Chapter 5

Consonant epenthesis in Meto: Typologically rare but diachronically explicable

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In this chapter, we examine a process of consonant epenthesis in Meto (Austronesian, Timor) which productively occurs to resolve hiatus across a prosodic foot boundary. Several consonants are inserted in different varieties of Meto including voiced obstruents /gʷ/ /dʒ/ /b/, liquids /r/ /l/, and glides /w/ /j/. Some of these are typologically rare epenthetic consonants. In addition, the diversity of consonants encountered across different varieties of Meto poses challenges to synchronic accounts of epenthesis. A diachronic perspective allows us to gain a more cohesive and unified explanation, as the consonants inserted are due to an accumulation of sound changes applying to an earlier "natural" system of glide epenthesis.

1 Introduction

This chapter examines consonant epenthesis in Meto, a language/dialect cluster of western Timor. In this process various consonants are regularly inserted after vowel-final words when they are followed by a vowel-initial enclitic. Examples from three varieties of Meto are given in Table 1, alongside a consonant-final stem after which no epenthesis occurs.

Consonant epenthesis is synchronically productive in Meto and occurs to resolve vowel hiatus across a prosodic foot boundary. This foot boundary occurs at the juncture of the root and the enclitic, and consonant insertion provides the enclitic with an onset consonant. Which consonant is inserted is predictable based on the final vowel of the host, discussed in more detail in Section 3.1.

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Table 1: Consonant epenthesis before enclitics in Meto

stem		‘one, a’		Amanuban	Amfo'an	Timaus	
ai	+	*=ees*	→	*aij**e**es*	*ai**dʒ**ees*	*aa**r**ees*	‘a fire’
noe	+	*=ees*	→	*noe**j**ees*	*noe**l**ees*	*noe**l**ees*	‘a river’
meo	+	*=ees*	→	*meo**w**ees*	*meo**g**ʷees*	*mee**g**ʷees*	‘a cat’
hau	+	*=ees*	→	*hau**w**ees*	*hau**g**ʷees*	*haa**dʒ**ees*	‘a tree’
kuan	+	*=ees*	→	*kuanees*	*kuanees*	*kuanees*	‘a village’

While consonant epenthesis is a common process of hiatus resolution cross-linguistically (e.g. Casali 2011) the particular consonants inserted in some varieties of Meto are typologically unusual, including consonants which are previously unattested as a productive means of hiatus resolution; namely /gʷ/, /dʒ/, and /b/. Such consonants are difficult to account for in terms of phonetic naturalness or perceptual “minimality”, which is often appealed to in order to account for consonants inserted in hiatus contexts cross-linguistically (Morley 2012). Epenthetic consonants such as /gʷ/, /dʒ/, and /b/ also pose some challenges to synchronic accounts of epenthesis because they are not minimally “marked”; and in many cases, they are not transparently analysable as sharing the features of surrounding vowels, which are the two main ways epenthetic consonants are accounted for in the literature (e.g. Lombardi 2002, de Lacy 2006, Staroverov 2014). Indeed, from certain theoretical perspectives (e.g. Optimality Theory) labial and dorsal consonants have have been argued to be impossible epenthetic segments because of their “markedness” (de Lacy 2006).

This chapter conducts a survey of consonant epenthesis in six varieties of Meto and examines the diachronic origins of these patterns. It also offers some preliminary observations on sociolinguistic factors. It shows that typologically unusual patterns of consonant epenthesis like those in Meto can develop from more typologically usual patterns through the accumulation of regular sound changes. Consonant epenthesis in Meto adheres to the prediction of Blevins (2008a) that “unnatural” patterns result from multiple changes. While the kinds of epenthetic consonants in Meto may not be attested elsewhere, the sound changes we propose are.

Initial conversations with speakers indicate that consonant epenthesis is one of a range of phonological and morphological processes in Meto which index group identity. Thus, sociolinguistic factors may have played a role in reinforcing these typologically unusual patterns. Consonant epenthesis in Meto high-

lights the importance of diachronic perspectives when examining typologically uncommon phonological phenomena, as well as the role of potential sociolinguistic factors.

This chapter proceeds as follows. Section 2 provides relevant background on the Meto language/dialect cluster. Section 3 provides an overview of consonant epenthesis in six varieties of Meto. Section 4 situates the Meto data within its theoretical and typological context, while Section 5 outlines how the data can be analysed synchronically. The diachronic origins of the epenthetic consonants are then discussed in Section 6 and the role of potential sociolinguistic factors is examined in Section 7. We conclude the chapter in Section 8 with a summary of our main findings and discuss the implications of the Meto data for phonological typology and theory.

2 Language background

Meto (a.k.a. Uab Meto, Dawan[ese], Timorese or Atoni, Glottocode: uabm1238) is a cluster of closely related Austronesian languages and/or dialects. It is located on the western part of the island of Timor, in the the Indonesian province of Nusa Tenggara Timur and the East Timorese enclave of Oecusse. The Ethnologue (Eberhard et al. 2022) estimates the number of speakers of Meto at 850,000, although this is based on 2009 figures. While Meto speakers consider their speech a single language, they also recognise more than a dozen distinct varieties, which themselves have named dialects. Further differences are found between different villages of speakers sharing a single dialect. A map showing the self-identified varieties of Meto is given in Figure 1. Meto data in this chapter comes from the varieties listed in (1), which also gives the sources of data. These corpora, which are archived at PARADISEC, contain data from a range of both male and female speakers from a variety of ages.

(1) Sources of Meto data in this chapter:
   a. Roi'is Amarasi, Buraen village, Suit hamlet – 101 minute corpus of recorded texts (Edwards 2014);
   b. Kotos Amarasi, Nekmese' village, Koro'oto hamlet – 180 minute corpus of recorded texts (Edwards 2009);
   c. Amanuban, Niki-niki village – elicitation, supplemented by draft Bible translation;[1]

[1]The (draft) Bible translations into varieties of Meto have been carried out by native speakers and are completely natural and idiomatic. Nonetheless, no analyses or facts presented in this chapter are based only on examples found in Bible translations.

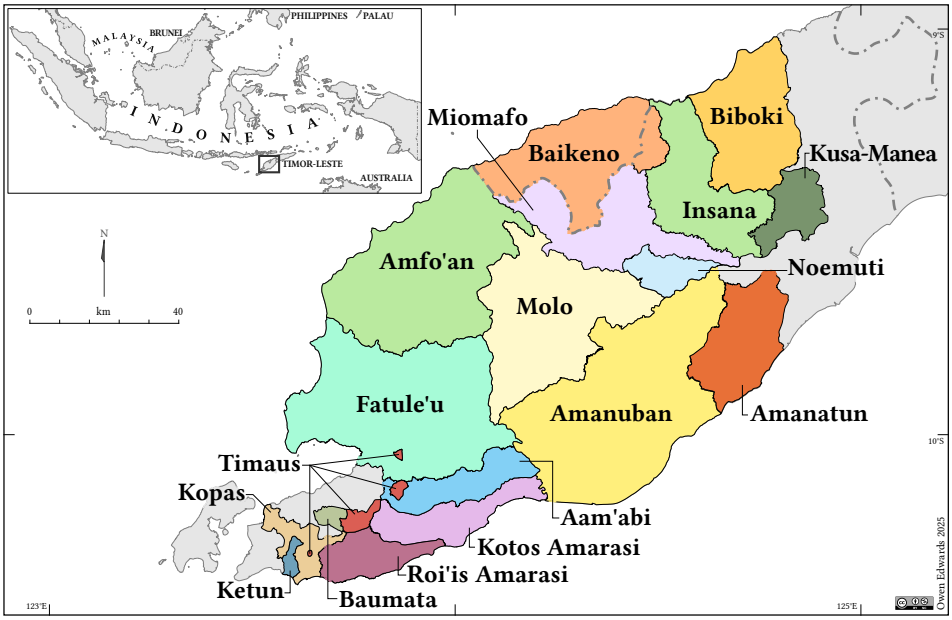

Figure 1: Self-identified varieties of Meto

d. Amfo'an, Lelogama village – 153 minute corpus of recorded texts (Culhane 2017), supplemented by Grimes et al. (2021), and draft Bible translation;
e. Timaus, Bokong village, Sanenu hamlet – 99 minute corpus of recorded texts (Edwards 2016);
f. Baikeno (multiple villages) – data collected primarily by Charles E. Grimes,[2] supplemented by translation of the Gospel of Mark.

Meto varieties have five vowels /i, e, a, o, u/. Mid vowels phonetically vary between mid-low [ɛ ɔ] and mid-high [e o]. Meto does not have segmental diphthongs. Sequences of two vowels can be realised as either vowel-vowel or vowel-glide; e.g. *ai* ⟶ [ˈʔa.i] ~ [ʔaj] 'fire'. Every phonological and morphological process of the language treats phonetically long vowels identically to vowel sequences, and they are thus analysed as sequences of identical vowels; e.g. *bi**fee*** ⟶ [bɪˈfɛː] 'woman'. See Edwards (2020: 96–98) and Edwards (2018: 31–32) for further discussion and justification of this analysis.

[2]Additional Baikeno data comes from a language documentation workshop run by the Endangered Language Alliance in Kupang in July 2012 during which Edwards was an instructor.

All (known) Meto varieties have 11 core consonants /p, t, k, ʔ, b, f, s, h, m, n/, as well as either /r/ or /l/ which correspond to one another; e.g. Kotos, Roi'is, and Kusa-Manea *koro*, other Meto *kolo* 'bird'. Timaus has both /l/ and /r/ with /l/ corresponding to other Meto /l/ or /r/ and /r/ due to *dʒ > *r* (Section 6.4.1). In addition to these consonants, most varieties of Meto also have a voiced palatal obstruent /dʒ/ [dʒ] ~ [ʒ] and a voiced velar obstruent, either /gʷ/ or /g/, though some varieties lack the voiced velar obstruent. These obstruents have a restricted distribution and mainly (though not exclusively) arise due to the consonant epenthesis which is the focus of this chapter. Amanuban does not have these obstruents, but has glides /w/ and /j/ in comparable environments. The labio-velar obstruent /gʷ/ is realised as [gw] ~ [ɣw], a voiced velar plosive or fricative followed by a labio-velar glide, or as [g] ~ [ɣ], without a following labio-velar glide. In this chapter we make a distinction in our transcription between <*gʷ*> = [gw] ~ [ɣw] and <*g*> = [g] ~ [ɣ].

Meto roots have a highly constrained segmental structure based around a disyllabic foot.[3] Roots must minimally comprise a foot, and contain a maximum of two feet. Consonant clusters only occur at the juncture of a foot and/or word-initially. Vowel sequences do not occur across a foot boundary, and all feet must have an onset consonant. When a word or foot has no onset, a consonant is automatically inserted (see Section 3.4). An overview of permitted root structures in Meto with examples from Amfo'an is given in Table 2. Words which have more than two syllables are nearly all historically morphologically complex or are loans.

Meto demonstrates acoustic evidence for stress – specifically from vowel quality, spectral tilt and pitch rise/fall ratios – on the penultimate syllable of the word (Culhane 2024). Syllable weight is not relevant for any aspect of Meto phonology. The only roots which do not comprise at least a foot – i.e. are monosyllabic – are a small number of functors, or function morphemes (morphemes with a non-lexical, grammatical meaning).

Meto has a productive process of final CV ⟶ VC metathesis; e.g. *hitu* ⟶ *hiut* 'seven'.[4] The forms and functions of metathesis have been thoroughly described

[3]Note that we define the foot as a phonological domain intermediate between the syllable and the prosodic word (Culhane 2023). In addition to various phonotactic phenomena, evidence for the foot domain in Meto comes from consonant epenthesis and partial reduplication (see Culhane 2024). We do not assume a relationship between the foot and stress, which is not typologically supported (Culhane 2023), and analyse stress in Meto as assigned to the penultimate syllable of the word. There is no need to appeal to foot structure to account for the distribution of stress in Meto. See Culhane (2024) for further discussion.

[4]The productivity of metathesis is demonstrated by loans undergoing the process, such as Malay *kepala* ⟶ *kepaal* 'head, chief' (see Edwards 2020: 273 ff.).

Table 2: Amfo'an root structures

Structure		Other material	Foot	Root	Translation
$_{\omega}[_{Ft}[\sigma\sigma]]$	=		(C)V(C)V(C)	*nima*	'five'
				lalan	'path, way'
				oef	'soup'
$_{\omega}[C_{Ft}[\sigma\sigma]]$	=	C	CV(C)V(C)	*snaen*	'sand'
				knino?	'clean, holy'
				?ba?u	'bat'
$_{\omega}[\sigma_{Ft}[\sigma\sigma]]$	=	(C)V(C)	CV(C)V(C)	*ma?fena?*	'heavy'
				maslaal	'coarse'
				ansao-n	'chest'
$_{\omega}[_{Ft}[\sigma\sigma]_{Ft}[\sigma\sigma]]$	=	(C)V(C)V(C)	CV(C)V(C)	*likusaen*	'python'
				ata?la?e	'praying mantis'
				aidʒiak	'jackfruit'

for Kotos Amarasi by Edwards (2020), who shows that in this variety of Meto metathesis has two morphological functions (modification in the NP and resolution in the discourse) and is also phonologically conditioned before vowel-initial enclitics. Most varieties of Meto have assimilation of final /a/ after metathesis, e.g. *nima* → *niim* 'five', though Kusa-Manea preserves forms without assimilation, e.g. *niam* 'five'.

3 Overview of the data

In this section we provide an overview of consonant epenthesis in Meto. We begin in Section 3.1 with an overview of the basic facts: when epenthesis occurs and what consonants are inserted. This is followed in Section 3.2 with justification for analysing this process as epenthesis, not deletion. In Section 3.3 we provide evidence that consonant epenthesis is a productive process. In many cases, due to restrictions of space, we cannot fully illustrate the patterns we discuss here. Wherever insufficient data is provided to establish that a particular pattern is regular, supporting data can be found in Appendix A.

3.1 Basic facts

Consonant epenthesis – that is, insertion of consonants which are not present in the phonological representation (see Section 4 below) – occurs in Meto at the juncture of a vowel-final word and a vowel-initial enclitic. For example, Amfo'an *hau* 'tree, wood + *=ees* 'one, a' ⟶ *haug^{w}ees* 'a tree'. The different consonants inserted in this environment amongst the varieties of Meto we examine are summarised in Table 3 according to whether they attach to a host with final vowel sequence (e.g. *hau* 'wood, tree') or a host with final CV (e.g. *fatu* 'stone').

An example of each epenthetic consonant is given in Table 4 and Table 5. CV-final hosts also undergo metathesis followed by final vowel assimilation to various extents in different varieties of Meto, such as Kotos *mo**ne*** + *=ees* ⟶

Table 3: Summary of epenthetic consonants in Meto

	VV-final hosts					CV-final hosts				
	i	e	a	o	u	i	e	a	o	u
Amanuban	j	j	j	w	w	j~∅	j~∅	∅	w~∅	w~∅
Kotos	dʒ	dʒ	g^{w}	g^{w}	g^{w}	dʒ	dʒ	∅	g^{w}	g^{w}
Roi'is (Buraen)	dʒ	dʒ	?[†]	b	b	dʒ	dʒ	∅	b	b
Baikeno	dʒ	l	b	b	b	dʒ	dʒ	∅	b	b
Amfo'an	dʒ	l	g^{w}	g^{w}	g^{w}	dʒ	l	∅	g^{w}	g^{w}
Timaus	r	l	g^{w}	g^{w}	dʒ	r	l	∅	g^{w}	dʒ

[†] Data is lacking for hosts with final /Va/ for Roi'is from the village of Buraen.

Table 4: Consonant epenthesis with vowel-initial enclitics /VV_

	'a fire' ai=ees	'a water' oe=ees	'two already' nua=een[†]	'a cat' meo=ees	'a tree' hau=ees
Amanuban	*ai**j**ees*	*oe**j**ees*	*nua**j**een*	*meo**w**ees*	*hau**w**ees*
Kotos	*aa**dʒ**ees*	*oo**dʒ**ees*	*nua**g^{w}**een*	*mee**g^{w}**ees*	*haa**g^{w}**ees*
Buraen Roi'is	*aa**dʒ**ees*	*oo**dʒ**ees*	?	*mee**b**oes*	*haa**b**oes*
Baikeno	*ai**dʒ**ees*	*oe**l**ees*	*nua**b**een*	*meo**b**ees*	*hau**b**ees*
Amfo'an	*ai**dʒ**ees*	*oe**l**ees*	*haa**g^{w}**een*[†]	*meo**g^{w}**ees*	*hau**g^{w}**ees*
Timaus	*aa**r**ees*	*oe**l**ees*	*nua**g^{w}**een*	*mee**g^{w}**ees*	*haa**dʒ**ees*

[†] Amfo'an *haag^{w}een* is 'four already' from *haa* 'four'. Amfo'an *nuga* 'two' is CV-final.

Table 5: Consonant epenthesis with vowel-initial enclitics /CV_

	'a pig' fafi=ees	'a husband' mone=ees	'gets it' n-ana=ee	'a day' neno=ees	'a stone' fatu=ees
Amanuban	*fafi**j**ees*	*mone**j**ees*	*naanee*	*neno**w**ees*	*fatu**w**ees*
Amanuban	*faafies*	*moonees*		*neenoes*	*faatues*
Kotos	*faaf**dʒ**ees*	*moon**dʒ**ees*	*naanee*	*neen**g**^{w}ees*	*faat**g**^{w}ees*
Buraen Roi'is	*faaf**dʒ**ees*	*moon**dʒ**ees*	*naanee*	*neen**b**oes*	*faat**b**oes*
Baikeno	*faaf**dʒ**ees*	*moon**dʒ**ees*	*naanee*	*neem**b**ees*	*faat**b**ees*
Amfo'an	*fafi**dʒ**ees*	*mone**l**ees*	*naanee*	*neno**g**^{w}ees*	*fatu**g**^{w}ees*
Amfo'an	*faaf**dʒ**ees*	*moon**l**ees*		*neen**g**^{w}ees*	*faat**g**^{w}ees*
Timaus	*faaf**r**ees*	*mona**l**ees*†	*naanee*	*neen**g**^{w}ees*	*faatdʒees*

† Sanenu Timaus has *e > *a* /C_(C)#.

*mo**on**dʒees* 'a husband' and *fa**tu*** + *=ees* ⟶ *fa**at**g^{w}ees* 'a stone'. In Amanuban consonant insertion does not universally occur after CV-final hosts. Instead, the host can just undergo metathesis and vowel assimilation, and the first vowel of the enclitic can assimilate to the original final vowel of the host, e.g. *fa**fi*** + *=**e**es* ⟶ *fa**a**fi**e**s* 'a pig'.

Whether metathesis and vowel assimilation occur with CV-final hosts is dependent on a combination of factors including: the variety of Meto, the phonotactic shape of the host, and the segments in the final syllable of the host. There also appear to be speaker and/or dialect differences in some Meto varieties. The patterns are complex and not yet fully understood for all varieties of Meto.

The vowel-initial enclitics which trigger consonant epenthesis are listed in Table 6. Each of these enclitics can be analysed as a disyllabic foot (see below), with consonant insertion occurring at the clitic boundary which is the juncture of two feet.

Evidence that these enclitics are disyllabic comes from two sources. Firstly, four of these enclitics have unambiguously disyllabic unmetathesised forms: *=ana* '2DET', *=esa* 'one', *=ena* 'PERF', and *=aha* 'just'. Consistent with all /a/-final stems (e.g. *nima* ⟶ *niim* 'five'), final /a/ undergoes assimilation after metathesis for *=esa* ⟶ *=ees* 'one' and *=ena* ⟶ *=een* 'PERF' in most varieties of Meto (Section 2), although assimilation of final /a/ does not occur in Kusa-Manea, e.g. *eas* 'one'.

Secondly, in some varieties of Meto there is a process whereby the initial vowel of a vowel-initial enclitic undergoes partial assimilation to the quality of the

Table 6: Meto vowel-initial enclitics

Form	Gloss	Meaning
=ii	'1DET'	definite referent near/relevant to speaker
=ana/=aan	'2DET'	definite referent near/relevant to addressee
=ee	'3DET'	definite referent near/relevant to a third person
	'3SG.ACC'	third person P argument (object) of verb
=aa	'0DET'	definite referent near/relevant to no one (≈obviative)
=esa/=ees	'one, a'	the numeral one (1); indefinite singular
=ena/=ee(n)†	'PERF'	perfect, already
=aha/=aah	'just'	restrictive
=oo-n	'REFL'	reflexive

† The perfect enclitic is usually *=ee* in Amfo'an, though sporadic instances of *=ena/=een* are also found. Similarly, Baikeno has variation between *=ena* and *=ee*. Roi'is Amarasi has consonant-initial *=hena/=heen*.

final vowel of the host.[5] Examples from Roi'is include *nif**u*** 'thousand' + *=**e**es* ⟶ *niifb**o**es* 'one thousand', and *ta-knin**u**?* 'we clean' + *=**e**e* '3SG.ACC' ⟶ *takniin?**o**e* 'we clean it'. See Edwards (2020: 248–252) for additional examples and discussion.

Despite the evidence that the vowel-initial enclitics are disyllabic and contain a foot, forms with a sequence of two identical vowels are frequently realised with a short vowel. This is a consequence of the stress patterns of Meto. Stress in Meto is penultimate, but enclitics are extra-metrical and do not bear stress; e.g. Amfo'an *ai* 'fire' + *=ees* ⟶ /aidʒees/ [ˈʔaidʒɛs]. Unstressed vowel sequences often have a shorter duration than stressed vowel sequences in Meto (Edwards 2020: 98–99).

Consonant epenthesis only occurs after vowel-final words. After consonant-final words, the enclitic is simply attached to the stem. Thus, all varieties discussed in this chapter have *tuaf* 'person' + *=ees* ⟶ *tuafees* 'a person' and *sii-t* 'song' + *=ees* ⟶ *siitees* 'a song', for example. CVC-final stems similarly do not trigger consonant epenthesis.[6]

In some cases, the final vowel of a VV-final host undergoes assimilation to the quality of the previous vowel after consonant epenthesis. The quality of the vowel before assimilation determines the type of epenthetic consonant. This occurs in Kotos, Roi'is, and Timaus, after all hosts except hosts with final /Va/ or, in

[5] This process has been attested in Amanuban, Roi'is Amarasi, and Kopas from Oepaha village.

[6] In this environment, final CV ⟶ VC metathesis occurs to differing extents in different varieties of Meto; e.g. Kotos Amarasi *mu?it* + *=ees* ⟶ *mui?tees* 'an animal'.

Timaus, /e/, as seen in *ha**u*** + *=ees* ⟶ Kotos *ha**a**g*^{w}*ees*, Roi'is *ha**a**boes*, or Timaus *ha**a**dʒees* 'a tree'. See Appendix A for examples in addition to those in Table 4.

Consonant epenthesis is an automatic process which occurs whenever a vowel-initial enclitic attaches to a vowel-final host, affecting all morphemes of all word classes without exception, including other enclitics, as well as new loanwords (see Section 3.3 for examples). Examples of epenthesis with word classes other than nouns are given in Appendix A.

The description given above covers nearly all the Meto data. However, rare combinations of morphemes sometimes have unexpected patterns of consonant epenthesis. For example, Edwards (2020: 244ff) describes the patterns of epenthesis for Kotos Amarasi when a vowel-initial enclitic attaches to another vowel-initial enclitic. In this case, unexpected epenthesis of /g^{w}/ can occur. Thus, for example, Kotos *oe* + *=ee* '3DET' ⟶ *oodʒee* 'the water' has expected insertion of /dʒ/ after final /e/. However, the addition of *=een* 'PERF' to *oodʒee* 'the water' produces *oodʒee**g***^{w}*een* 'the water already' with unexpected epenthesis of /g^{w}/. In Kotos we would expect /dʒ/ to be inserted after /e/ and would only expect /g^{w}/ to be inserted after /a/, /o/, or /u/. Whenever such an unexpected consonant epenthetic consonant occurs, it corresponds to the default epenthetic consonant (Section 5.2). While it is important to note that such instances do occur, we do not discuss them further in this chapter as they are a minor pattern in the language.

3.2 Epenthesis, not deletion

An alternative analysis of the data presented in the previous section would be to propose that the consonants which appear before vowel-initial enclitics are part of the stem or enclitic, and are deleted in certain contexts. They could be analysed as the initial segment of the enclitic, or they could be analysed as the final segment of the stem. There is evidence against both analyses.

Firstly, the consonants which occur before vowel-initial enclitics are completely predictable based on the final vowel of the clitic host. In cases of synchronic deletion, on the other hand, the quality of the deleted consonants are typically not phonologically predictable (Harris 2011).

Secondly, if these consonants are actually the initial segment of the enclitic, their absence after stems with final /Ca/ is inexplicable. Other consonant-initial enclitics freely occur with /Ca/-final stems. Two examples are Kotos *n-ana* '3-get' + *=kau* '1SG.ACC' ⟶ *naankau* 'got me' and Roi'is *ku-snasa* '1SG-rest' + *=heen* 'PERF' ⟶ *kusnaasheen* 'I had rested'. There are also no restrictions on clusters involving epenthetic consonants, as shown by forms such as Kotos *faafdʒees* 'a pig' or *neeng*^{w}*ees* 'a day' (among many others in Table 5). There are also roots with initial

clusters which involve the segments which arise in epenthesis. Examples include Amfo'an *nguah* [nguah] ~ [ŋguah] 'coconut' and Roi'is *bdʒae* [βʒaɛ] 'cow'.

Thirdly, if these consonants were the final segment of the stem, this would entail that they are deleted in all environments except before a vowel-initial enclitic. This consonant deletion would occur in a disparate collection of environments with no clear phonological or phonetic motivation. It would also be different to other consonant-final words, such as *tuaf* 'person', for which such deletion does not occur.

Furthermore, Mooney (2021) points out that plural enclitic allomorphy also supports the analysis of stems after which consonant epenthesis occurs as vowel-final. This is because the plural enclitic has different forms after vowel-final and consonant-final stems. Stems after which consonant epenthesis occurs do not take the allomorphs found with consonant-final stems.

After consonant-final stems, the plural enclitic has a vowel-initial form. Kotos has *=ein/=eni*, Amanuban has *=eun/=enu*, and Amfo'an has *=een*. Examples are given in the first four rows of Table 7.[7] However, after vowel-final words the

[7]The plural enclitic after consonant-final stems in Roi'is and Baikeno is *=iin/=ini*. Timaus has variation between *=iin/=ini* and *=een* for the plural enclitic after consonant final stems. Kotos also has sporadic instances of *=enu/=uun* after consonant-final roots.

Table 7: Plural enclitic allomorphy

Stem	Kotos	Amanuban	Amfo'an	Translation
a-pao-t	*apaot=ein*	*apaot=eun*	*apaot=een*	'guards'
kuan	*kuan=ein*	*kuan=eun*	*kuan=een*	'villages'
tuaf	*tuaf=ein*	*tuaf=eun*	*tuaf=een*	'people'
too mfaun	*too mfaun=ein*	*too mfaun=eun*	*too mfaun=een*	'many people'
koro/kolo	*koro=n*	*kolo=n*	*kolo=n*	'birds'
umi/ume	*umi=n*	*ume=n*	*ume=n*	'houses'
fafi	*fafi=n*	*fafi=n*	*fafi=n*	'pigs'
aan feto	*aan feto=n*	*aan feto=n*	*aan feto=n*	'daughters'
hau	*hau=ŋg^{w}ein*	*hau=nuu*	*hau=nuug*	'trees'
too	*too=ŋg^{w}ein*	*too=nuu*	*too=nuug*	'citizens'
bifee	*bifee=ŋg^{w}ein*	*bifee=nuu*	*bifee=nuug*	'women'
oe	*oe=ŋg^{w}ein*	*oe=nuu*	*oe=nuug*	'kinds of water'

plural enclitic has a different form, depending on the exact shape of the stem to which it attaches. After CV-final stems, the plural enclitic is *=n* in all known varieties of Meto. Examples are given in the middle four rows in Table 7. After stems which end in a vowel sequence (VV-final stems) there is a diversity of forms: Kotos has *=ng^{w}ein/=ng^{w}eni* [ŋgwɪn]/[ŋgwɪni], Amanuban has *=nuu*, and Amfo'an has *=nuug*.[8] Examples are given in the final four rows of Table 7.

If the medial consonant in forms such as Kotos or Amfo'an *haug^{w}ees*, or Amanuban *hauwees* 'a tree' were underlyingly part of the host, we would expect the plural enclitic to take the forms found with consonant-final stems: Kotos **haug^{w}=ein*, Amanuban **hauweun*, and Amfo'an **haug^{w}een* 'trees'. That these forms do not occur is evidence that the stems are underlyingly vowel-final roots.

3.3 Productivity

Consonant epenthesis in Meto is highly productive and applies to all eligible words. Vowel-final loans, as well as instances of code-switching, trigger consonant epenthesis. Examples of such loans/code switches that have entered Kotos Amarasi via Malay are given in Table 8 to illustrate.

Table 8: Consonant epenthesis with loans/code switching

Malay		Kotos		Output	Translation
R.T.†	[erte]	*erte**i***	*+ =ii*	*erte**edʒ**ii*	'the R.T. (neighbourhood)'
H.P.†	[hape]	*hape**i***	*+ =ii*	*hape**edʒ**ii*	'the H.P. (mobile phone)'
T.V.	[tivi]	*tif**i***	*+ =ii*	*tiif**dʒ**ii*	'the TV'
lemari	[ləmari]	*ləmar**i***	*+ =ii*	*ləmaar**dʒ**ii*	'the wardrobe'
peti	[peti]	*pet**i***	*+ =ii*	*peet**dʒ**ii*	'the casket'
sore	[sore]	*sor**e***	*+ =ii*	*soor**dʒ**ii*	'the afternoon'
penatua	[pənatua]	*pentu**a***	*+ =ii*	*pentuag^{w}ii*	'the church elder'
K.K.†	[kaka]	*kaaka**a***	*+ =esa*	*kaakaag^{w}esa*	'one K.K. (family head)'
oto	[oto]	*ot**o***	*+ =ii*	*ootg^{w}ii*	'the car'
rokok	[rokoʔ]	*rok**o***	*+ =ii*	*rookg^{w}ii*	'the cigarette'
ibu	[ibu]	*ib**u***	*+ =ii*	*iibg^{w}ii*	'the mother'
sapatu	[sapatu]	*sapat**u***	*+ =ii*	*sapaatg^{w}ii*	'the shoes'

† R.T. = *rukun tetangga*, H.P. = *hand phone*, K.K. = *kepala keluarga*

[8] Baikeno appears to have *=mbiin/=mbini* after VV-final forms, though the Baikeno form requires confirmation. The form of the plural enclitic in Buraen Roi'is and Timaus after VV-final forms is currently unknown due to lack of data. Kotos has sporadic instances of *=nuu* after VV-final roots (Edwards 2020: 234–244).

While some of these examples (e.g. *oto* 'car') are probably loans that have been integrated into the language, others, such as *ləmari* 'wardrobe' (with unassimilated /l/ and /ə/),[9] are foreign insertions or instances of code-switching. Such data shows that consonant epenthesis in Meto is fully productive and is not morphologically or lexically restricted to a subset of the lexicon.

3.4 Consonant insertion in other environments

Apart from the epenthesis which is the focus of this chapter and was described above, other consonant insertion processes are attested in Meto. The first is a process of glottal stop epenthesis, which occurs in two environments, and the second is a process of word-final consonant insertion.

3.4.1 Glottal stop epenthesis

Glottal stop epenthesis occurs when a CV- syllable is prefixed to vowel-initial stems. This process is most clearly exemplified by verb roots which take consonantal C- agreement prefixes when intransitive and syllabic CV- prefixes when transitive. Examples from Amfo'an are given in Table 9, with the third person agreement prefixes *n-* or *na-*. This epenthesis occurs occurs at an affix boundary in the environment /CV-_V to resolve hiatus between a prefix and a root.

Table 9: Glottal stop epenthesis: Amfo'an

	Intransitive	Transitive	Translation
'rise, get up'	*n-fena*	*na-fena-b*	'raise, get someone up'
'closed, blocked'	*n-ʔeka ʔ*	*na-ʔeka ʔ*	'close, block'
'go up, ascend'	*n-sae*	*na-sae-b*	'put up, lift up'
'drink'	*n-inu*	*na-ʔinu-t*	'give a drink to someone'
'see'	*n-ita*	*na-ʔita-b*	'show, make see'
'see, observe'	*n-aila*	*na-ʔaila-b*	'cause to face towards'
'lift'	*n-aiti*	*na-ʔaiti*	'make lift, raise'
'run, flee'	*n-aena*	*na-ʔaena-b*	'make flee'

In Meto, all vowel-initial words undergo word-initial glottal stop epenthesis. e.g. Amfo'an /iko-n/ [ˈʔikɔn] 'tail' and /asug/ [ˈʔasug] 'dog'. That is, there are no

[9]The foreign segments /l/ and /ə/ would be assimilated in Kotos as /r/ and /a/ respectively, as seen in examples such as Malay /bətul/ → Kotos *batuur* 'truly' among many others.

phonetically vowel-initial words.[10] However, some roots have underlying glottal stops which occur in all environments, including after consonantal prefixes. Examples from Amfo'an include *n-ʔeka?* 'close' (from Table 9), *n-ʔelah* 'remain quiet', and *n-ʔonen* 'pray' among many others.

We distinguish between underlying and automatic word-initial glottal stops. However, for roots which never take a C- prefix the evidence is ambiguous between whether their initial glottal stop is epenthetic or underlying. The evidence for automatic word-initial glottal stops is discussed at more length in Edwards (2017).

There are two main pieces of evidence that some forms have an epenthetic initial glottal stop. Firstly, words with an initial consonant cluster optionally have prosthesis of [a] word-initially in some cases and a glottal stop also occurs before this prosthetic vowel; e.g. Amfo'an /bnaog/ → [ˈbnaɔg] ~ [ʔaˈbnaɔg] 'ship', /klulu-f/ → [ˈkluluf] ~ [ʔaˈkluluf] 'finger, toe'.[11] That a glottal stop occurs before a prosthetic vowel shows that glottal stop epenthesis is productive word-initially. Secondly, many instances of an initial glottal stop are epenthetic from a comparative perspective; e.g. Proto-Malayo Polynesian *ikuR > /iko-n/ → [ˈʔikɔn] 'tail' and *asu > /asug/ → [ˈʔasug] 'dog'.

To summarise, glottal stop epenthesis clearly occurs at affix boundaries in the environment /CV-_V and there is also evidence that it occurs word-initially.

3.4.2 Word-final consonant insertion

An additional kind of consonant insertion occurs in some varieties of Meto after a vowel-final word when it occurs as the last member of the noun phrase (NP). This includes cases when such words are the only member of the noun phrase, and thus also includes citation form.[12] This kind of consonant insertion is known to occur in Amfo'an, Timaus, Baikeno, Fatule'u, Kopas, and some varieties of Molo.[13] This process of NP-final consonant insertion involves the same consonants as those which occur before the vowel-initial enclitics.

The root, without any final consonant, occurs before attributive modifiers. Examples of nouns in citation form and before modifiers in Amfo'an are given in Table 10. See Culhane (2018) for further discussion of this process in Amfo'an.

[10] Given this, some other analysts (e.g. Steinhauer 1996, Mooney 2021) have analysed all word-initial glottal stops as underlying.

[11] In our transcriptions the prosthetic vowel is separated by a vertical line; e.g. *a|bnaog* 'ship' in Table 10.

[12] The citation form is the form given as a translation under elicitation and that selected by most native speakers as the headword in a dictionary.

[13] In Baikeno, Fatule'u and Molo this consonant insertion only occurs after VV-final words.

Table 10: Amfo'an attributive modification

Citation form		Modifier			Phrase	
*sisi**dʒ***	'meat'	*meto?*	'dry'	→	*sisi meto?*	'dried meat'
*atoni**dʒ***	'man'	*munif*	'young'	→	*atoni munif*	'young man'
*bidʒae**l***	'cow'	*fuidʒ*	'wild'	→	*bidʒae fuidʒ*	'wild cow'
*ume**l***	'house'	*bubu?*	'wild'	→	*ume bubu?*	'round house'
*a|bnao**g***	'ship'	*kolog*	'bird'	→	*bnao kolog*	'aeroplane'
*neno**g***	'day'	*a-hunu-t*	'first'	→	*neno ahunut*	'first day'
*asu**g***	'dog'	*ana?*	'small'	→	*asu ana?*	'puppy'
*kulu**g***	'teacher'	*fe?ug*	'new'	→	*kulu fe?ug*	'new teacher'

It is not possible to analyse this process of consonant insertion as the same process which is the focus of this chapter. This is because the two processes occur in different environments and affect different words. The NP-final consonant insertion is not phonologically predictable but is determined by the syntactic position of a given word and primarily affects nouns.[14] On the other hand, epenthesis before vowel-initial enclitics occurs in a specific phonological environment and affects all words regardless of word class. Additionally, epenthesis before vowel-initial enclitics takes place in varieties of Meto which do not have NP-final consonant insertion, such as Amanuban, Kotos, and Roi'is.

4 Typological and theoretical context

This section provides relevant typological and theoretical context for the Meto data outlined in Section 3. It provides an overview of how epenthesis has been defined in the literature, showing that Meto can be considered a legitimate case of epenthesis (Section 4.1). It then surveys attested epenthetic consonants (Section 4.2), demonstrating that the epenthetic consonants attested in Meto are of typological interest. It then surveys how consonant epenthesis patterns have been accounted for (Section 4.3, 4.4).

4.1 Defining epenthesis

Defining what exactly constitutes consonant epenthesis has been an topic of considerable discussion. Cases of "minimal" epenthesis – that is, considered to be

[14]Verbs with an unexpressed object can also have final consonant insertion (Culhane 2018: 39ff).

minimally disruptive of transitions between vowels – such as insertion of glides to resolve hiatus, or insertion of glottal stops at prosodic boundaries, are widely accepted to be epenthesis. There are various cases, however, where there has been considerable discussion as to whether a given pattern is actually epenthesis, such as "intrusive *r*" in various varieties of English (see Vaux & Samuels 2017 and Morley 2017 for overviews), /t/ insertion in Ajyíninka Apurucayali (Arawakan, Peru, see Lombardi 2002, de Lacy 2006, Staroverov 2015, Morley 2015), and /g/ insertion in Buriat (Mongolic, Russia/Mongolia/China, see Morley 2015, Vaux & Samuels 2017, Staroverov 2014, 2020).

Such discussions have arisen, in part, due to different restrictions on what is defined as epenthesis.[15] An overview of the criteria proposed in the literature is given in (2).

(2) Different criteria of epenthesis proposed in the literature:
   a. occurs in a phonological environment, not morphologically restricted (Lombardi 2002, de Lacy 2006, Morley 2015);
   b. is the only process in given phonological context (Lombardi 2002, de Lacy 2006),
   c. shows evidence of being synchronically active (Morley 2015);
   d. epenthetic segment is invariant (Lombardi 2002, de Lacy 2006, Morley 2015).

Requirement (2a) makes explicit that epenthesis must be a phonological process. This excludes cases of morphologically conditioned consonant insertion which have sometimes been included in the epenthesis literature. An example is /ɾ/ insertion in Anejom̃ (Austronesian, Vanuatu), which has often been included in discussions of epenthesis (e.g. Vaux & Samuels 2017), but is limited to compounds, see Staroverov (2014: 186).

Requirement (2b) refers to a requirement that no other process occurs in the context where epenthesis occurs. This excludes instances where consonant epenthesis is one of several attested hiatus resolution strategies. For instance in Rutooro (Atlantic-Congo, Uganda, Bickmore 2021), hiatus resolution is achieved by

[15]The likelihood that a given pattern is considered to be epenthesis also appears to be theoretically motivated. For example, there has been wide acceptance of /t/ insertion in Ajyíninka Apurucayali as a case of epenthesis (e.g. McCarthy 2002, de Lacy 2006), because a coronal consonant would be relatively unmarked under an Optimality Theory framework. Buriat /g/ insertion, on the other hand, has not been widely accepted as a legitimate case of epenthesis, and /g/ is a highly marked epenthetic consonant within an Optimality Theory framework. However, Morley (2008: 117) demonstrates that the evidence for either of these processes being legitimate cases of epenthesis is, in fact, comparable.

either consonant insertion, deletion, or diphthongisation. Which process occurs depends on the quality of the vowels. Consonant insertion in Rutooro would not be considered a legitimate case of epenthesis according to criterion (2b).

Requirement (2c) specifically excludes cases where a consonant process may have been productive in the past, but is no longer productive. An example is dorsal insertion in Buriat (Mongolic), which has sometimes been included in the epenthesis literature, but does not show evidence of being synchronically productive (Staroverov 2020). A requirement by Morley (2015) is to exclude patterns where less than 65% eligible morphemes participate, to ensure that the epenthesis pattern is robust.

Requirement (2d) excludes cases of assimilatory epenthesis in which the quality of the epenthetic segment varies according to the adjacent vowels (de Lacy 2006: 79). When this criteria has been proposed, this does not mean that cases of assimilatory epenthesis are excluded entirely from being considered cases of epenthesis. Instead, it is to limit discussions to cases of default epenthesis – the invariable insertion of one segment – which are of greater theoretical interest. Default and assimilatory epenthesis are discussed in detail in Section 4.3.

According to the different criteria in (2), consonant insertion in Meto is a legitimate case of epenthesis. It occurs in a phonological environment (hiatus at the boundary of two feet, criteria 2a) and is the only process attested to resolve hiatus in this environment (criterion 2b). It is synchronically productive (criterion 2c). In most cases, the quality of the inserted consonant is determined by the previous vowel, and thus does not fulfill criterion (2d). However, there are some instances in Meto which can be classified as default epenthesis. See Section 5 for detailed discussion of this matter.

4.2 Attested epenthetic consonants

The most common epenthetic consonants in hiatus position are glides (especially homorganic glides), laryngeal consonants, and, more rarely, rhotics /ɹ/, /r/ and coronal consonants such as /t/ (de Lacy 2006, Casali 2011). Of these, insertion of glides is by far the most widely attested (Picard 2003, Uffman 2007, Casali 2011).

Several of the epenthetic consonants attested in Meto, namely /dʒ/, /b/, and /gʷ/, have not been previously attested among accepted cases of epenthesis. These consonants have also not been reported for any cases where it is contested as to whether epenthesis is the best analysis, with the exception of possible insertion of /g/ in Buriat, in which case the process is highly disputed (see Section 4.1). Epenthesis of /l/, which is attested in Meto, has been reported for several varieties of English (e.g. Gick 2002, 1999, Kijak 2010). However, none

of these instances have been shown to be robust patterns (Staroverov 2014: 7). Therefore, that Meto attests robust epenthesis of /l/ is also of typological interest.

4.3 Explaining the typology of epenthetic consonants

The common occurrence of certain consonants, such as glides, in epenthesis processes, and the non- or rare occurrence of others, has been accounted for by appealing to a number of factors.

Articulatory and perceptual factors, as well as phonetic "naturalness", have been used to explain the common occurrence of glides and laryngeal consonants epenthetically (Blevins 2008b). For example, epenthesis of /j/ after /i/ in hiatus can arise from gestural overlap. Similarly, from a perceptual perspective, insertion of /j/ between /i/ and another vowel could be explained in terms of /j/ not being particularly perceptually salient to hearers in this context, as it does not require significant articulatory changes in the transition from /i/ to the following vowel (Steriade 2009, Morley 2012).

There are also various theoretical accounts of attested epenthetic consonants, as well as predictions about possible epenthetic consonants. These accounts typically rely on a distinction between "default" and "non-default" or "assimilatory" epenthesis (e.g. de Lacy 2006, Morley 2012, de Lacy & Kingston 2013). In cases of default epenthesis, one segment is invariably inserted in a particular phonological environment. For example, many languages attest default epenthesis of /ʔ/ before vowel-initial words. Examples include Maltese (Mitterer et al. 2019), Czech (Šimáčková et al. 2012), and Meto (see Section 3.4). On the other hand, in cases of assimilatory epenthesis, the quality of the epenthetic segment varies and can be analysed as determined by the place and manner of articulation of the adjacent vowels (de Lacy 2006: 79). Typical examples include /j/ as the epenthetic consonant after front vowels and /w/ after back vowels. Examples of languages with this kind of epenthesis abound. Two examples are Woleaian (Austronesian, Federated States of Micronesia, Sohn 1975) and Cantonese (Tibeto-Burman, China, see Hashimoto 1972). Some languages demonstrate both default and assimilatory epenthesis, such as epenthesis of /j/ and /w/ next to high vowels, and epenthesis of /ʔ/ next to other vowels. Examples of languages which demonstrate this kind of epenthesis pattern include Kalinga (Austronesian, Philippines, see Geiser 1970) and Malay (Ahmad 2005). In some cases for Meto, the inserted segments vary depending on the quality of the vowel and can be considered as instances of assimilatory epenthesis (Section 5.1). In other cases, however, /j/, /b/ or /g^{w}/ is the default inserted consonant (Section 5.2).

Default epenthesis has received considerable attention in the theoretical literature. This is because in an Optimality Theory framework the quality of default epenthetic consonants is expected to be determined by markedness (McCarthy & Prince 1994, Lombardi 2002, de Lacy 2006). "Markedness" in phonology typically refers to a preference for certain kinds of structures which are "unmarked" (higher frequency, less complex, less phonetically difficult) over others which are more "marked" (McCarthy 2002, de Lacy 2006).[16] In Optimality Theory, epenthesis is considered to be one of several kinds of "repairs" that phonological inputs can undergo to make them less marked. For example, consonant epenthesis results in syllables with onsets, which are considered to be less marked than onsetless syllables (de Lacy 2006). It is also expected that the quality of the epenthetic consonant which resolves hiatus is optimal with respect to markedness constraints, that is, minimally marked (Lombardi 2002, de Lacy 2006, Casali 2011). What exactly makes a consonant more or less marked is debated.[17] However, the general assumption is that inherent properties of synchronic phonology play a role in determining the quality of epenthetic consonants – in particular, that, all else being equal, the epenthetic consonant employed by a language will have the universally least marked place of articulation (Lombardi 2002, Blevins 2008a, Casali 2011). Various hierarchies of consonant place of articulation markedness have been proposed, (e.g. Kean 1975, Paradis & Prunet 1991, Lombardi 2002: 4, de Lacy 2006: 2). All rank labial and dorsal consonants as more marked than coronal and glottal. This predicts a universal preference for coronal and glottal consonants and avoidance of labial and dorsal consonants. Some have gone so far as to predict that labial and dorsal consonants are not possible epenthetic segments (e.g. de Lacy 2006: 82). However, labial and dorsal consonants /g^{w}/ and /b/ are attested default epenthetic segments in Meto (see Section 5.2).

Proposals about markedness and consonant epenthesis are not without controversy. Various linguists have questioned the claim that any particular place of articulation is universally unmarked (e.g. Hume 2003, Rice 2007, 2011). More broadly, Optimality Theory proposals about preferred epenthetic segments have been found not to be borne out cross-linguistically (Morley 2015, Vaux & Samuels 2017). There is also controversy regarding markedness as an explanation of phonological patterns. This is because there are examples of sound patterns

[16] Markedness is used in many other senses, see Haspelmath (2006), Bybee (2011) and Hume (2011). For an overview of the differences between the use of markedness in Optimality Theory in comparison to other contexts see McCarthy (2002: 15).

[17] Markedness has been defined, for example, on the basis of articulatory factors (Archangeli & Pulleyblank 1994), perceptual factors (Steriade 2009), and abstract factors such as implicational relationships (McCarthy 2002: 15).

contradicting markedness claims (see Hume 2005: 183 for examples). Moreover, sound patterns attributed to markedness can be accounted for by reference to phonetics, language use, language change (Bybee 2001, 2011, Blevins 2004) or frequency effects and predictability (Hume 2005).

Another way that consonant epenthesis patterns have been explained is by examining their diachronic sources. Blevins (2008a) proposes that "natural" or "minimal" consonant insertion processes, like intervocalic glide epenthesis, reflect the phonologisation of earlier phonetically conditioned sound change. On the other hand, "unnatural" patterns can be accounted for as the result of multiple changes, such as intervocalic glide epenthesis undergoing subsequent glide fortition, or reanalysis of a deleted consonant as being epenthetic (Blevins 2008a). We observe these same kinds of sound changes in Meto, which have resulted in the consonant insertion patterns attested. The diachronic approach has the potential to provide us with insights not offered by synchronic accounts (see Section 6).

4.4 Synchronic accounts of assimilatory epenthesis

In Meto, which consonant is inserted is usually determined by the quality of the previous vowel, and the process can therefore be considered assimilatory epenthesis. However, the inserted consonant is similar to the preceding vowel to differing extents. Insertion of /j/ after front vowels and /w/ after back vowels in Amanuban can be straightforwardly analysed as maximally similar to the surrounding vowels. Similarly, other inserted consonants (such as /l/ after /e/ in Amfo'an) can also be identified as sharing similar features (Culhane 2018: 51, Mooney 2021). However, what features are shared between the vowel and epenthetic consonants in other cases (such as insertion of /r/ after /i/ in Timaus) is unclear.

Cases of assimilatory epenthesis documented in the literature involve insertion of glides, [ʊ], [v], [j̊] (Morley 2012: 72), and [ɣ] (de Lacy 2006: 80). In such cases, the quality of the inserted segments is typically explained in terms of sharing features with the surrounding vowels. For example, Staroverov (2014: 56) proposes that /ʊ/ after /oː/ in Dutch occurs because it is featurally similar to the vowel in terms backness and height (being non-high). Similarly, de Lacy (2006: 80) proposes that epenthesis of [ɣ] in Brahui (Dravidian, South Asia) after low back vowels is motivated by assimilation to the vowels in terms of dorsality, voice, and continuancy.

Cases of assimilatory epenthesis which involve segments other than glides have also been also accounted for in terms of allophony. For example, Staroverov

(2014: 78) accounts for insertion of [j] and [v] in Kalaallisut (Eskimo-Aleut, Greenland) as a result of allophony. In Kalaallisut, [j, w] and [j, v] are in complementary distribution. The glides [j, w] only appear after [i, u], while the fricatives [j, v] occur in other environments. Under this analysis, the actual inserted consonant is /j/ or /w/ – which is most featurally similar to /i/ or /u/, but can be realised as [j] or [v] in certain contexts.[18]

Aside from these examples, the synchronic analysis of assimilatory epenthesis has received considerably less attention than that of default epenthesis. One issue which has not been addressed is the extent to which a given inserted consonant needs to be similar to surrounding vowels in order be considered a case of assimilatory epenthesis; no cut-off point has been proposed.

Returning to the case of Meto, we could potentially propose a cut-off point for how similar to the conditioning vowels a epenthetic consonant needs to be in order to be considered assimilatory epenthesis. However, the different epenthetic consonants exist on a spectrum. Some patterns are highly assimilatory (e.g. Amanuban), while others are less assimilatory (e.g. Timaus). Proposing such a cut-off point would draw an arbitrary distinction between processes which otherwise demonstrate the same synchronic behaviour. As result, we do not draw a cut-off point in our discussion of how to analyse the Meto data synchronically (Section 5). We also demonstrate how this spectrum of more and less assimilatory consonants has arisen as the result of various diachronic changes (Section 6).

5 Synchronic accounts of Meto consonant epenthesis

In this section we briefly outline some of the ways in which Meto consonant epenthesis has been analysed from a synchronic perspective. There are two patterns of consonant epenthesis. Most epenthetic consonants are determined by the previous vowel and have been analysed as resulting of feature spreading (Section 5.1), while epenthesis after hosts with final /Va/ has not been analysed as determined by the final vowel of the host and instead involves default epenthetic consonants (Section 5.2).

5.1 Assimilatory epenthesis: Spreading analysis

In most cases in Meto, the quality of the inserted segment is determined by the preceding vowel, and can be considered a process of assimilatory epenthesis as

[18] For Meto, it is not possible to propose that [gʷ], [b] or [dʒ] are allophones of glides. This is because varieties of Meto with these obstruents do not have glides (Section 2).

defined in the literature (Section 4). Assimilatory epenthesis in Meto has been analysed within Autosegmental Phonology (Edwards 2020: 215–233), Optimality Theory (Mooney 2021), as well as a combination of both (Culhane 2018: 48–57). While these accounts differ in many details, they all draw on the notion that consonant epenthesis results, at least in part, from the place and/or manner features of a vowel spreading onto a consonant which does not have any pre-defined features. This follows other accounts of assimilatory epenthesis (de Lacy 2006, Staroverov 2014, see also Section 4.4) and is based on the assumption that the quality of the inserted consonant is determined by the features it shares with with a preceding vowel.

For example, under a spreading analysis, [+LABIAL] spreads after /o/ and /u/ in Baikeno and Buraen Roi'is to yield /b/. However, in other varieties, a spreading analysis would entail that both [+LABIAL] and [+VELAR] spread to yield /w/ (Amanuban) or /g^{w}/ (Kotos, Amfo'an). While variations on the spreading analysis can be invoked, the reasons for why different features spread in different varieties is not fully explained.

The Timaus data, however, present a challenge for the spreading analysis. Epenthesis of /l/ after /e/ can be analysed by proposing that both are [+CORONAL, -HIGH] (Culhane 2018: 51) or [+CORONAL, -DORSAL] (Mooney 2021). Similarly, /g^{w}/ and /o/ are both labio-velar, and thus the insertion of /g^{w}/ after /o/ can be attributed to these features spreading. However, it is difficult to account for epenthesis of /r/ after /i/ as a result of feature spreading. It is especially difficult to identify features which could spread to result in epenthesis of /dʒ/ after /u/ – particularly given epenthesis of /g^{w}/ after /o/.

5.2 Default epenthesis

Default epenthesis occurs after stems with final /Va/. The epenthetic consonants inserted after such stems are summarised in (3) below.

(3) Epenthesis after hosts with final /Va/:
  (a) epenthesis of /j/ /Va_=V (Amanuban);
  (b) epenthesis of /b/ /Va_=V (Baikeno);
  (c) epenthesis of /g^{w}/ /Va_=V (Kotos, Amfo'an, Timaus).

The reason that the spreading analyses cannot be readily extended to cover such cases is because epenthesis does not occur after stems with final /Ca/. E.g. Kotos *nua* + *=een* → *nuag^{w}een* with epenthesis contrasts with *n-ana* + *=ee* → *naanee* 'gets it' without epenthesis. If spreading (e.g. of [+LOW] and/or [+VOICE])

were at play after stems with final /a/, the lack of epenthesis after stems with final /Ca/ is unexplained. This indicates that epenthesis of these consonants after /Va/ is not conditioned by the previous vowel.

Recall from Section 4 that typically a binary distinction is made between two kinds of epenthesis: assimilatory and default. The former is typically defined as cases where surrounding vowels determine the quality of the epenthetic consonant. In the case of the latter, they do not. On this basis, epenthesis after /Va/ could be considered a case of default epenthesis.

This proposal – that there is default epenthesis of consonants at enclitic boundaries after certain vowels – gains some support from the variety of Kotos Amarasi spoken in Fo'asa' hamlet. In this variety of Meto, /g/ (not labio-velar /g^{w}/) is inserted after all vowel-final hosts before an enclitic, except when the host ends in /Ca/, in which case epenthesis is optional. Examples are given in Table 11.

Table 11: Fo'asa' consonant epenthesis (Edwards 2020: 232)

Stem		Enclitic	Fo'asa'	Translation
umi	+	*=ee*	*uimgee*	'the house'
peti	+	*=ee*	*peitgee*	'the casket'
n-rari	+	*=ee*	*nrairgee*	'finishes it'
n-soʔi	+	*=ee*	*nsoiʔgee*	'counts it'
fee	+	*=ee*	*feegee*	'the wife'
n-moʔe	+	*=ee*	*nmoeʔgee*	'does it'
hau	+	*=ii*	*haugii*	'the tree'
neno	+	*=ees*	*neoŋgees*	'one day'
na-ʔura	+	*=een*	*naʔuureen ~ naʔuurgeen*	'has started raining'
n-sosa	+	*=ee*	*nsoosee ~ nsoosgee*	'buys it'

Mooney (2021) reports nearly identical data for Kotos Amarasi from the village Oekabiti and analyses it as spreading of [+VOICE] with epenthesis of the place and manner features, with the least marked place/manner being selected.[19] Whatever the exact analysis, the data presented in this section demonstrates that some kind of default epenthesis occurs at clitic boundaries.

Given the evidence for default epenthesis, an alternative synchronic analysis of the different epenthetic consonants might be to propose that the default

[19]See Mooney (2021) for details on how /g/ is determined to be the consonant with the least marked place and manner features.

consonant is inserted in all instances and changes according to the quality of the preceding vowel. This would be very similar to the analysis of Kalaallisut discussed in Section 4.4. Thus, for instance, we could propose that in Amfo'an /g^{w}/ → [l] /e_ and /g^{w}/ → [dʒ] /i_. While /g^{w}/ → [dʒ] /i_ might be reasonable, /g^{w}/ → [l] /e_ is questionable due to the lack of phonetic similarity between the two consonants. Furthermore, for Timaus, statements such as /g^{w}/ → [r] /i_ or /g^{w}/ → [dʒ] /u_ lack any clear phonetic motivation for the realisations proposed. This analysis also runs into problems for Baikeno, as [b] is attested after front vowels in all varieties of Meto. Examples from Baikeno include *na-ʔebok* 'ignore', *na-ʔnae-baʔ* 'make great', *bibi* 'goat', and *mi-baʔe* 'you (pl.) play'.

6 Diachronic account of Meto epenthesis

The main problem faced by synchronic accounts of consonant epenthesis in Meto is that they do not explain the diversity of consonants inserted in different varieties of Meto. Under the analyses that have been proposed, there is no clear motivation as to why certain features spread in some varieties but not others. A diachronic perspective allows us to gain a much more cohesive and unified explanation for the diversity of epenthetic consonants; the different consonants are the result of sound changes applying to different extents in each variety of Meto.

In this section we outline how the different consonant epenthesis processes in Meto have developed from a diachronic perspective. Most of this section is focused on cases where the quality of the epenthetic consonant is determined by the final vowel of the clitic host. The development of default epenthesis is discussed in Section 6.5. All Proto-Malayo-Polynesian (PMP) reconstructions found in this section are from Blust & Trussel (2020) and all Proto-Rote-Meto (PRM) reconstructions are from Edwards (2021).

The series of sound changes that have occurred after front and back vowels are summarised in (4) and (5) respectively below. Each variety of Meto discussed in this chapter has carried out each series of sound changes in (4) and (5) to different extents.

(4) /V[+FRONT]_=V $\quad \varnothing > j > dʒ > \begin{cases} r \\ (*r >)\ l \text{ /e\_ (or direct } *j > l) \end{cases}$

(5) /V[+BACK]_=V $\quad \varnothing > w > g^{w} > \begin{cases} b \\ *g > dʒ \text{ /u\_} \end{cases}$

6.1 Glide insertion

The first change is glide insertion, whereby a process of phonetic insertion of [j] and [w] to resolve hiatus underwent phonologisation. This kind of phonologisation of a glide insertion process is widely attested cross-linguistically (see Blevins 2008a: 4-6). This change alone yielded the epenthesis seen in Amanuban. Phonetic insertion of glides is also attested word-medially after high vowels, but does not usually occur after mid vowels. Two examples from Amanuban are *ue* → [ˈʔuwɛ] ~ [ˈʔʊɛ] 'rattan', and *bia* → [ˈbija] ~ [ˈbia] 'cow'.

6.2 Glide fortition

The next stage in the development of consonant epenthesis is glide fortition, given in (6) below. These changes affect all varieties of Meto examined in this chapter except Amanuban.

(6) Glide fortition:
   a. *j > *dʒ*
   b. *w > g^w*

Glide fortition also occurs word-medially to different extents in many varieties of Meto. Examples from Kotos, Amfo'an, and Baikeno are given in Table 12 alongside Amanuban cognates which usually retain a glide, as well as available PMP and PRM reconstructions which show that these glides were originally automatic transition glides.

Table 12: Word-medial glide fortition

PMP	*duha	*ia	*laqia	—	*kahiw+*qaRuhu
PRM	*dua	*ia	*laia	—	*kaiou
Amanuban	*nua?*	*ia, ii*	*naij**e**e?*	*bia, bie*	*?a**i**oo, ?a**j**oo*
Kotos	*nua*	*ia, i**dʒ**a*	*nai**dʒ**eer*	*bi**dʒ**ae*	*?ai**dʒ**o?o*
Amfo'an	*nu**g**a*	*i**dʒ**a, i**dʒ**e*	*nai**dʒ**ee-l*	*bi**dʒ**ae-l*	*?ai**dʒ**ao-g*
Baikeno	*nu**b**an*	*i**dʒ**e*		*bi**dʒ**ae-l*	
gloss	'two'	'here'	'ginger'	'cow'	'casuarina'

Glide fortition is a fairly well-attested change cross-linguistically and many examples similar to that posited for Meto occur in other Austronesian languages. Examples include Chamorro (Blust 2000: 87), many languages of the Aru Islands

(Collins 1982: 127–133, Blust 2014: 55, Nivens 2017), several languages of Borneo (Smith 2017: 73–76, Blevins 2025 [this volume], Blust 2025 [this volume]) as well as a number of Oceanic languages (Ross 1988: 137, 169, 321).

Epenthesis of /b/ in Baikeno and Buraen Roi'is could be due to direct fortition of *w > *b*, or it could be from intermediate *g^{w}. The change *g^{w} > *b* is fairly well attested. It has occurred in Borneo (Blust 2013: 612–613), Proto-Celtic (Matasović 2009: 9), and most varieties of Greek before non-front vowels (Sihler 1995: 156).

Evidence that *w > *g^{w} > *b* occurred in Buraen Roi'is comes from the fact that varieties of Meto surrounding Buraen (Kotos and other varieties of Roi'is) have /g^{w}/. It thus seems unlikely that Buraen Roi'is would have undergone *w > *b* independent of *w > *g^{w}* in neighbouring varieties of Meto. Instead, it is more likely that all these varieties of Meto underwent *w > *g^{w}*, with subsequent *g^{w} > *b* in Buraen Roi'is.

In addition to Buraen Roi'is, a number of other varieties of Meto have epenthesis of /b/. Those varieties include Baikeno (discussed in this chapter, Section 3.1), Miomafo (Steinhauer 1996: 483), Molo (Mooney 2021), Biboki (based on the texts in Neonbasu 2005), Fatule'u, and the Nai'benu variety of Amfo'an (unpublished fieldnotes by the authors).[20] Given the evidence for *w > *g^{w} > *b* in Roi'is Amarasi, we tentatively suggest that all varieties of Meto with epenthesis of /b/ have also undergone the change *w > *g^{w} > *b*.

6.3 Epenthesis of /l/ after /e/

Baikeno, Amfo'an, and Timaus all have epenthesis of /l/ after /e/-final words. There are a number of ways in which epenthesis after /e/ behaves differently from epenthesis of other consonants.

Firstly, in those varieties of Meto where vowel assimilation usually accompanies consonant epenthesis, vowel assimilation does not accompany epenthesis of /l/. For example, Timaus *ai + =ees ⟶ aarees* 'a fire' with assimilation can be compared with *oe + =ees ⟶ oelees* 'a (body of) water' without assimilation.

Secondly, /e/ is the only vowel after which different consonants are (currently known) to be inserted in a single variety of Meto. In Baikeno, /Ve/-final words trigger epenthesis of /l/, but /Ce/-final words trigger epenthesis of /dʒ/. There is also at least one word in our Baikeno data for which epenthesis of /l/ or /dʒ/ occurs: *bale + =ess ⟶ baallees ~ baaldʒees* 'a place'. Similarly, /l/ or /dʒ/ are inserted after /e/ in the variety of Molo described by Mooney (2021).[21]

[20]Nai'benu originates from Ambenu where Baikeno is spoken.

[21]Mooney (2021) states that /dʒ/ is inserted after words with final /le/ and that /l/ is inserted after

Given that /dʒ/ is from *j (Section 6.2) and that Baikeno and Molo have both /dʒ/ and /l/ after /e/, it is simpler to propose that /l/ is also ultimately from *j than from some other source. If /l/ did not develop from *j, we would be forced to posit that ∅ > *j did not occur after some cases of /e/ in Baikeno and Molo, but did occur after other cases of /e/. This seems highly unlikely. Instead, it is simpler to posit that ∅ > *j /V[+FRONT]_=V was a universal change with this *j then undergoing subsequent changes.

There are at least two ways in which *j could have developed into /l/. Firstly, it could be due to a direct change of *j > *l*. This is an unusual sound change and *l > *j* would be more expected. Nonetheless, *j > *l* is attested in a small number of Austronesian languages. Examples include Uruangnirin [urn] and Kowiai [kwh] of western Papua, as well as some Oceanic languages (Ross 1988: 200, 204). Because *j > *l* is an unusual sound change, and because the data attesting this sound change are not widely available, we exemplify it below. Examples of *j > *l* in Uruangnirin and Kowiai are given in Table 13, alongside cognates in nearby languages which retain *j unchanged.[22]

Table 13: *j > *l* in Uruangnirin and Kowiai

gloss	'crocodile'	'I, 1SG'	'dog'	'fire'	'liver'	'calcium'
PMP	*buqaya	*i-aku	*asu†	*hapuy	*qatay	*qapuR
Fordata	*bwea*	***j**a?a*	***j**aha*	***j**afu*	***j**ata-n*	***j**afur*
Onin	*pua**j**a*	***j**ai*		***j**afi*	***j**ata-n*	*lofin*
Sekar	*biawa*	***j**ai*	***j**asi*	***j**afi*	***j**ata-n*	***j**afer*
Uruangnirin	*pua**l**a*	***l**au*	***l**asi*	***l**afi*	***l**ata-n*	***l**afur*
Kowiai		***l**a(u)*		***l**aɸ*	***l**ata*	***l**aɸor*

† Reflexes of *asu, *hapuy, *qatay, and *qapuR have a prosthetic/epenthetic glide added to historically vowel-initial words. This epenthesis happened after *q/*h > ∅.

Examples of *j > *l* in Oceanic languages are most clearly exemplified by Proto-Oceanic *puqaya > Mekeo *uala* 'crocodile', *maya > Mekeo *mala* 'tongue', and *iau > **yau > East Mekeo *lau* '1SG' (Jones 1998: 563–566).[23]

other words with final /e/. Only three examples are given, making it hard to judge how regular a pattern this may be. These examples are: *a|ʔnoʔe + =ee ⟶ a|ʔnooʔlee* 'the lontar palm', *a-toof lele + =ee ⟶ atoof leeldʒee* 'the farmer', and *bale + =ee baaldʒee* 'the place'.

[22] Uruangnirin data come from Visser (2019), Sekar and Onin data from Donohue (2010), Fordata data from Drabbe (1932), and Kowiai data from Walker & Walker (1991).

[23] Here we use double asterisk ** to refer to intermediary forms.

Apart from Austronesian languages, similar *j > l^j occurred in Slavic after labial consonants (Shevelov 1964, Carlton 1990, Wandl & Kavitskaya 2022 Kavitskaya & Wandl 2025 [this volume]). In Eastern Latvian dialects, *j > l^j has occurred in more environments (Endzelīns 1923: 110, 607–609).

Secondly, epenthesis of /l/ could be due to *j > *dʒ > *l*. Given that all varieties of Meto with epenthesis of /l/ have undergone *r > *l* (Edwards 2021: 66), this may have been *dʒ > *r > *l*. This sound change already occurred once in the history of Meto, affecting PMP *z which is taken to have been a palatal affricate [dʒ] (Blust 2013: 554, 577). Examples of PMP *z > Meto *r* > *l* are given in Table 14 to illustrate. Note, however, that this change went through intermediate Proto-Rote-Meto *ɗ and it might thus be challenged whether this is truly a case of *dʒ > *r* > *l*.

Table 14: PMP *z [dʒ] > *r* > *l*

Gloss	'way'	'far'	'rain'	'ladder'	'handspan'	'point'
Phonetic	[**dʒ**alan]	[**dʒ**auq]	[qu**dʒ**an]	[harə**dʒ**an]	[**dʒ**aŋkal]	[tu**dʒ**uq]
PMP	*z**z**alan	*z**z**auq	*qu**z**an	*haR**z**an	*z**z**aŋkal	*tu**z**uq
PRM	*ɗalan	*ka-ɗoo	*uɗan	*eɗa	*ɗaŋga	*tuɗu
Kotos	***r**anan*	*ʔ**r**oo*	*u**r**an*	*e**r**aʔ/k*	***r**aka-t*	*n-ru**r**u*
Roi'is	***r**anan*	***r**oo*	*u**r**un*	*e**r**aʔ*		*n-ru**r**u*
Amanuban	***l**anan*	*ʔ**l**oo*	*u**l**an*	*e**l**aʔ/k*	***l**aka-t*	*a/n-lu**l**u*
Baikeno	***l**alan*	*ʔ**l**oo*	*u**l**an*	*e**l**aʔ*		*n-lu**l**u*
Amfo'an	***l**alan*	*a/ʔ**l**oo-g*	*u**l**an*	*e**l**ak*	***l**aka-t*	*a/n-lu**l**u*
Timaus	***l**alan*	*a/ʔ**l**oo-g*^{w}	*u**l**un*			

Additional examples of *dʒ > *r* and *dʒ > *l* in Meto can be found in Malay loans, as [dʒ] is assimilated as /r/ or /l/ according to the liquid each variety of Meto has. Examples include Malay *baju* [badʒu] 'shirt' > Kotos *ba**r**u*, Amfo'an *soobal**u**-g*, as well as Malay *jadi* 'be, become' > Kotos and Roi'is *n-rari*, Amanuban *a/n-lali*.

Whatever the exact change(s) that led to epenthesis of /l/, we need to specify that they only occurred after /e/. This can be accounted for as a case of assimilation, as /e/ shares more similar features with /l/ than it does with /j/ ~ /dʒ/. The segments /e/ and /l/ can be viewed as both [+CORONAL] and [-HIGH], as opposed to /j/~/dʒ/ which are [+HIGH] (Culhane 2018: 51), or /e/ and /l/ can be viewed as [+CORONAL] as opposed to [+DORSAL] /i/ and /j/~/dʒ/ (Mooney 2021).

Furthermore, we need to specify that the changes that led to /l/ in Baikeno only occurred after words with a final vowel sequence, and not after CV-final word; e.g. *oe* + *=ees* ⟶ *oe**l**ees* 'one (body of) water' and *bifee* + *=ees* ⟶ *bifee**l**ees* 'one woman', as opposed to *mone* + *=ees* ⟶ *moon**dʒ**ees* 'a husband' and *ume* +

=ees ⟶ *uumdʒees* 'a house'. The lack of *j/*dʒ > *l* after CV-final words in Baikeno can be explained by the fact that CV-final words also undergo metathesis before vowel-initial enclitics. If this metathesis developed before *j/*dʒ > *l* /e_ then *j/*dʒ in forms like *uumdʒees* would not have been in the correct conditioning environment for this change.

Amfo'an and Timaus, where /l/ is always epenthesised after /e/-final words, do not have obligatory metathesis before vowel-initial enclitics. As a result, in these varieties of Meto *j/*dʒ > *l* /e_ was still eligible to occur as the consonant was in the appropriate conditioning environment.

6.4 Timaus developments

Timaus has undergone two additional changes which have led to its synchronic system of consonant epenthesis. According to their own accounts, speakers of Timaus trace their origin to Amfo'an, specifically to Timau mountain which is located in the Amfo'an area. Given this, it is likely that Timaus developed from a system like that in Amfo'an where /dʒ/ is inserted after /i/-final words, /l/ after /e/-final words, and /g^{w}/ after /o/ and /u/-final words.

The two changes Timaus has undergone which have altered this Amfo'an system are *dʒ > *r* and *g^{w} > *dʒ* /u.

6.4.1 Timaus *dʒ > *r*

The sound change *dʒ > *r* does not require much discussion. It is not an unusual sound change. Examples of *dʒ > *r* in Meto have already been given in Section 6.3 above. Another case of *dʒ > *r* in Austronesian languages comes from Northwest Solomonic (Ross 1988: 221). The change *dʒ > *r* has also occurred word-medially in Timaus, as the examples in Table 15 show. In these cases Timaus /r/ is ultimately derived from the glide *j, still attested in the Amanuban cognates.

Table 15: Timaus medial *dʒ > *r*

PMP	*kahiw+*qaRuhu	*laqia	*bayawak		
PRM	*kaiou	*laia	*ɓaiafa		
Amanuban	*ʔa**i**oo, ʔa**j**oo*	*nai**j**ee?*	*ba**j**afa?*	*bia ~ bie*	
Kotos	*ʔai**dʒ**oʔo*	*nai**dʒ**eer*		*bi**dʒ**ae*	*tai**dʒ**onif*
Timaus	*ʔa**r**oo-g^{w}*	*na**r**ee-l*	*ba**r**afa, bai**r**afa*	*bi**r**ae-l*	*tai**r**onif*
translation	'casuarina'	'ginger'	'monitor lizard'	'cow'	'jackfruit'

Additional support for positing *dʒ > *r* in Timaus comes from the fact that there is a certain degree of variation between /dʒ/ and /r/ in this variety of Meto in environments where /r/ is expected. There is no variation between /dʒ/ and /r/ in environments where /dʒ/ is expected. For example, in environments where /r/ is expected, one speaker in our Timaus corpus has six instances of /dʒ/ and 11 instances of /r/. The word for 'cow' also shows variation between *bidʒael* and *birael* for this speaker, even in a single text. While most speakers have completed the *dʒ > *r* sound change, this speaker probably reflects an older state of the language before the sound change was complete.[24]

6.4.2 Timaus *gʷ > *dʒ* /u

The second change that Timaus has undergone is *gʷ > *dʒ* before or after *u. This is a case of dissimilation. Similar dissimilation (though not as extreme) is seen in other varieties of Meto which have *gʷ > *g* in certain environments.

Most varieties of Meto have an unrounded allophone of /gʷ/ before round vowels. Recall from Section 2 that /gʷ/ is phonetically realised as [gw] ~ [ɣw] (a sequence of a voiced velar plosive/fricative followed by a labio-velar glide) or as [g] ~ [ɣ] without a labio-velar glide. The distribution of these allophones of /gʷ/ is stated in (7) below. This can be understood as dissimilation of the labial place feature of the consonant before a rounded vowel.

(7) Realisation of /gʷ/:
   a. /gʷ/ ⟶ [g]~[ɣ] /_V[+ROUND]
   b. /gʷ/ ⟶ [gw]~[ɣw] elsewhere

For example, while Kotos and Amfo'an have epenthesis of /gʷ/ before vowel-initial enclitics, before the reflexive enclitic *=oo-* /gʷ/ is realised as unrounded [g]. Two examples from Kotos include *na-kne?o* 'twists' + *=oo-n* 'REFL-3SG.GEN' ⟶ /naknee?gʷoon/ ⟶ [nakˈnɛːʔgɔn] and *na-tinu* 'worries' + *=oo-n* ⟶ /natiingʷoon/ ⟶ [naˈt̪iːŋgɔn] (Edwards 2020: 102).

Many varieties of Meto also have word-final *gʷ > *g* (or /gʷ/ ⟶ [g]). Recall from Section 3.4 that Amfo'an has a process of NP-final consonant insertion whereby a voiced velar obstruent is inserted after back vowels. In the variety of Amfo'an spoken in Soliu village, the consonant inserted in this context is usually labio-velar [gw], while in the variety of Amfo'an spoken in Lelogama (where

[24]The speaker with variation between /dʒ/ ~ /r/ is one of the oldest Timaus speakers recorded. He estimated that he was born shortly after 1936, putting his age at around 80 when recorded in 2017.

most of our data comes from), the consonant inserted is plain velar [g]. Given that Lelogama Amfo'an has labio-velar [gw] before most vowel-initial enclitics, this can be understood as another environment in which labial dissimilation occurs, in this case /g^{w}/ → [g] /V[+ROUND]_#. We posit that Timaus has taken this dissimilation one step further, with dissimilation of the velar place feature in addition to the labial place feature. Examples of word-final consonant insertion in Soliu Amfo'an, Lelogama Amfo'an, and Timaus are given in Table 16.

Table 16: NP-final consonant insertion /V[+BACK]_

		Amfo'an			
PMP	PRM	Soliu	Lelogama	Timaus	Translation
*kutu	*kutu	*hutug^{w}*	*hutug*	*hutidʒ*	'head-louse'
*asu	*asu	*asug^{w}*	*asug*	*asidʒ*	'dog'
*təbuh	*tefu	*tefug^{w}*	*tefug*	*tefidʒ*	'sugar cane'
*batu	*batu	*fatug^{w}*	*fatug*	*fatidʒ*	'stone'
*baqəRu	*beu-k	*feʔug^{w}*	*feʔug*	*feʔidʒ*	'new'
*qaləjaw	*ledo	*nenog^{w}*	*nenog*	*nenug^{w}*	'sky; day'
	*lifu	*nefog^{w}*	*nefog*	*nefug^{w}*	'lake'
*zauq	*ka-ɗoo	*ʔloog^{w}*	*ʔloog*	*ʔloog^{w}*	'far'

As can be seen from the data in Table 16, Timaus does *not* have dissimilation of *g^{w} > *dʒ* after historic *o. Timaus also attests vowel shifts in word-final position: *o > *u* /g^{w} and *u > *i* /dʒ. Given this last change, it is tempting to posit that *u > *i* occurred first, with subsequent *g^{w} > *dʒ* as a case of assimilation. However, final *u > *i* does not occur in NP-medial position nor before consonants other than /dʒ/. An example of retention of *u = *u* in each environment is *lak**u** lolar* 'sweet potato' and an example before a consonant other than /dʒ/ is *ma-fat**u**-ʔ* 'stony'. Instead, Timaus has undergone a process of consonant dissimilation, followed by processes of vowel assimilation, as laid out in (8).

(8) Timaus NP-final changes:
   a. *g^{w} > *dʒ* /u
   b. *u > *i* /dʒ
   c. *o > *u* /g^{w}

Timaus has also undergone a change of *g > *dʒ* word-medially. In some varieties of Amfo'an there is a process whereby /g^{w}/ [g] is optionally inserted before the vowel sequence /ua/. Timaus has optional insertion of /dʒ/ in the same environment, with subsequent *u > *i*.[25] Examples are given in Table 17, in which the Timaus forms have almost certainly developed from forms with earlier *g, as still attested in Amfo'an. Additionally, before the vowel sequence *oa, Timaus has optional insertion of /g/, though there is currently only one example in our data: *noah* ~ *ŋguah* 'coconut'.

Table 17: Timaus medial *g > *dʒ*

PMP PRM	*buaq *bua-k	*ɓua	*duha *dua	*buaq *mbuah	*uRat *uat
Kotos	*fua-f*	*na-bua*	*nua*	*puah*	*ua-f*
Amfo'an	*a|fgua?*	*na-bgua*	*a|ngua*	*a|pguah*	*a|gua?*
Timaus	*fdʒia-f*	*na-bdʒia*	*ndʒia*	*pdʒiah*	*dʒia-f*
translation	'fruit'	'gather'	'two'	'betel nut'	'fortune, palm lines'

While the precise mechanism behind consonant insertion in the environments /ua/ and /oa/ remains to be worked out, this data shows that the Timaus changes in (8) are not restricted to clitic boundaries.

6.5 Development of default epenthesis

The final aspect of consonant epenthesis in Meto which needs to be accounted for is epenthesis after stems with final /Va/, as stated in (3) above and repeated as (9) below. (Data from Buraen Roi'is is currently lacking.)

(9) Epenthesis after hosts with final /Va/:
   a. epenthesis of /j/ /Va_=V (Amanuban);
   b. epenthesis of /b/ /Va_=V (Baikeno);
   c. epenthesis of /g^{w}/ /Va_=V (Kotos, Amfo'an, Timaus).

[25] It is worth noting that the processes of consonant insertion illustrated in Table 17 are optional and there is variation between speakers and villages as to whether or not such insertion occurs. A single speaker can also have variation for some words.

While epenthesis of /b/ in Baikeno can be accounted for partly as a result of *g^w > *b* (Section 6.2), the best explanation that we can offer for epenthesis of /g^w/ or /j/ after stems with final /Va/ is to suggest it arose by analogy with epenthesis after other VV-final stems. In Amanuban, this would be analogy with insertion of /j/ after /Vi/ and /Ve/ (e.g. *oe* + *=ees* ⟶ *oejees* 'a water'), while in other varieties it would be analogy with insertion of /g^w/ after /Vo/ and /Vu/ (e.g. Amfo'an *meo* + *=ees* ⟶ *meog^wees* 'a cat').

Unlike epenthesis after other vowels, default epenthesis probably did not arise from an Amanuban-like stage in all varieties of Meto. If they *had* developed from such a stage, we would probably expect epenthesis of /dʒ/ in varieties other than Amanuban as a result of *j > *dʒ*, or we would expect epenthesis of /w/ in Amanuban as the precursor to /g^w/.

Similarly, epenthesis of /g/ after all vowels in Fo'asa' Kotos (Section 5.2) seems to be due to analogy with epenthesis of this segment elsewhere. That is, epenthesis of /g/ in Fo'asa' has expanded from occurring only after /o/, /u/, and /Va/ to occurring after all stems.

This explanation is quite unsatisfying. The only consolation we can offer at this stage is that there remain many varieties of Meto for which no data on consonant epenthesis has yet been collected. It may be that one of these varieties of Meto holds the key to understanding epenthesis after stems with final /Va/. It may also be the case that such data will force us to revise certain aspects of the diachronic account we have given in the previous sections.

7 Sociolinguistic factors

An additional factor to be considered in understanding consonant epenthesis in Meto is the possible influence of sociolinguistic factors. At this point, we can only offer some preliminary observations based on our conversations with Meto speakers. A thorough investigation of the role of language and identity among different groups of Meto speakers remains to be carried out.

Our conversations with Meto speakers show that the different patterns of consonant epenthesis in different varieties and dialects are often salient to speakers. They are aware of the patterns, and that they differ between varieties of Meto. For example, when Edwards first travelled to the Amfo'an speaking area, he was accompanied by speakers of Amanuban who told him that "all the words there end in <*g*>". Similarly, when Culhane first arrived in Lelogama to undertake more intensive work on Amfo'an, her main consultant told her: "Here in Amfo'an we add consonants at the end of sentences. That's how you know someone is from

Amfo'an". Both statements show that the processes of consonant insertion in Amfo'an are seen by both insiders and outsiders as distinctive of their variety of Meto. Such observations are not only made about gross differences between different varieties of Meto – such as the presence of /g/ in Amfo'an compared to its absence in Amanuban – but also about fine-grained differences, such as the occurrence of /gʷ/ or /g/ in word-final position. Different varieties of Kopas have insertion of either /gʷ/ or /g/ in similar environments to that found Amfo'an (see Section 6.4.2). In the village of Tunfe'u [g] is inserted; *hau* → *haag* 'tree, wood', while in the village Usapisonba'i /gʷ/ is inserted; *hau* → *haag*^{w} 'tree, wood'. When in Usapisonba'i, Edwards told one of his consultants that he had been to Tunfe'u and that there they said *haag* for 'tree'. To this the consultant responded: "Yes, they speak differently there. Here we say *haag*^{w}".

In the context of Timor, it does not seem likely that different identities are themselves the trigger for the changes we outlined in Section 6. Instead, it seems more likely that once changes have occurred, they *became* salient markers of identity and are reinforced as such. This may potentially be part of the explanation for the persistence of the typologically rare systems of consonant insertion found in Meto. Indeed, the kinds of comments from speakers outlined above demonstrate their metalinguistic awareness of correspondences between linguistic systems, which is one of the mechanisms of generating diverse structures identified by Evans (2019). Meto also demonstrates several features of the kind of social setting which favours linguistic signalling of group-membership distinctions: small speech communities, multilingualism, and awareness of alternative systems (Evans 2019: 582–584).

8 Conclusions

This chapter has examined consonant epenthesis in Meto, whereby various consonants are regularly inserted after vowel-final words when they are followed by vowel-initial enclitics. We have shown that consonant epenthesis in Meto adheres to the definitions of epenthesis proposed in the literature, but involves segments which are otherwise unattested.

Some of the epenthetic consonants are analysable as cases of default epenthesis, while others are analysable as determined by the place and manner of articulation of the preceding vowels. However, the diversity of consonants seen in the same environments across different varieties of Meto – such as /w/, /gʷ/, /b/, or /dʒ/ after final /u/ – is not well-explained under a synchronic account. Furthermore, some of the patterns of consonant epenthesis in Meto involve epenthetic

consonants, the qualities of which are not transparently determined by the preceding vowels. The best synchronic account, unsatisfying as it is, may be that consonant insertion in Meto is a static pattern which is most likely simply learned by the speakers in childhood.[26]

A diachronic account provides a different perspective on consonant epenthesis in Meto. It allows us to explain the diversity of epenthetic consonants observed in a more cohesive way. The epenthetic consonants attested are the result of sequences of sound changes which have applied to different extents in different varieties of Meto. The two series of sound changes we propose in (4) and (5) are repeated as (10) and (11) below.

(10) /V[+FRONT]_=V $\quad \emptyset > j > dʒ > \begin{cases} r \\ (*\text{r} >)\ l \text{ /e\_ (or direct *j} > l) \end{cases}$

(11) /V[+BACK]_=V $\quad \emptyset > w > g^{w} > \begin{cases} b \\ *\text{g} > dʒ \text{ /u\_} \end{cases}$

These sound changes are attested elsewhere in Meto, as well as crosslinguistically. Thus, while several of the epenthetic consonants in Meto have not been found in other languages, the sound changes we propose are. Our findings support Blevins's (2008a, 2025 [this volume]) prediction that "unnatural" patterns of consonant insertion, like "unnatural" sound changes, often develop from "natural" patterns through the accumulation of sound changes.

In this chapter, we have also briefly touched on the possible role of social factors on the patterns of consonant epenthesis attested in Meto. Initial conversations with speakers indicate that they are highly conscious of the different patterns of consonant insertion. Their awareness of these differences, including of those which are at a phonetic level, suggests that they have become markers of group identity.

The data presented in this chapter also has several implications for phonological typology and theory. The first is that Meto displays otherwise unattested epenthetic consonants, including consonants such as /g^{w}/, which do not adhere to theoretical predictions about possible epenthetic segments. This therefore calls for a revision of theoretical predictions about consonant epenthesis. The occurrence of /g^{w}/ as a default epenthetic segment in Meto also parallels the findings of Morley (2015) and Vaux & Samuels (2017), who demonstrate that Optimality

[26]Thanks goes to an anonymous reviewer for pointing this out. Nonetheless, it is important to recall that the process is highly productive and applies to novel loanwords (Section 3.3). This indicates that speakers are learning something like a rule rather than just associations between individual lexical items and certain consonants.

Theory predictions about preferred epenthetic segments are not borne out cross-linguistically.

In addition, Meto has a spectrum of epenthetic consonants which are transparently analysable as determined by the preceding vowel to differing extents. This raises questions about the extent to which an epenthetic consonant must be similar to adjacent vowels in order to be considered assimilatory epenthesis. How to delimit assimilatory epenthesis, and whether a binary distinction between default and assimilatory epenthesis is a useful one, remains to be investigated.

Abbreviations, glosses, and symbols

|	separates prosthetic vowel	DET	determiner
0	zero person	PERF	perfect
1	first person	PMP	Proto-Malayo Polynesian
2	second person	PRM	Proto-Rote-Meto
3	third person	REFL	reflexive
ACC	accusative	SG	singular

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Appendix A Additional data

In this appendix we provide additional data exemplifying the patterns of consonant epenthesis described in Section 3. Data is drawn from the sources given in (1).

A.1 Amanuban

Table 18: Amanuban VV#

stem	enclitic	output	translation
*i**i***	*=een*	*ii**j**een*	‘this/here now’
*me**i***	*=ees*	*mei**j**ees*	‘one table’
*te**i***	*=ees*	*tei**j**ees*	‘one (pile of) dung’
*kle**i***	*=ees*	*klei**j**ees*	‘one week’
*fa**i***	*=ees*	*fai**j**ees*	‘one night’
*mui? fu**i***	*=ees*	*mui? fui**j**ees*	‘one wild animal’
*n-tu**i***	*=ee*	*ntui**j**ee*	‘writes it’
*bife**e***	*=ees*	*bifee**j**ees*	‘one woman’
*n-fe**e***	*=ee*	*nfee**j**ee*	‘gives it’
*fe**e***	*=ees*	*fee**j**ees*	‘one wife’
*n-sa**e***	*=een*	*nsae**j**een*	‘has risen’
*no**e***	*=ees*	*noe**j**ees*	‘one river’
*u**e***	*=ee*	*ue**j**ee*	‘the rattan’
*n-ti**a***	*=een*	*ntia**j**een*	‘has arrived’
*neno ha**a***	*=een*	*neno haa**j**een*	‘has been four days’
*neno nu**a***	*=een*	*neno nua**j**een*	‘has been two days’
*na-tu**a***	*=een*	*natua**j**een*	‘has dwelt’
*na-fu**a***	*=een*	*nafua**j**een*	‘has born fruit’
*a|n-hanu**a***	*=oo-n*	*anhanua**j**oon*	‘spread (itself)’
*si**o***	*=een*	*sio**w**een*	‘nine now’
*na-kle**o***	*=ee*	*nakleo**w**ee*	‘traps it’
*na-mne**o***	*=een*	*namneo**w**een*	‘truly/really now’
*bna**o***	*=ees*	*bnao**w**ees*	‘one ship’
*to**o***	*=ees*	*too**w**ees*	‘one population’
*?lo**o***	*=een*	*?loo**w**een*	‘has been a long time’
*ki**u***	*=ees*	*kiu**w**ees*	‘one tamarind tree’
*kool oto ?bi**u***	*=ees*	*kool oto ?biu**w**ees*	‘one turtledove’
*nme**u***	*=een*	*nmeu**w**een*	‘early morning now’
*na-mna**u***	*=ee*	*namnau**w**ee*	‘remembers her/him/it’
*n-fee=ka**u***	*=ee*	*nfeekau**w**ee*	‘gives it to me’

Table 19: Amanuban CV#

stem	enclitic	output	translation
ini	*=aa*	*inijaa*	'her/his (possession)'
n-eki	*=ee*	*nekijee*	'takes it'
lasi	*=ees*	*lasijees*	'one matter'
n-so?i	*=ee*	*nso?ijee*	'counts it'
n-fuli	*=ee*	*nfulijee*	'persuades her/him'
mi-hine	*=ee*	*mihinejee*	'you (pl.) know it'
t-heke	*=ee*	*thekejee*	'catches it'
bale	*=ees*	*balejees*	'one place'
an-mo?e	*=ee*	*anmo?ejee*	'does it'
ume	*=ees*	*umejees*	'one house'
n-ita	*=ee*	*niitee*	'sees it'
n-nena	*=ee*	*nneenee*	'hears it'
na-tana	*=ee*	*nataanee*	'asks her/him'
n-sosa	*=ee*	*nsoosee*	'buys it'
n-suba	*=ee*	*nsuubee*	'buries it'
kilo	*=ees*	*kilowees*	'one kilogram'
kaun laso	*=ees*	*kaun lasowees*	'one poisonous snake'
aan feto	*=ees*	*aan fetowees*	'one girl'
n-lolo	*=ee*	*nlolowee*	'kills it'
n-poho	*=ee*	*npohowee*	'touches it'
nifu	*=ees*	*nifuwees*	'one pool'
mepu	*=ee*	*mepuwee*	'the work'
tabu	*=ees*	*tabuwees*	'one time'
na-msopu	*=een*	*namsopuween*	'has finished'
?tubu	*=ees*	*?tubuwees*	'one hill'

A.2 Kotos

Table 20: Kotos VV#

stem	enclitic	output	translation
*kmi**i***	*=ii*	*kmi**idʒ**ii*	‘the urine’
*kre**i***	*=ees*	*kre**edʒ**ees*	‘one church/week’
*a**i***	*=ee*	*a**adʒ**ee*	‘the fire’
*n-po**i***	*=ena*	*npo**odʒ**ena*	‘has exited’
*oo fu**i***	*=ii*	*oo fu**udʒ**ii*	‘the wild bamboo’
*bife**e***	*=ees*	*bife**edʒ**ees*	‘one woman’
*na-se**e***	*=oo-n*	*nase**edʒ**oon*	‘excuse oneself’
*bidʒa**e***	*=ee*	*bidʒa**adʒ**ee*	‘the cow’
*no**e***	*=ee*	*no**odʒ**ee*	‘the river’
*o**e***	*=ee*	*o**odʒ**ee*	‘the water’
*i**a***	*=een*	*i**ag**ʷ**een*	‘here already’
*n-te**a***	*=een*	*nte**ag**ʷ**een*	‘has arrived’
*na**a***	*=een*	*na**ag**ʷ**een*	‘there already’
*nu**a***	*=een*	*nu**ag**ʷ**een*	‘two already’
*mi-tu**a***	*=ee*	*mitu**ag**ʷ**ee*	‘we occupy it’
*ʔ-pe**o***	*=ee*	*ʔpe**eg**ʷ**ee*	‘sees it’
*bna**o***	*=ii*	*bna**ag**ʷ**ii*	‘the ship’
*n-sa**o***	*=ee*	*nsa**ag**ʷ**ee*	‘weds him/her’
*o**o***	*=ee*	*o**og**ʷ**ee*	‘the bamboo’
*u-sbo**o***	*=ee*	*usbo**og**ʷ**ee*	‘I smoked it’
*na-ni**u***	*=ee*	*nani**ig**ʷ**ee*	‘bathes him/her’
*nme**u***	*=ii*	*nme**eg**ʷ**ii*	‘it is morning’
*ha**u***	*=ee*	*ha**ag**ʷ**ee*	‘the wood/tree’
*seka**u***	*=een*	*seka**ag**ʷ**een*	‘who already’
*kfu**u***	*=ee*	*kfu**ug**ʷ**ee*	‘the star’

Table 21: Kotos CV#

stem	enclitic	output	translation
*na-hin**i***	*=ee*	*nahiin**dʒ**ee*	‘knows it’
*n-ek**i***	*=ee*	*neik**dʒ**ee*	‘takes it’
*faf**i***	*=ee*	*faaf**dʒ**ee*	‘the pig’
*n-rom**i***	*=ee*	*nroom**dʒ**ee*	‘likes it’
*n-sur**i***	*=ee*	*nsuur**dʒ**ee*	‘heals it’
*n-hek**e***	*=ee*	*nheek**dʒ**ee*	‘catches it’
*n-mes**e***	*=aah*	*nmees**dʒ**aah*	‘just alone’
*kas**e***	*=ee*	*kaas**dʒ**ee*	‘the foreigner’
*n-mo?**e***	*=ee*	*nmoo?**dʒ**ee*	‘does it’
*mon**e***	*=ee*	*moon**dʒ**ee*	‘the husband’
*n-it**a***	*=ee*	*niitee*	‘sees it’
*nem**a***	*=een*	*neemeen*	‘has come’
*na-tam**a***	*=ee*	*nataamee*	‘makes it enter’
*n-sub**a***	*=ee*	*nsuubee*	‘buries it’
*n-tup**a***	*=een*	*ntuupeen*	‘has slept’
*na-rek**o***	*=een*	*nareek**gʷ**een*	‘has become better’
*nef**o***	*=ee*	*neef**gʷ**ee*	‘the lake’
*kanf**o***	*=ee*	*knaaf**gʷ**ee*	‘the mouse’
*?aidʒo?**o***	*=esa*	*?aidʒoo?**gʷ**esa*	‘a casuarina tree’
*kor**o***	*=ee*	*koor**gʷ**ee*	‘the bird’
*bik**u***	*=ii*	*biik**gʷ**ii*	‘the curse’
*n-ket**u***	*=ee*	*nkeet**gʷ**ee*	‘cuts it’
*man**u***	*=ees*	*maan**gʷ**ees*	‘one chicken’
*n-ot**u***	*=ee*	*noot**gʷ**ee*	‘burns it’
*hut**u***	*=ii*	*huut**gʷ**ii*	‘the headlouse’

A.3 Buraen Roi'is

Table 22: Buraen Roi'is VV#

stem	enclitic	output	translation
*kre**i***	*=ees*	*kre**edʒ**ees*	‘one week’
*te**i***	*=aa*	*te**edʒ**ia*	‘the faeces’
*n-tu**i***	*=ee*	*ntu**udʒ**ee*	‘writes it’
*bife**e***	*=ii*	*bife**edʒ**ii*	‘the daughter’
*fe**e***	*=aa*	*fe**edʒ**ea*	‘the wife’
*fuun se**o***	*=ii*	*fuun se**eb**ui*	‘the ninth month’
*no**o***	*=ees*	*no**ob**oes*	‘the first time’
*matsa**o***	*=ee*	*matsa**ab**oe*	‘married him/her’
*bna**o***	*=ii*	*bna**ab**ui*	‘the ship’
*n-ha**o***	*=ee*	*nha**ab**oe*	‘feeds it’
*iik hi**u***	*=ii*	*iik hi**ib**ui*	‘the shark’
*ku-mna**u***	*=ee*	*ku-mna**ab**oe*	‘I remember it’

Table 23: Buraen Roi'is CV#

stem	enclitic	output	translation
m-eri	*=ee*	*meerʤee*	'took it'
boni	*=ee*	*boonʤee*	'the term of address'
brafi	*=aa*	*braafʤia*	'the sea cucumber'
tasi	*=ee*	*taasʤee*	'the sea'
umi	*=ee*	*uumʤee*	'the house'
n-haʔmuʔi	*=ee*	*nhaʔmuuʔʤee*	'makes him/her suffer'
ku-hine	*=ee*	*kuhiinʤee*	'I know it'
meʔe	*=aa*	*meeʔʤea*	'the red ones'
afu mee	*=aa*	*afu meeʤea*	'soil somewhere'
rene	*=ee*	*reenʤee*	'the field'
mone	*=aa*	*moonʤea*	'the husband'
aan feto	*=ii*	*aan feetbui*	'the daughter'
aan feto	*=aa*	*aan feetboa*	'the daughter'
neno	*=ees*	*neenboes*	'one day'
koro	*=aa*	*koorboa*	'the bird'
n-roro	*=ee*	*nroorboe*	'kills it'
nifu	*=ees*	*niifboes*	'one thousand'
noo tenu	*=ii*	*noo teenbui*	'the third time'
mepu	*=ii*	*meepbui*	'the work'
feot koʔu	*=ii*	*feot kooʔbui*	'the eldest daughter'
akuarium koʔu	*=ees*	*akuarium kooʔboes*	'a big aquarium'
m-topu	*=ee*	*mtoupboe*	'we receive it'
t-otu	*=ee*	*tootboe*	'burns it'

A.4 Baikeno

Table 24: Baikeno VV#

stem	enclitic	output	translation
*a**i***	*=aa*	*ai**dʒ**aa*	‘the fire’
*fa**i***	*=ees*	*fai**dʒ**ees*	‘one night’
*me**i***	*=aa*	*mei**dʒ**aa*	‘the table’
*kle**i***	*=ees*	*klei**dʒ**ees*	‘one week/church’
*n-to**i***	*=ee*	*ntoi**dʒ**ee*	‘carved it’
*n-po**i***	*=een*	*mpoi**dʒ**een*	‘has come out’
*n-fe**e***	*=ee*	*nfee**l**ee*	‘gives it’
*bife**e***	*=ees*	*bifee**l**ees*	‘one woman’
*bidʒa**e***	*=ee*	*bidʒae**l**ee*	‘one cow’
*na-ta**e***	*=ee*	*nata**l**ee*	‘responds to her/him’
*o**e***	*=aa*	*oe**l**aa*	‘the water’
*no**e***	*=ii*	*noe**l**ii*	‘the river’
*nu**a***	*=een*	*nua**b**een*	‘two now’
*moolk=a**a***	*=ee*	*moolkaa**b**ee*	‘speech now’
*ka=ʔloʔo=f**a***	*=een*	*kaʔloʔofa**b**een*	‘not long now’
*me**o***	*=ees*	*meo**b**ees*	‘one cat’
*n-pa**o***	*=ee*	*npao**b**ee*	‘waits for her/him’
*n-ta**o***	*=ee*	*ntao**b**ee*	‘puts it’
*kali**u***	*=ees*	*kaliu**b**ees*	‘one crab’
*n-ail name**u***	*=ee*	*nail nameu**b**ee*	‘sees it clearly’
*ha**u***	*=ees*	*hau**b**ees*	‘one tree’
*na-mna**u***	*=ee*	*namnau**b**ee*	‘remembers her/him’

Table 25: Baikeno CV#

stem	enclitic	output	translation
*uk**i***	*=ii*	*uuk**dʒ**ii*	‘the banana’
*in**i***	*=ii*	*iin**dʒ**ii*	‘her/his things’
*n-fin**i***	*=ee*	*nfiin**dʒ**ee*	‘passes it’
*le**l**i***	*=ee*	*leel**dʒ**ee*	‘the jerry can’
*u-lal**i***	*=ee*	*ulaal**dʒ**ee*	‘finishes it’
*n-hel**i***	*=ee*	*nheil**dʒ**ee*	‘cuts it’
*n-pen**i***	*=ee*	*npein**dʒ**ee*	‘gets it’
n-ita	*=ee*	*niitee*	‘sees it’
n-nena	*=ee*	*nneenee*	‘hears it’
n-ana	*=ee*	*naanee*	‘gets it’
na-tona	*=ee*	*natoonee*	‘tells him/her’
*um**e***	*=ee*	*uum**dʒ**ees*	‘one house’
*li?aan mon**e***	*=ee*	*li?aan moon**dʒ**ee*	‘the son’
*t-mo?**e***	*=ee*	*tmoo?**dʒ**ee*	‘does it’
*bal**e***	*=ees*	*baal**l**ees, baal**dʒ**ees*	‘one place’
*nen**o***	*=ee*	*neen**b**ees*	‘one day’
*bel**o***	*=ii*	*beel**b**ii*	‘the monkey’
*?ba?**u***	*=ees*	*?baa?**b**ees*	‘one bat’
*buk**u***	*=ii*	*buuk**b**ii*	‘the book’

A.5 Amfo'an

Table 26: Amfo'an VV#

stem	enclitic	output	translation
*ʔ-saksi**i***	*=ee*	*ʔsaksii**ʤ**ee*	‘I witness it’
*kli**i***	*=ee*	*klii**ʤ**ee*	‘the church’
*fa**i***	*=ees*	*fai**ʤ**ees*	‘one night’
*n-fee=ka**i***	*=ee*	*nfeekai**ʤ**ee*	‘gives it to us’
*a**i***	*=ee*	*ai**ʤ**ee*	‘the fire’
*t-suta**i***	*=ee*	*tsutai**ʤ**ee*	‘we bear it’
*m-fe**e***	*=ee*	*mfee**l**ee*	‘we give it’
*bife**e***	*=ees*	*bifee**l**ees*	‘the woman’
*u-na**e***	*=een*	*unae**l**een*	‘I have grown’
*o**e***	*=aa*	*oe**l**aa*	‘the water’
*ha**a***	*=een*	*haa**g**ʷeen*	‘four already’
*ta-bgo**a***	*=een*	*ta-bgoa**g**ʷeen*	‘we have gathered’
*t-ta**o***	*=ee*	*ttao**g**ʷee*	‘we put it’
*mi-na**o***	*=een*	*mi-nao**g**ʷeen*	‘we have gone’
*klo**o***	*=ees*	*kloo**g**ʷees*	‘one far away (thing)’
*sasi**u***	*=ee*	*sasiu**g**ʷee*	‘the sparks’
*nme**u***	*=aa*	*nmeu**g**ʷaa*	‘tomorrow’
*ha**u***	*=ee*	*hau**g**ʷee*	‘the tree’
*a**u***	*=ee*	*au**g**ʷee*	‘my thing’

Table 27: Amfo'an CV#

stem	enclitic	output	translation
*n-tef**i***	*=ee*	*nteef**dʒ**ee*	‘makes a roof’
*ʔ-pen**i***	*=ee*	*ʔpeen**dʒ**ee*	‘I get it’
*faf**i***	*=ees*	*faaf**dʒ**ees*	‘one pig’
*las**i***	*=ee*	*laas**dʒ**ee*	‘the matter’
*t-soʔ**i***	*=ee*	*tsooʔ**dʒ**ee*	‘counts it’
*on**i***	*=aa*	*oon**dʒ**aa*	‘the bee’
*aton**i***	*=ees*	*atoon**dʒ**ees*	‘one man’
*mab**e***	*=een*	*maab**l**een*	‘has become evening’
*nan**e***	*=een*	*nane**l**een*	‘there already’
*liʔaan mon**e***	*=ees*	*liʔaan moon**l**ees* ~ *liʔaan mone**l**ees*	‘a boy’
*a|n-hon**e***	*=ee*	*anhone**l**ee*	‘invites him’
*a|n-tal**a***	*=ee*	*antaalee*	‘forbids her/him’
*na-tam**a***	*=ee*	*nataamee*	‘makes her/him enter’
*na-san**a***	*=ee*	*nasaanee*	‘accused her/him’
*uisnen**o***	*=aa*	*uisneen**gʷ**aa*	‘God’
*nen**o***	*=ees*	*neen**gʷ**ees*	‘one day’
*ot**o***	*=ee*	*oot**gʷ**ee*	‘the car’
*nif**u***	*=aa*	*niif**gʷ**aa*	‘the pool’
*anah ten**u***	*=een*	*anah teen**gʷ**een*	‘three children already’
*bifee feʔ**u***	*=aa*	*bifee feeʔ**gʷ**aa*	‘the new woman’
*tab**u***	*=ees*	*taab**gʷ**ees*	‘one time’
*n-ot**u***	*=ee*	*noot**gʷ**ee*	‘burns it’

A.6 Timaus

Table 28: Timaus VV#

stem	enclitic	output	translation
*n-polo=ka**i***	*=ee*	*npoloka**ar**ee*	‘splits it for us’
*a|n-fa**i***	*=een*	*anfa**ar**een*	‘has become night’
*kle**i***	*=ees*	*kle**er**ees*	‘one week’
*ʔ-so**i***	*=ee*	*ʔso**or**ee*	‘I count it’
*bira**e***	*=aa*	*bira**el**aa*	‘the cow’
*u-ʔna**e***	*=ena*	*uʔna**el**ena*	‘I had grown up’
*me**e***	*=aa*	*me**el**aa*	‘wherever’
*fe**e***	*=esa*	*fe**el**esa*	‘one wife’
*o**e***	*=ees*	*o**el**ees*	‘one body of water’
*kuan a**a***	*=een*	*kuanaa**g**^{w}een*	‘the village now’
*meel a**a***	*=een*	*meelaa**g**^{w}een*	‘wherever now’
*nteniʔ f**a***	*=een*	*nteniʔ fa**g**^{w}een*	‘not again’
*m-ta**o***	*=ee*	*mta**ag**^{w}ee*	‘put/do it’
*t-pe**o***	*=ee*	*tpe**eg**^{w}ee*	‘we say it’
*to**o***	*=aa*	*to**og**^{w}aa*	‘the populace’
*a|ʔlo**o***	*=een*	*a|ʔlo**og**^{w}een*	‘has been a long time’
*na-mna**u***	*=ee*	*namna**adʒ**ee*	‘remembers it’
*na-honi-s=ka**u***	*=ii*	*nahoniska**adʒ**ii*	‘gives birth to me’
*na-mfa**u***	*=een*	*namfa**adʒ**een*	‘is now many’

Timaus from the village Sanenu, where most of our Timaus data comes from, has undergone an *e > *a* /C_(C)# sound change. The first four examples in Table 29 show epenthesis of /l/. This is because the final /a/ comes from earlier /e/. For the other seven examples, which do not trigger trigger epenthesis of /l/, the final /a/ comes from earlier *a. Note also that Sanenu Timaus appears to have assimilation of inserted /r/ ⟶ /l/ after final /l/, though there is only one example in our data: *na-lali* ‘finish’ + *=een* ⟶ **nalaalreen* ⟶ *nalaalleen* ‘has finished’.

Table 29: Timaus CV#

	stem	enclitic	output	translation
	*na?las**i***	*=aa*	*na?laas**r**aa*	‘Amarasi’
	*faf**i***	*=aan*	*faaf**r**aan*	‘the pig’
	*n-ek**i***	*=ee*	*neek**r**ee*	‘takes it’
	*m-ait**i***	*=ee*	*mait**r**ee*	‘picks it up’
	*na?**i***	*=ee*	*naa?**r**ee*	‘the pot’
*ane >	*ana*	*=aa*	*ana**l**aa*	‘the rice field’
*-hine >	*u-hina*	*=ee*	*uhina**l**ee*	‘I knew it’
*bale >	*bala*	*=ees*	*bala**l**ees*	‘one place’
*-mlile >	*mi-mlila*	*=ii*	*mimlila**l**ii*	‘we were happy’
	*nim**a***	*=ena*	*niimena*	‘has been five’
	*n-tek**a***	*=ee*	*nteekee*	‘calls it’
	*pah**a***	*=ee*	*paahee*	‘the country’
	*n-an**a***	*=ee*	*naanee*	‘gets it’
	*na-han**a***	*=ee*	*nahaanee*	‘cooks it’
	*?-bab**a***	*=ee*	*?baabee*	‘I helped him’
	*n-tu?**a***	*=een*	*ntuu?een*	‘has stopped’
	*n-sok**o***	*=ee*	*nsook**gw**ee*	‘spoons it out’
	*m-pol**o***	*=ee*	*mpool**gw**ee*	‘we split it’
	*n-kon**o***	*=ee*	*nkoon**gw**ee*	‘passes it’
	*n-tiklot**o***	*=een*	*antiklot**gw**een*	‘cuts it down’
	*nen**o***	*=ii*	*neen**gw**ii*	‘the sky’
	*kot**o***	*=ii*	*koot**gw**ii*	‘the hyacinth beans’
	*lek**o***	*=ii*	*leek**gw**ii*	‘the good things’
	*mus**u***	*=ii*	*muus**dʒ**ii*	‘the enemy’
	*a|?tub**u***	*=ees*	*a|?tuub**dʒ**ees*	‘one hill’
	*klaas ten**u***	*=ee*	*klaas teen**dʒ**ee*	‘the three classes’
	*mep**u***	*=een*	*meep**dʒ**een*	‘work already’