel does not surface in most contexts.

vowel, appropriately taken as a prevowel (Operstein 2010) that varies slightly in quality based on the vowel that it follows.

(3) a. ˈki[ŭ]kʷ ‘to kill it’ (/k-i-/)
b. ˈsiː[ŭ]kʷsχax ‘s/he will be tall’ (/si-/)
c. ˈχɛː[ŏ]kʷɬ ‘wolves’
d. ˈkaː[ŏ]kʷɬ ‘to be big (pl.)’ (/k-/)

e. ˈkaː[ŏ]xʷ ‘seep willow’
f. ˈχtoːʃa[ŏ]xʷ ‘worm snail’

g. ˈkʃa[ŏ]χʷ ‘to talk about’ (/k-/)
h. ˈʔa[ŏ]χʷɬ ‘multicolored clam (*Leukoma grata*)’
i. ˈkiː[ŭ]χʷp ‘to roar’ (/k-/)

Labialization spreads postlexically to immediately adjacent dorsal consonants in a variety of contexts, some of which are shown in (4).

(4) a. ˈsiːɸp [k]a ‘the one who will arrive’
b. ˈsiːkʷ [kʷ]a ‘the one who will kill him/her/it’

c. ˈsʔaχ [k]a ‘the one that will be greasy’
d. ˈsʃaχʷ [kʷ]a ‘the one who will talk about it’

e. ˈsiːptx [k]a ‘the one that will be wide’
f. ˈsmotxʷ [kʷ]a ‘the one that will be soft’

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g.	ˈsiːχ [k]a	‘the one that will be inflated’
h.	ˈsiχʷ [kʷ]a	‘the one who will jump over it’
i.	ˈkaːspox iʔa	‘s/he is writing’
j.	ˈanχʷ ˈ[kʷ]aːspox iʔa	‘s/he is writing a lot’
k.	ˈsaːspox kaʔa	‘s/he will write’
l.	ˈkʷsaːspox kaʔa	‘s/he will write with it’
m.	ˈkʷ[kʷ]aːspox iʔa	‘s/he is writing with it’

These facts, and one more, help us to understand what is happening with some cases that may be less than clear at first. Consider the words in (5), given in impressionistic phonetic transcription.

(5)	a.	[ʔaˈjaŏkw̥]	‘ankle’
	b.	[taˈʔɛŏw̥kʷ]	‘Tiburón Island’

The phonological analysis for these was not immediately obvious five decades ago, and even today native speakers vacillate on how to write them until their attention is drawn to the following facts. The unequivocal evidence that confirms the analysis comes from when one is expressing disbelief at a statement or use of a certain word. Typically, the enclitic /=a/ appears, and low pitch intonation occurs on the stressed and ensuing syllables. Furthermore, when the stressed syllable has a complex coda, an infix /-a-/ occurs after the first consonant of the coda. For example,

to say ‘rock, my eye!’, the word /ˈʔast/ is adjusted by these mechanisms, producing [ˈʔàsːàt à]. The spontaneous use of this rhetorical device provides clear evidence of the phonological string that the speaker is accessing on the spot.[9] Turning now to the words in (5), the results are clear, and the analysis is shown in the rightmost column of (6).

(6) Analysis of basic word

a.	[ʔaˈjàǒkʷàx à]	‘ankle, my eye!’	/ʔaˈjakʷx/
b.	[taˈʔɛ̀ǒxʷàk à]	‘Tiburón Island, my eye!’	/taˈʔɛxʷk/

In both cases, the presence of the infix removes the context for the postlexical spreading of labialization and permits the second consonant of the cluster to be revealed in a clear way.[10]

[9] People who have given data on this point have included primarily those who are not literate in Seri. I was extremely fortunate to learn about this construction from Mary B. Moser back in about 1975. The spontaneity of the use of this infixation, with its rules, gives it the weight of a word game that can be used to explore what I take as a mental reality that is not always obvious from the phonetic form. I have little doubt that when Roberto Herrera Marcos generated the expression for ‘ankle, my eye!’ for me (shown in (6a)) as I forayed initially into a review of the facts and the analysis provided in Moser & Moser (1965), it was the first time in history that the modified word had been spoken.

[10] The words were written as *hayáocö* and *tahéoöcö* in Moser & Moser (1961), but the former was later phonemicized in Moser & Moser (1965) as /ʔayakW/ (p. 54) because the phonetic difference between the ending of ‘ankle’ and [ʔokʷ] ‘pine, wood’ was recognized and taken into account (p. 54, note 8). The 1961 transcriptions also predate the realization documented in Moser & Moser (1965) that there is anticipatory labialization. Today these two words are written as *hayacöj* and *Tahejöc*, respectively (Moser & Marlett 2010).

3. History

Two topics are distinguished here: the history of the plain dorsal consonants and that of their labialized counterparts.

At the present time, Seri is considered a language isolate (see Heaton 2018), although it has long been hypothesized that there is a relationship between it and other languages to the north, as part of the Hokan hypothesis. See the balanced and detailed discussion of that proposal in Zhivlov (2024).

Currently there is no reason to suggest anything other than Proto–Seri *k, *x and *χ for the plain dorsal consonants.[11] The story is quite different when it comes to the labialized consonants. The overwhelming evidence is that these are derived from the loss of the only round vowel that Seri has, namely /o/. Three different contexts are relevant, and these are discussed in the following sections. Because of this evolution, we understand why labialized consonants, with rare exception, do not occur intervocalically in monomorphemic words.[12]

[11] The possibility of reconstructing a uvular plosive for Proto–Yuman is considered in Gil Burgoin (2014), but the data are few. Miller (2018) discusses both /q/ and /qʷ/.

[12] The word lists available suggest that the loss of the vowel had already happened by the late nineteenth century (see Marlett 2010) although, as Mikhail Zhivlov has pointed out (personal communication), the situation was muddled, one might say, by the apparent use of a different repair strategy for handling stranded nasals. In modern Seri the vowel /i/ occurs after such nasals (see /ˈmoːsni/ 'sea turtle', for example). But the language transcribed in the 19th-century word lists used some kind of vowel before the nasal (see Pinart's transcription <mossen>, although the transcription of the second vowel is not entirely clear in the manuscript). Zhivlov has clarified to me to that Pinart typically used a Cyrillic symbol for this epenthetic vowel, which may be identified with [i], as he clarified in notes published in Hernández (1902: 256facing). One might mistake, as I did, this alternative repair strategy as representing the historic vowel.

3.1. Posttonic vowel loss

The vowel of the second syllable of many roots is lost in certain morphological contexts. Given that this syllable is often unstressed (Marlett 2008), this is not surprising. But the elision is not simple phonetics or even phonology, since no known set of phonological conditions accounts for it.

A comparison of singular and plural forms of some nouns reveals one situation for vowel loss. Pluralization strategies are numerous and complicated (Moser & Moser 1976), for which reason the plural forms are listed in the dictionary (Moser & Marlett 2010). Some examples showing the relevance of these data for the matter of vowel loss are given in Table 8. We see the loss of the posttonic vowel in the plural forms (note that the vowel quality is not predictable), and specifically in items d–g the presence of the labialized back consonant. The feature [+round] has reassociated to the preceding dorsal consonant.[13]

Table 8. Pluralization of nouns: vowel loss in the plural form

	Singular	Plural	
a.	ˈinoɬ	ˈinɬ	‘his/her hand/finger/arm’
b.	moˈxɛpɛ	moˈxɛptox	‘saguaro cactus’
c.	ˈχaʃox	ˈχaʃɬk	‘mountain lion’
d.	ˈχɛːkox	ˈχɛːkʷɬ	‘wolf’
e.	ˈʔaːko	ˈʔaːkʷt	‘house’

[13] Similar facts are found in some subgroups of Zapotecan languages of the Otomanguean family in southern Mexico; see Smith-Stark (2007) and Fernández de Miranda (1995 [1965]), for example.

	Singular	Plural	
f.	ˈʔɛːχox	ˈʔɛːχʷɬ	‘piddock clam’
g.	jaˈχaχox	jaˈχaχʷɬ	‘his/her waist fat’

Vowel loss also happens in the formation of the singular form of some nouns, as shown in Table 9. So far as I know, none of the examples provides the underlying round vowel and a dorsal consonant that are necessary to obtain a labialized consonant.

Table 9. Pluralization of nouns: vowel loss in the singular form

	Singular	Plural	
a.	ˈʔast	ˈʔasatox	‘stone’
b.	ˈkoɛːpt	ˈkoɛːpitox	‘quail’
c.	ˈiːst	ˈiːsatox	‘its roe’
d.	ˈoːt	ˈoːtołk	‘coyote’
e.	ˈsiːp	ˈsiːpiłk	‘young man’
f.	ˈχpist	ˈχpisatj	‘squirrel’
g.	ˈʃiːk	ˈʃiːkałk	‘bird’

Similar facts and complexity are found in verb paradigms that show singular versus plural subject, and simple versus multiple action (Moser, E. 1961; Marlett 1981b; Baerman 2016). The data are cited in the realis–t form (prefix /t-/), as shown in the conjugation field in Moser & Marlett (2010), albeit with stress marked explicitly here.[14] The vowel of the second syllable of the root, regardless of its quality, is maintained in

[14] Third person subject and third person direct object are typically null; however, third person subject acting on third person direct object is marked by /i-/.

some forms and lost in others, with no known generalization accounting for the facts.

Table 10. Verbs demonstrating vowel loss in some form

	Singular, Simple	Singular, Multiple	Plural, Simple	Plural, Multiple	
a.	iˈtnip	iˈtnipatim	iˈtnoːptox	iˈtnoːptołka	‘to strike’
b.	iˈtaʔo	iˈtaʔotim	iˈtaʔt	iˈtaʔtołka	‘to see’
c.	iˈttiːχp	iˈttiːχapim	iˈttiːχapox	iˈttiːχapołka	‘to squeeze
d.	iˈtasni	iˈtasinim	iˈtasixam		liquid from’ ‘to roast’
e.	iˈtapot	iˈtapotim	iˈtapt	iˈtapotam	‘to exchange for’
f.	iˈtakʷ	iˈtakotim	iˈtakʷt	iˈtakʷtox	‘to kill’
g.	ˈtaːkox			ˈtaːkʷɬ	‘to be large’
h.	takʷtim	ˈtakotim	ˈtakʷtam	ˈtakʷtox	‘to cover as with a blanket’
i.	ˈtimoʃ	ˈtimxʷk	ˈtimxʷox ~	ˈtimoxkam	‘to think’
			ˈtimxʷk		

As happens with the nouns seen earlier, the loss of an /o/ results in the reassociation of the feature [+round] with a dorsal consonant, as shown in items f–i of Table 10.

In some verbs, the loss has happened in all the forms, leaving behind a rounded consonant that does not alternate with a plain consonant; for example, /iˈtʃaχʷ/, /iˈtʃaχʷtim/; /iˈtʃaχʷt/, /iˈtʃaχʷtołka/ ‘to talk about’.

3.2. The third person indirect object prefix /ko-/

The third person indirect or oblique object prefix, which is used in numerous semantic and syntactic contexts, is undoubtedly /ko-/ in its underlying form, to use traditional generative terminology. And while it is tightly bound to the verb, it also arguably has a stronger boundary than most other prefixes in the language; for that reason, I usually present it as /ko=/; see Marlett (in preparation). The vowel shows up as such in limited contexts, however, including when it fuses with the vowel of a root, as in some imperatives with a null imperative prefix, as seen in (7).

(7) a. ˈkoːmxk ‘take it to him/her!’
b. ˈkoːtaχ ‘go like him/her/it!’

The vowel also appears in certain phonetic contexts, described in detail in Marlett (1990) and Marlett (in preparation). In the examples given in (8), it is the first syllable that corresponds to the prefix in question.

(8) a. kokomˈpanʃχ ‘do not run like him/her/it!’
b. koˈkkaʔ ‘the one that makes a call like it’

In all other contexts, the prefix is realized as /kʷ/. This fact, plus the conditions under which the prefix is used, including just being present al-

ways with the verb for ‘to be dry’, as in (9), results in this consonant being very common in sentences throughout the language.[15]

(9)	a.	ˈkʷkoːtix	‘the one that is dry’	[ˈkʷːoːtix]
	b.	kʷiˈmoːtix	‘the one that is not dry’	
	c.	ˈkʷtoːtix	(realis-t)	
	d.	ˈkʷsoːtix	(independent irrealis)	
	e.	ˈkʷpatix	(dependent irrealis)	[ˈkʷːatix]
	f.	ˈkʷjatix	(realis-yo)	
	g.	ˈkʷχʷatix	(emphatic realis)	
	h.	ˈkʷmoːtix	(realis-mi)	[ˈkʷw̃õːtix]

3.3. The emphatic realis prefix /χo-/

One of the seven mood prefixes for which finite verbs are inflected is the emphatic realis /χo-/. While it is not uncommon, the semantic conditions for its use mean that verb forms with this prefix do not typically occur in texts.

Again, the evidence is clear that /χo-/ is the basic form of this prefix; it always occurs before consonants, as in (10a–b), it fuses with a short low vowel to produce a long /oː/, as in (10c); while eliding before most other vowels, as in (10d–e).

[15] The forms in (9e–g) are regular, although odd, because of the quality of the stressed vowel. The change from /oː/ to /a/ is not phonetically motivated. See the discussion in §3.3 for the emphatic realis form in particular.

(10)	a.	i-χo-ˈm-aʔo	‘s/he does/did not see him/her/it’
	b.	χo-ˈmam	‘it is/was ripe’
	c.	i-ˈχoːʔo	‘s/he sees/saw him/her/it’
	d.	ˈχ-isiɬ	‘it is/was small’
	e.	i-ˈχ-oːkta	‘s/he looked at him/her/it’

In one rare context, an unusual merger or ablaut occurs, which also produces a labialized uvular fricative when this prefix is present. When the verb is intransitive and the root begins with an /o/ (short or long), the result is simply /χʷa/. See the examples in (11).

		Realist /t-/	Emphatic realis /χo-/	
(11)	a.	ˈtoxoʃ	ˈχʷaxoʃ	‘to flee’
	b.	ˈtomtχʷ	ˈχʷamtχʷ	‘to be straight’
	c.	ˈtoːsot	ˈχʷasot	‘to be narrow’
	d.	ˈtoːχp	ˈχʷaχp	‘to be white’
	e.	ˈtoːkp	ˈχʷakp	‘to grow’

4. Practical matters

The Seri language began to be written for everyday use during the decade of the 1950’s following the pioneering work of Edward W. and Mary B. Moser, who made a successful proposal to the *Secretaría de Educación Pública* of Mexico, working under the auspices of the *Instituto Lingüístico de Verano*. At that time, the requirements were that alphabets for the indig-

enous languages of the country should not include symbols that were foreign to the writing of Spanish, including <k> and <w>. Some of the correspondences between phonemes and orthography are shown in (12), modernized somewhat to reflect the analysis of the labialized velar fricative.

(12)

Phoneme	Symbolization in orthography
k	*c, qu*
k^w	*cö*
x	*j*
x^w	*jö*
χ	*x*
$χ^w$	*xö*
ʃ	*z*

These orthographic conventions have remained in use to the present day and were reaffirmed by a community-based committee during the preparation of the dictionary (Moser & Marlett 2005; 2010).[16] They continue to guide publications directed at and written by Seri speakers, including the works listed in Marlett (2024) and social media posts by members of the language community. They were also legally codified in INALI (2019), whose published version features the digraph <cö> on the cover. The same conventions are followed in recently released primary school textbooks.[17]

[16] An alternative orthography was floated in Romero Astorga (1995), but for various reasons it was not considered viable by the community. That proposal differed from the one in (12) by using <k> for the plosive and <w> for the labialization, among other ways.

[17] These have not been delivered to the schools at the time of this writing, but they are viewable at https://libros.conaliteg.gob.mx/2024/EIP085.htm, for example.

The phonetic fact that the tautosyllabic sequences /km/ and /kʷm/ are both pronounced as [kw̃] (with nasalization then spreading to the following vowel or vowels) requires instruction for writers since in the beginning they write more phonetically and do not distinguish between, for example, *c-m-iij* (the negative imperative of 'to sit', consisting of *c-m-iij*, Imperative-Negative-be.seated) and *cö-m-iij* (the realis-mi form of the same verb inflected for third person oblique object, consisting of *cömiij*, 3.Oblique.Object-Realis.mi-be.seated). The main strategy is to point out that the use of <c> or <cö> is quickly decided by a mental examination of the paradigm.

The orthography currently in use is very functional but does not express any of the outputs of the postlexical processes mentioned in §2.2. See the examples shown in (13).

(13)			Example in the orthography	Phonetic form	Gloss
	a.	anticipatory labialization	*quicö*	[ˈkiŭkʷ]	'who kills it/him/her'
	b.	labialization spread to dorsal consonants	*cöcaticpan*	[kʷːaˈtikpan]	'who works with it/him/her'
	c.	labialization spread to dorsal consonants	*cöxaticpan*	[kʷχʷaˈtikpan]	's/he really works with it/him/her'
	d.	labialization spread to dorsal consonants	*anxö caticpan*	[ˈanχʷ kʷaˈtikpan]	'who works a lot'

(13)			Example in the orthography	Phonetic form	Gloss
	e.	anticipatory labialization and labialization spread to dorsal consonants	*hayacöj*	[ʔaˈjaŏkʷxʷ]	‘ankle’
	f.	assimilation of /p/ to /kʷ/	*cöpaticpan*	[kʷːaˈtikpan]	‘(if) s/he will work with it/ him/her’

5. Conclusion

The phonetic and phonological study of the dorsal consonants in Seri reveals a robust system that includes both plain and labialized uvular fricatives. The present-day inventory consists of six voiceless dorsal phonemes. Their distribution provides insights into the historical development of the language.

Certain phonetic facts enhance the perception of these consonants. These include diphthongization of a high vowel before the uvular fricative, the postlexical spreading of labialization, and anticipatory labialization.

Analysis of paradigms presents a good case of internal reconstruction, demonstrating that labialized consonants originated through the loss of an adjacent round vowel in three distinct contexts. This process accounts for the skewed distribution of labialized consonants and their absence intervocalically in monomorphemic words. This analysis also

helps connect modern Seri with what we find in the historical records dating from the 19th century.

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