

LANGUAGE & LINGUISTICS IN MELANESIA

Journal of the Linguistic Society of Papua New Guinea ISSN: 0023-1959
Vol. 42, 2024



Fronting of dorsal consonants in Buang—the origin of the velar-uvular split

Trey Lackey

[Website: www.langlxmlanesia.com](http://www.langlxmlanesia.com)

[Email: langlxmlanesia@gmail.com](mailto:langlxmlanesia@gmail.com)

Fronting of dorsal consonants in Buang—the origin of the velar-uvular split¹

Abstract

Oceanic languages generally are known as having relatively small consonant inventories, so the phonological inventory of Mapos Buang is notable for its large number of contrasts. Actually, its fully elaborated contrast between velar and uvular consonants, including a phonemic uvular nasal, is unique among Austronesian languages, and rare in the world's languages. Since Proto-Oceanic had a single uvular consonant *q, it has been wondered whether Mapos Buang's inventory of dorsal consonants is indeed inherited, or it is due to contact. In this paper I show that Mapos Buang's velar-uvular contrast was neither directly inherited nor strictly contact-induced. Rather, it was an internal development shared by all Buang dialects, where a general trend of velar backing did not occur when an *i vowel was adjacent. In this palatalizing context, fronting occurred instead. I also discuss the presence of 'back velars and uvulars found in nearby languages, suggesting that these contrasts in languages of the interior of Morobe Province may form an areal sound pattern, as described by Blevins (2017).

Introduction

The Mapos Buang language is notable among its Oceanic peers for having a relatively complex and unusual consonant inventory. Specifically, it has a fully elaborated distinction between velar and uvular consonants (cf. Table 1). The presence of uvular consonants is rare in Oceanic languages, and a system of uvular consonants including a uvular nasal contrasting with a velar one is unique among Austronesian languages, and almost absent from the world's languages otherwise. Most notably, a velar-uvular contrast is absent from other Buang varieties² (see below in the 'Background and previous research' section for more discussion of relations between the Buang varieties). Because of Mapos Buang's unique phonological structure, there has been some study of its historical phonology, but certain conclusions have still not been achieved when it comes to the origin of the velar-uvular contrast.

1 Thanks to Brenda Boerger, Juliette Blevins, and Malcolm Ross for their helpful comments and feedback.

2 In this paper—unless describing the perspective of some source—I typically use the term 'variety' from sociolinguistics to refer to any specific linguistic form, underspecified between dialects, languages, or other such categories. This is to avoid suggesting claims about languages versus dialects in a study of a much more narrow part of the Buang family's history.

This gap in knowledge has developed a newfound importance as a result of Blevins’ (2021) study of how the uvular stop *q of Proto-Austronesian has developed over time. If the uvular-velar distinction in Mapos Buang was inherited from Proto-Oceanic it would be a startling example of phonological conservatism: a feature being lost in hundreds of examples, but preserved into modern day in only one. On the other hand, if it is a secondary development, then we get some useful further data on how typologically unusual sound systems arise.

	Bilabial	Dental	Alveo-palatal	Velar	Labio-velar	Uvular
Voicless obstruents	p	t	tʃ	k	kʷ	q
Voiced prenasalised obstruents	^m b	ⁿ d	^ɲ dʒ	^ŋ g	^ŋ gʷ	^ɴ ɢ
Voiced continuants	β	ɹ	r/l	ɣ	ɣʷ/w	ʁ
Nasals	m	n	ɲ	ŋ	ŋʷ	ɴ
Semivowels			y			

Table 1: Consonant inventory of Mapos Buang (from Rambok & Hooley 2010: p.9)

	Front		Central		Back	
High	i	i:			u	u:
Mid	e	e:	(ə) ⁴		o	o:
Low	ɛ	ɛ:	a	a:	ɔ	ɔ:

Table 2: Vowel inventory of Mapos Buang (from Rambok & Hooley 2010: p.10)³

3 In (Rambok & Hooley 2010: p.10) there is a footnote attached to /ə/ in the table. Repeating their argument on page 11, there is a distributional argument that /ə/ is actually not phonemic, so it might be removed from the table of vowel phonemes.

=====

In this paper I show that the uvular-velar distinction in Mapos Buang must be secondary, because both POc *k and *q are reflected variously as velar and uvular consonants. This implies that the place of articulation for a modern Mapos Buang dorsal consonant cannot be determined from its place of articulation in a POc source word. After this I show that several forms of evidence collectively point to the same source for the Mapos Buang distinction: the quality of adjacent vowels. In particular, we find velar reflexes adjacent to earlier *i, and uvular reflexes elsewhere. I also discuss some secondary sound changes that have obscured the conditioning environment, concluding that Hooley (1970, p.81) was correct in reconstructing the velar-uvular contrast to Proto-Buang. Finally, I consider the question of how this sound change originated, and whether and how language contact might have influenced it. I find that there is support for the notion that the interior of Morobe Province forms a ‘phonological area’ characterized by the presence of uvular/post-velar obstruents (cf. Blevins 2017).

Background and previous research on Buang historical phonology

Data collection and research on Buang varieties has been ongoing for several decades. Bruce Hooley’s dissertation, *Mapos Buang – Territory of New Guinea* describes a Buang family composed of many dialects that can be sorted into six languages: Kapin, Mapos, Mangga, Mumeng, Piu, and Vehes (1970, p.33). This paper focuses on Mapos, but I will often cite data from other varieties of Buang to make comparisons more clear or robust. I will also sometimes make use of the undecorated word Buang on its own to refer to this language family, and the word Proto-Buang to refer to the proto-language that all Buang varieties descend from.

In Sankoff (1968: 90-92) it is recognized that Proto-Buang probably had both a velar and a uvular series of consonants, although little is said about what the origin of this distinction might be. Hooley (1970: 81) concurs: "Although this contrast [i.e., the presence of a distinct uvular series] seems to have been lost from most of the languages, it is still present in Mapos Buang, and the reflexes in the other languages seem to point to the need to set up a separate series of proto-phonemes." He provides several correspondences (pp.77-84) that require a velar series in contrast with a uvular one in Proto-Buang, but still with no clear answer as to where the distinction originated. Unfortunately, at that time there was insufficient data on comparative Austronesian to address such issues.

=====

In Ross (1988: 141-142) there's some development, with the observation that palatalization of Proto-Oceanic *k, *q, and *R to /s/ or /tʃ/ happens in various Buang dialects when preceding the POc vowels *i or *e. On the other hand, the modern /k/ vs. /q/ contrast is taken to be due to a secondary split.

Blevins (2021: 343), following this work, concurs that the velar-uvular distinction is likely due to a "post-Buangic split." Although she provides several examples (p.342) of POc *q > Mapos Buang /q/, this is not sufficient to show that the POc distinction between *k and *q has been directly inherited. To demonstrate that a distinction is inherited, we need to show that we can distinguish between one proto-phoneme and another via their modern reflexes. But this is impossible for Mapos Buang, because both consonants have several reflexes in either place of articulation. This is unsurprising, since in many closely related languages *q is fronted to a velar and the distinction is lost, e.g. in the closely related Markham family (Holzknecht 1989: 217) we have POc -> Proto-Markham

*quma 'garden' > *gom

*kutu 'louse' > *gur

In the following section, I demonstrate that both velar and uvular reflexes are found both for POc *k and for POc *q, showing that the distinction could not have been directly inherited. This is now possible due to the extensive lexical reconstruction work on Proto-Oceanic (namely, the publication of all six volumes of *The Lexicon of Proto-Oceanic* (Ross, Pawley, & Osmond 1998-2023)), as well as the publication of a Mapos Buang dictionary (Rambok & Hooley 2010). Cited forms for Proto-Oceanic and Mapos Buang will come from each of these sources. Forms in other Buang varieties are taken from Hooley (1970) and Ross (2023).

Mapos Buang merges the velar and uvular stops of Proto-Oceanic

If it is impossible to distinguish two proto-phonemes based on their reflexes in a modern language, we can only conclude that the language must have merged them, or there is some unidentified conditioning environment that explains the distribution. The former is the case for Mapos Buang, where Proto-Oceanic velar *k is reflected as either velar or uvular, and similarly uvular *q is reflected as either velar or uvular. Several lexical items with Proto-Oceanic sources will be shown below as evidence for this claim. Note that plain stops are frequently reflected as fricatives; this is an example of the lenis-fortis split that is discussed at length in Ross (1988: pp.47-93).

Velar in POc → *Velar in Mapos Buang*

=====

*siku ‘elbow’ > *rəku*

*pisiko ‘flesh, meat’ > *rəyo-tf* ‘flesh, muscle, meat (possessed)’; *rəyu* ‘wild animals, game’

*kabut ‘dust’ > *kəⁿbutf*

*kinit ‘pinch’ > *kənil*

*kani ‘eat’ > *yin*, as found in [*yin*] ‘thorn’, [*niyin*] ‘thorny, prickly’, [*aɣeyin*] ‘sour, salty’ (i.e. ‘sharp tasting’).⁴

Velar in POC → *Uvular in Mapos Buang*

*ikuR ‘tail’ > *ku-tf*

*kamu ‘2pl’ > *kam*

*kuluR ‘breadfruit’ > *qəvu:q*

*manuk ‘bird’ > *manəq*

*kaija ‘left (i.e. opposite of right)’ > *qeⁿdʒ*

Uvular in POC → *Velar in Mapos Buang*

*biRaq ‘taro’ > *ⁿbik* ‘taro (generic)’

*qiti ‘hand of bananas’ > *yi*

*qioR ‘spear, arrow’ > Kapin *yiy*, Vehes *yis* (there is no reflex of this word in Mapos Buang, but the /y/ phoneme in these other Buang dialects regularly corresponds to Mapos Buang /y/)

Uvular in POC → *Uvular in Mapos Buang*

*Rumaq ‘house’ > *kuməq* ‘house; name of a village’

*liaq ‘ginger’ > *yətʃəq*

*panaq ‘shoot’ > *vanek*

*qanunu ‘shadow’ > *qənu*

*qupi ‘yam’ > *quⁿb*

*tuqur ‘stand’ > *loq* ‘to be in’; Mumeng *lok* ‘to stand’

4 The semantic shift ‘eat/eating’ → ‘sharp’ is found in many languages of Vanuatu and the Solomon Islands, so it is well-attested in Oceanic. We might also compare the English usage, where spicy, sour, or other intensely flavored foods may ‘have a bite’.

Proto-Oceanic *R--which was phonetically some kind of alveolar rhotic, probably a trill (François 2011, p.141)--merges with these phonemes as well, probably via the typologically well-known sound change $r > \text{ɸ}$. Thus its reflexes should probably be considered evidence for the behavior of early Buang uvulars.

*Some reflexes of *R*

*kaRi ‘garden fence, partition’ > *kɛ:k*

*Rumaq ‘house’ > *ʋuməq*

*sisiR ‘cicada’ > *rərek*

*boRok ‘pig’ > *ˀbo:q*⁵

These reflexes show that both POc *k and *q can be reflected variously as velar or uvular. In other words, there is no way to tell which consonant was present in an earlier source word based merely on the form we find in Mapos Buang. This means that these consonants must have merged at some earlier stage in the language’s history. But if this is true, what’s the ultimate source of the split in Mapos Buang, and how did it come to involve the nasal consonants as well? I will show that the split can be explained as an internal, conditioned development.

Velar reflexes occur when there was an earlier adjacent *i

An impressionistic study of the Mapos Buang lexicon suggests that uvular consonants are generally more common than velar ones, and this entails that the condition for the uvular outcome is more general than the condition for the velar one. This is true—Proto-Oceanic (non-labialized) velars and uvulars are reflected as velars adjacent to *i, but reflected as uvular everywhere else. This is true for the lexical items cited in the previous section, with the exception of *kabut ‘dust’ which unexpectedly retains a [k]. Proto-Oceanic *ikuR has a uvular outcome for the *k where we expect a velar, but this could be due to early loss of the unprotected initial *i.

5 For the ‘pig’ reflex, comparative evidence from the rest of the Huon Gulf languages indicates that the [q] is from the *R and not the *k, which was idiosyncratically lost in Proto-Huon Gulf. A similar phenomenon affected POc *tapuRiq ‘conch’, which became *tavuR in Proto-Huon Gulf and then [avu:q] in Mapos Buang.

=====

The *i condition for velar outcomes is supported by lexical items containing POc *g and *ŋ, as well as early borrowings from Papuan languages and innovated items particular to the Huon Gulf languages. The Markham branch shares several lexical items with Buang languages where we can find evidence of this sound change.

*Reflexes of the velar nasal *ŋ*

*taliŋa ‘ear’ > nəŋa

*qapiŋa ‘armpit’ > kəpiŋ ‘carry astride the hip, under the arms’

Western Oceanic *biŋa ‘word, name’ > ⁿbəŋɔ- ‘name, word, news’

Proto-Markham *mundiŋ ‘stand up’ vs. Mapos Buang *muⁿdəŋ* ‘post, a kind of tree good for making posts’

Kapin [ŋevin] vs. Mapos Buang [NEVəŋ] ‘wallaby’

Compare these, which do not have a Proto-Oceanic *i.

*yaŋo ‘yellow, turmeric’ > *tʃantʃan* ‘type of ginger used for dying yellow’ (reduplicated)

*laŋo ‘fly (insect)’ > *na-yan* (with Huon Gulf nominalizing prefix *ŋa-)

*roŋoR ‘hear’ > *no*

*Reflexes of voiced/prenasalized velar *g*

*waga ‘canoe’ > *yaⁿG*

*muqa ‘precede, before’ > *muga > *muⁿG-in* ‘precede’

Iwal vgo ‘buy’ vs. Mapos Buang *ⁿbaⁿGO*

Proto-Markham *dangur ‘hornbill’ vs. Mapos Buang *daⁿGəl*

Proto-Markham *jaŋg ‘game, meat’ vs. Mapos Buang *tʃaⁿG*

Proto-Markham *ŋgiŋg ‘squeeze grated coconut’ vs. Mapos Buang *ⁿgiⁿG* ‘squeeze, grip tightly’⁶

Some more reflexes of the plain dorsal stops

*qenop ‘lie down, sleep’ > *ɣep*

*sikil ‘touch with fingers, poke’ > *tʃəyi* ‘try out, test’

6 This form only partially supports my claim, since the final consonant is unexpectedly uvular. Maybe there was once a final vowel and the form was something like *gigV, but I do not know of any cognates in other languages to support a form like that.

Proto-Markham *fusik ‘black’ vs. Mapos Buang *vəri:k*

Proto-Markham *mwik ‘dirty, cloudy (of water)’ vs. Mapos Buang *kə-momək* (from a reduplicated form *mwamwik)

Proto-Markham *nuk ‘cooked’ vs. Mapos Buang *nɔq*

Proto Markham *tagur ‘house’ vs. Mapos Buang *tabu* ‘women's house’

Iwal *-vkiri* ‘revolve’ vs. Mapos Buang *yerin ~ yirin* ‘turn around, surround, (thus) hide, conceal ; *tʃəyirin* ‘twist around, rotate’

The word for ‘string bag’ apparently provides another example of *q > k. Many languages of Morobe Province, Austronesian or not, share a clearly cognate word for this technology, with an original form something like **pariq⁷. Also, some Papuan languages of the region, namely the Finisterre languages, support a uvular original value for the final consonant:

Nuk *heləq*

Uri *ari?*

Mungkip *liq*

Nakame *lək*

Another Huon Gulf language, Numbami, attests a high front vowel in its reflex [wali]. Although other final vowels are found in cognates elsewhere, the Papuan and Numbami forms supporting an early *-iq sequence in this word seem reliable. Thus we may derive the Buang forms Mangga *vayes*, Patep *vəʔe?*, Piu *vaya?*, and Mapos *vaɛek* from an earlier form *vaɪiq. The fact that this word displays the r > ɾ change is notable, as it suggests a fairly early borrowing into the Huon Gulf branch.

These forms provided in this section and the previous one are substantial evidence that a sound change occurred from Proto-Oceanic to Mapos Buang where dorsal consonants became velar in the context of the vowel *i, and uvular elsewhere. Since velars in Mapos Buang regularly correspond with more palatalized sounds in other Buang varieties, and uvulars in Mapos Buang correspond with velars or so-called back velars in other Buang varieties (which are articulated between the canonical velar and uvular places of articulation), we have to conclude that this sound change occurred in the formation of Proto-Buang. That is, the split occurred prior to the split-up of the Buang varieties, as indicated by the

7 The double asterisk here emphasizing this is a hypothetical reconstruction—the ultimate source of this lexical item is unknown to me, so I cannot create a true, comparative method-based reconstruction.

analysis in Hooley (1970, p.81). However, we can scaffold the argument by appealing to data from bound morphology, and from similar conditions on changes elsewhere in the sound system.

Evidence from bound morphology and elsewhere that supports the change

Several other phenomena in the development of Mapos Buang lend further support to the argument that adjacency to *i is the relevant environment for the split between velars and uvulars in the modern language. First of all, we have additional evidence of the sound change from some bound morphology that contained velars.

Inflection for subject on verbs

Mapos Buang has several different series of subject markers on verbs, which are partially lexically determined, and also determined by tense/aspect/mood factors. Some of these take some careful analysis to link up to earlier reconstructed forms. However, Ross has reconstructed Proto-Huon Gulf as having a set of basic subject markers *ga- '1sg', *gu- '2sg', *gi- '3sg' (1988, p.156). Taking into account the sound change argued for above, the potential mode 'class 2 prefixes' in Mapos Buang match exactly what we would expect: *gə- '1sg', *gʷə- '2sg', *gɨ- '3sg'. In this case, the prenasalization that marks potential mode has better preserved the original shape of the prefixes, and allows us to see the effect of the following vowel on the consonant.

In 'class 3 verbs', the initial consonant of the stem changes for the potential mode; in particular most consonants are replaced with a strengthened, prenasalized counterpart. However, the typical outcome of initial /tʃ/ in the potential mode is velar [ŋ], and in some words initial /y/ also correspond to a velar [ŋ] in potential mode. For example, the word [tʃovəq] 'glide, fly' can be derived from POc *Ropok, with secondary palatalization; the potential mode of this verb stem is [ŋovəq]. Here a velar nasal arises in a palatalizing context. In fact, we have at least one example where POc *ñ became [ŋ]. The POc word *ñoRap 'yesterday' has the Mapos Buang reflex [ŋɔp] 'day before yesterday'. Other varieties preserve the palatal nasal: Kapin [nyo:p], Mumeng [nyoʔ].

Another Proto-Oceanic consonant undergoes changes with the same conditioning factor

Indirect evidence that the presence of *i is significant for the phonological development of words in Mapos Buang comes from the various reflexes of POc *l. In many words, the reflex is /y/:

*laŋit 'sky' > *yaⁿgək*

*laŋo 'fly (n.)' > *na-yan*

*qulu- 'head' > *yu-*

*pulu- 'hair, feather' > *vuyu > *vii-*

*lulun 'roll, roll up' > *yon* 'roll around, roll up fibers to make cordage'

*lako 'go' > *ya*

*tolu 'three' > *lɔ:* (via *lɔy, see below for more on loss of final /y/); compare also Mumeng *yɔn*, Kapin *yar* with the final consonant preserved

*liaq 'ginger' > *yeɬəq* (via *leyaq)

However, when *l immediately precedes *i, we find the change *l > n.

*lima- 'hand' > *nəma-*

*lipo- 'tooth' > *nəvu-*; also *lipon 'tooth (not possessed)' > *nivəŋ* 'dog's tooth'. The split reflexes are on account of one being inalienably possessed and the other not being so.

*taliŋa- 'ear' > *nəŋa-*

Perhaps also *malip 'laugh' > *nɔp* shows this change. This form looks somewhat like Tok Pisin *lap*, but l > n in a Tok Pisin borrowing is unexpected: the typical outcome is l > r, as in the examples *lamp* > *ram*, *polis* 'police' > *poritf*, *melon* > *məren*, *ball* > *ⁿba:r*, *balus* 'airplane' > *ⁿbarutf*.

*Zero reflexes for some final velars and uvulars in the environment of *i*

In Mapos Buang words /ɣ/ or /y/ do not occur in coda (word final) position, whereas /ɣ/ occurs in this phonological context frequently. Other Buang varieties do not normally have such a restriction, and when we look at reflexes of words where fricative outcomes are expected, Mapos Buang indeed shows complete loss when an adjacent *i is present. In other vocalic contexts, we simply have the expected /ɣ/ reflex as elsewhere.

*driRi 'stand' > *kə-ⁿdi*

=====

*reki or *reqi 'look at, see' > *le*

*mimiq 'urinate, urine' > *mame* (instead of **mameɣ*), but Kapin *mameɣ*, Mumeng *məmək*

*suRi 'sew, needle' > *ⁿdu*: 'sew' (instead of **duɣ*), but Manga *ⁿdu:ɣ*, Vehes *ⁿduy*

*panaq 'shoot (a bow)' > *vaneɤ*

*punuq 'hit, strike' > *vənuɤ* 'do completely, really; understand' (for the shift 'strike' → completive auxiliary, compare the reflex in the Markham languages, which means 'dead' or 'finished' (Holzknecht 1989, p.78). 'Strike' → 'understand' is somewhat more intuitive.)

*matuqa 'old, grown person' > *maluɤ* 'man'

*qodaq 'eat something raw' > *ⁿdaɤ*

The word *ⁿdu*: 'sew' shows compensatory lengthening upon loss of the earlier **ɣ*; a similar process must have occurred in *lɔ*: 'three' cited in the previous section. In any case, these examples show that the absence of a segmental reflex for a final dorsal consonant can be taken as evidence that it was fronted—like most consonants in Mapos Buang, the uvular fricative is allowed finally, so it does not undergo loss in this context.

How the split became phonemic

We find that the distribution of velar vs. uvular consonants even in modern day Mapos Buang is not random (i.e. they are not uniformly distributed in relation to nearby vowels). Extracting vowel+consonant sequences from unique lexical items in Rambok & Hooley (2010) allows us to produce the following table:

Sequence	Number of instances	Sequence	N
iq	47	aq	87
iN	16	aN	98
ik	69	ak	26
iŋ	57	aŋ	12
<i>iⁿg</i>	14	<i>aⁿg</i>	24
<i>iⁿG</i>	10	<i>aⁿG</i>	107

Table 3: Some vowel-dorsal consonant sequences (N = number of instances of this sequence attested in distinct lexical items in Rambok & Hooley (2010). Lexical items were extracted and analyzed using the *pdfutils* (Ooms 2023) and *tidyverse* (Wickham et al. 2019) packages in R (R Core Team 2024), and the code is available upon request).

=====

In this data, /a/ is much more common than /i/ before uvulars, whereas the reverse is true before velars. We find 73 instances of uvulars following /i/, but 140 instances of velars following /i/. In contrast, there are 292 instances of uvulars following /a/, but only 62 instances of velars following /a/. Expressed proportionally, we find that 65.7% of dorsal consonants after /i/ are velar, whereas 34.3% are uvular; after /a/, 82.5% of dorsal consonants are uvular, and only 17.5% are velar. Although the preceding vowel is a strong predictor for whether a dorsal consonant is velar or uvular, it is of course not perfect: the contrast between velars and uvulars in Mapos Buang is phonemic. A number of subsequent changes occurred that produced plain velars (and uvulars) in other contexts.

One such change is the shift of labialized velars to plain velars. Labialized velars are common to Buang varieties, but in many instances, a labialized velar in one variety corresponds to a plain velar in another. This happened early with POc *w, which became a velar fricative *ɣ early on, and had the front reflexes we expect in various Buang varieties:

*rawa- 'parent/child in-law' > *ɣɛ*, Kapin *ɣɛ-*, Patep *ye-*

*qasawa 'spouse' > *rəɣa* 'husband', Kapin *reya*, Patep *rəɣa*

*waga 'canoe' > *ɣaⁿɔ*

*waiR 'fresh water' > *na-ɣe:* 'lake, pond, pool'

Proto-Buang *aniw 'second-born daughter' > *anii*, Vehes *niy*, Mumeng (Kumaru dialect) *aniy*, Kapin *niyu*

Early *kw also sometimes shows loss of labialization in Mapos Buang:

*kwer 'scrape, shave' > *ker*, cf. Kapin *kwil*, Patep *kwel*

Proto-Buang *kwaɣ 'undress' > *kaɣ*, cf. Kapin *kway*, Patep *kwah*

There are also instances where in Mapos Buang we find /ɤ/ as a reflex of POc *l rather than /n/ or /y/.

*qatoluR 'egg' > *qaluR > ⁿ*GAɤi-tʃ*; compare Kapin *ɲgalus*, Mumeng *yalus*

*qalipan 'centipede' > ⁿ*GAɤivəŋ*

Proto-Buang *valu 'half' > *vaɤi*, Mambump *valu*, Patep *vəlu*

Additionally, word-final alveolars are reflected as velar.

*lapat 'big, great' > *levək* 'many, much'

=====

*lumut 'moss, algae' > *məyumək* 'slippery moss'

*laŋit 'sky' > *yaⁿgək*

*droman 'leech' > *ⁿdoməŋ*

*qatimun 'cucumber' > *qatiməŋ*

*pituqun 'star' > *ⁿbətukəŋ*

This change is also found in some English/Tok Pisin loanwords:

English 'chain' > *tfeŋ*

English 'bed' > Tok Pisin bet > *ⁿbek*

The English loanwords affected this way probably came to Mapos Buang via Yabem, however—if this sound change occurred in Mapos Buang after colonization it would have to have been very recent and the native forms do not suggest such a situation.

Juliette Blevins (personal communication) points out that we find some pairs of words where velar vs. uvular apparently has some kind of iconic meaning. The word [leləq] 'vibrate, rattle' appears to be a reduplicated form of the word [lek] 'shiver, shake', but the final /k/ has been replaced with a /q/, perhaps for some kind of intensifying purpose. These formations would also help phonemicize the split.

What's the cause? Contact or something else?

Blevins wonders (2021, pp.343, 351) whether the creation of a velar-uvular distinction in Mapos Buang is due to contact with Hamtai, an Angan language, which similarly has a contrast between /k/ and /q/, and is decently close by—approximately 20 miles away based on a map from the Summer Institute of Linguistics (“Morobe Province Language Map”). However, Hamtai and Mapos Buang territory is interrupted by several other languages, and Hamtai is not the only other language in the region to possess uvular consonants. Among Angan languages, a contrast between a velar and uvular stop is found not just in Hamtai, but also in Menya (Whitehead 2004, p.8). Uvular sounds are perhaps quite common in the area, depending on what's meant by uvular. In descriptions of other Buang varieties, we can find velar consonants being described as 'back velar' (Adams & Lauck 1975, pp.72-73), and this is also true of Hote/Yamap (Muzzey 1988, p.4) and many of the Markham languages. At least Sukurum, Sarasira, Duwet, and Nafi frequently have 'back velar' pronunciations, and in Labu, /k/ has an allophone [x] before /a/, suggesting an earlier backed pronunciation before the low vowel (Holzknecht 1989, pp.53-59).

=====

Kunimaipa has back velars before low vowels (Pence 1966, p.60), and several of the Finisterre languages have well-developed systems of uvular consonants (Retsema, Potter, & Gray 2009).

There is plenty of reason to lump together the ‘back velars’ found in some languages and the ‘uvulars’ found in others as one contact-induced phenomenon. Although phonetic precision is wanted and appropriate in some situations, distinguishing between back velars and uvulars here is misleading. In real pronunciation, many consonants that have always been considered unambiguously uvular are often articulated in the “back velar” region, such as the /q/ of Arabic (Huber 2014, p.9), and consonants that are described as back velar by many scholars are found in articulatory study to clearly be pronounced as uvular in many instances (Butcher & Tabain 2004, p.43). Moreover, it is also possible that velars of languages in this region could have been fronted to palatals or could have remained with a canonical velar place of articulation. This is not what is observed, and instead languages in Morobe Province are apparently prone to backing their velar consonants, even to uvulars proper. Stringency about what counts as a uvular consonant in this context misses out on the shared historical behavior of these languages. It also obscures the typologically marked situation here: uvulars are rare in the world’s languages (Maddieson 2013), so if languages in a region have a tendency to form them, it is notable whether they contrast with plain velars or not.

With this in mind, the widespread presence of uvulars and back velars in various languages of Morobe province suggests that it is an areal sound pattern, as described in (Blevins 2017). Neither Proto-Oceanic, nor the ancestor of the Trans-New Guinea family that Angan is a subgroup of are reconstructed with a large set of uvular phonemes. Although there is a decent amount of loaned vocabulary in Buang varieties, such as the ‘string bag’ word analyzed earlier, the uvulars of languages like Mapos Buang are not loaned phonemes in the narrow sense—they did not spread from borrowed words, but rather regularly developed in the history of the language. More precisely, the split between uvulars and velars actually must have occurred at an early stage—Proto-Buang already had such a contrast. Other Buang varieties show regular correspondences with the Mapos variety; the velars of these varieties are often uvular in phonetic reality, and the cognates of the Mapos velars are palatal or even further forward.

Interestingly the distribution of velars and uvulars in the nearby Angan languages also looks to be inherited somehow from the proto-language. As far as I am aware there is no published work attempting to reconstruct the phonology of proto-Angan via the comparative method. However, it has at least been observed that the uvular stop of Hamtai has different correspondences compared to its velar stop. For example, in the related Ampale, a fricative /h/ corresponds to Hamtai /q/, whereas Hamtai /k/

corresponds to /k/ (Lloyd 1973, p.86). Whenever it existed, proto-Angan must have also distinguished velars and uvulars. Since we can trace these distinctions back in history some time, it suggests that this phonological area in Morobe Province must have been developing for quite some time.

Conclusion and implications

Typologically, Mapos Buang's sound system is notable, but what is even more notable is the possibility that it may be an example of 'hyperconserved' phonological traits: almost all modern Austronesian languages outside of Taiwan have lost the uvular consonant *q, even though it must be reconstructed as distinct at many intermediate stages in the history of the language family. Here I have shown that, as suggested by earlier literature (e.g. Blevins 2021), the uvulars of Mapos Buang are not directly inherited. In fact, they became distinct from velars during the development of proto-Buang, due to regular sound change. The high frequency of uvulars and back velars in sound systems of nearby languages also suggests that language contact may have influenced the Buang languages to develop this way; even other Huon Gulf languages show some similar phonological features.

The upshot of this result is that the phoneme written *q for Proto-Oceanic has no direct uvular reflexes (i.e., there are no reflexes that are not uvular due to secondary developments). This opens up some question about POc phonetics; if direct uvular reflexes are entirely lacking from Oceanic languages then it's possible this phoneme may have already lost its uvular character when the Oceanic languages were unified. Since in 'Western Oceanic', POc *q typically shows an asymmetric merger with only the lenis outcomes of *k, it's possible that already in POc its phonetic value was something like [ɣ].⁸

Since uvulars must have existed in Proto-Buang as well as in the likely geographically close Proto-Angan, and they also exist in many modern Finisterre languages, one might wonder whether an ultimate source can be found for the development of this shared phonological trait. Both the Angan and Finisterre languages are usually included in the Trans-New Guinea family. Are their uvulars parallel developments, or are they inherited from some more ancient shared origin? Future comparative research in these families would likely answer this question.

8 Judgments about the phonetics of proto-language segments like this are sometimes low-stakes, but can be important. Sound changes are commonly unidirectional, and projecting back a previously assumed to be innovative value to a proto-language can have important implications for subgrouping judgments.

References

- Adams, Karen & Linda Lauck. 1975. A tentative phonemic statement of Patep. In *Workpapers in Papua New Guinea Linguistics* 13, 71-128. Ukarumpa: Summer Institute of Linguistics.
- Blevins, Juliette. 2017. Areal sound patterns: from perceptual magnets to stone soup. In Raymond Hickey (ed.), *The Cambridge Handbook of Areal Linguistics*, 88-121. Cambridge University Press.
- Blevins, Juliette. 2021. Uvular reflexes of Proto-Austronesian *q: mysterious disappearance, or drift toward oblivion? *Oceanic Linguistics* 60(2): 335-366. Honolulu: University of Hawai'i Press.
- Bradshaw, Joel. 2001. Iwal grammar essentials, with comparative notes. In Andrew Pawley, Malcolm Ross, & Darrell Tryon (eds.) *The boy from Bundaberg: studies in Melanesian linguistics in honor of Tom Dutton*: 51-74. Canberra: Pacific Linguistics.
- Bradshaw, Joel. 2014. *English-Numbami dictionary*. Honolulu: University of Hawai'i Press.
- Butcher, Andrew & Marija Tabain. 2004. On the back of the tongue: dorsal sounds in Australian languages. *Phonetica* 61(1): 22-52.
- François, Alexandre. 2011. Where *R they all? The Geography and History of *R-loss in Southern Oceanic Languages. *Oceanic Linguistics* 50(1): 140-197. Honolulu: University of Hawai'i Press.
- Holzknicht, Susanne. 1989. *The Markham languages of Papua New Guinea*. Canberra: Australian National University.
- Hooley, Bruce. 1970. *Mapos Buang--Territory of New Guinea*. Philadelphia: University of Pennsylvania.
- Huber, Daniel. 2008. *Velars and processes: their treatment in phonological theory*. Budapest: Eötvös Loránd University.
- Lloyd, Richard. 1973. The Angan language family. In Karl Franklin (ed.) *The linguistic situation in the Gulf district and adjacent areas, Papua New Guinea*. Canberra: Pacific Linguistics.
- Maddieson, Ian. 2013. Uvular Consonants. In Matthew Dryer & Martin Haspelmath (eds.) *WALS Online*. <https://wals.info/chapter/6>. Accessed 17 October 2024.
- “Morobe Province Language Map”, pnglanguages.sil.org. Summer Institute of Linguistics, 2015, <https://pnglanguages.sil.org/resources/provinces/province/Morobe/map>. Accessed 17 October 2024.

-
- Muzzey, Marguerite. 1988. *Hote phonology essentials*. Manuscript.
- Ooms, Jeroen. 2023. *pdftools: text extraction, rendering, and converting of PDF documents*. Version 3.4.0.
- Pence, Alan. 1966. Kunimaipa phonology: hierarchical levels. *Papers in New Guinea Linguistics* 5: 49-67. Canberra: Australian National University.
- R Core Team. 2024. *R: A language and environment for statistical computing*. Vienna: R Foundation for Statistical Computing.
- Rambok, Mose Lung & Bruce Hooley. 2010. *Ḳapiya Tatekin Buang Vuheng-atov Ayej*. Ukarumpa: Summer Institute of Linguistics.
- Retsema, Thom, Margaret Potter, & Rachel Gray. 2009. Mungkip: an endangered language. *SIL Electronic Survey Reports*.
- Ross, Malcolm. 1988. *Proto Oceanic and the Austronesian languages of western Melanesia*. Canberra: Australian National University.
- Ross, Malcolm. 2023. *Wordlist files of lexical data from Papua New Guinea and western Solomons Oceanic languages collated for Ross's 1986 PhD thesis and 1988 publication thereof*. DOI: [10.5281/zenodo.7878854](https://doi.org/10.5281/zenodo.7878854). Accessed 17 October 2024.
- Ross, Malcolm, Andrew Pawley, & Meredith Osmond (eds.). 1998-2023. *The Lexicon of Proto Oceanic*. Vols 1-6. Canberra: Australian National University.
- Sankoff, Gillian. 1968. *Social aspects of multilingualism in New Guinea*. Montreal: McGill University.
- Whitehead, Carl R. 2004. *A reference grammar of Menya, an Angan language of Papua New Guinea*. Winnipeg: University of Manitoba.
- Wickham, Hadley, Mara Averick, et al. 2019. Welcome to the tidyverse. *Journal of Open-Source Software* 4(43).