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Metathesis and Unmetathesis:
Parallelism and Complementarity
in Amarasi, Timor

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This thesis represents an original piece of work, and does not contain, in part or in full, the published work of any other individual, except where acknowledged.

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Abstract

In this thesis I provide a complete analysis of synchronic CV → VC metathesis in Amarasi, an Austronesian language of western Timor. Metathesis and unmetathesis realise a paradigm of parallel forms, pairs of which occur to complement each other throughout the language.

Metathesis in Amarasi is superficially associated with a bewildering array of disparate phonological processes including: vowel deletion, consonant deletion, consonant insertion and multiple kinds of vowel assimilation, any of which can (and do) vary by lect in their realisation. By proposing that Amarasi has an obligatory CVCVC foot in which C-slots can be empty, all these phonological processes can be straightforwardly derived from a single rule of metathesis and two associated phonological rules.

Three kinds of metathesis can be identified in Amarasi. (i) Before vowel initial enclitics, roots must undergo metathesis, responding to the need to create a phonological boundary between a clitic host and enclitic. Such metathesis is syntactically driven but phonologically conditioned. (ii) Metathesis occurs within the syntax to signal attributive modification. A syntactically metathesised form cannot occur at the end of a phrase and thus requires the presence of an unmetathesised form to complete it syntactically. (iii) In the discourse an unmetathesised form marks an unresolved event or situation. Such an unmetathesised form cannot occur in isolation and requires a metathesised form to achieve resolution. Metathesis in Amarasi is *the* central linguistic process around which linguistic structures are organised.

Amarasi metatheses also reflect fundamental Timorese notions of societal and cosmic organisation. Alongside weaving and other performed activities, metathesis is an important linguistic marker of identity in a region obsessed with similarities and differences of identity between different groups. The complementarity of Amarasi metathesis and unmetathesis within the syntax and within discourse reflects the Timorese division of the world into a series of mutually dependent binary and complementary pairs. As well as being the key which unlocks the structure of the language, metathesis is also a reflection of the structure of Amarasi society and culture.

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In the beginning was the Word, and the Word was with God and the Word was God. He was with God in the beginning. Through him all things were made; without him nothing was made that has been made. In him was life and that life was the light of men. (John 1:1-3)

In the beginning God created the heavens and the earth. Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters. And God said: "... (Genesis 1:1-3)

So God created human beings in his own image, in the image of God he created them; male and female he created them. (Genesis 1:27)

Rarit 'Uisneno In Kabin ma Prenat' naan, nmoni njair mansian. In nmoin et hit sonak ma hit atnaank ii. Hit tkius ma tiit In pinan ma krahan. In npiin ma nakraah on re' naan, natuin In re' naan Uisneno in Anah fua' mese'. In nroim he naruru' ma nakrira' In nekan arekot neu kit, natuin in amneikn ee, on re' naan. Ma are' saa' ii ok-oke' re' In natoon sin anmatoom nok Uisneno ro batuur. (Nai' Yohanis 1:14)

Behold, I will create new heavens and a new earth. The former things will not be remembered, nor will they come to mind. (Isaiah 65:17)

He who was seated on the throne said, "I am making everything new!" (Revelation 21:5a)

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List of Abbreviations

Glosses

0	0 person	M	M-form (metathesised)
1	1 st person	M̄	M-form before vowel initial enclitic
2	2 nd person	Ṁ	M-form before consonant cluster
3	3 rd person		
ABL	ablative	NEG	negative
ACC	accusative	NML	nominaliser
ADDR	addressee	ORD	ordinal
ASSOC.PL	associative plural	PI	plural inclusive
COUNT	counter	PL	plural
DAT	dative	PROH	prohibitive
DEM	demonstrative	PROP	property
DET	determiner	PX	plural exclusive
FRD	full reduplication	Q	question
GEN	genitive	RECP	reciprocal
GVN.OBJ	given object	REFL	reflexive
INCEP	inceptive	REINT	reintroduced participant
INTNS	intensive	REL	relativiser
IPFV	imperfective	RES	resultative
IRR	irrealis	RL	realis
LOC	locative	SET	setting
		SG	singular

STAT stative

U U-form (unmetathesised)

TR transitive

Ū U-form of consonant final stem and
U-form before consonant cluster

Kin Relations

CC grandchild

mZ man's sister

CCC great-grandchild

PF grandfather

DH daughter's husband

PM grandmother

eSi same sex elder sibling

PPP forefather

F father

SW son's wife

fB woman's brother

WB/ZH same sex sibling of spouse, opposite
sex sibling's spouse

M mother

MB/FZ parent's opposite sex sibling

ySi same sex younger sibling

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Chapter 1

Introduction

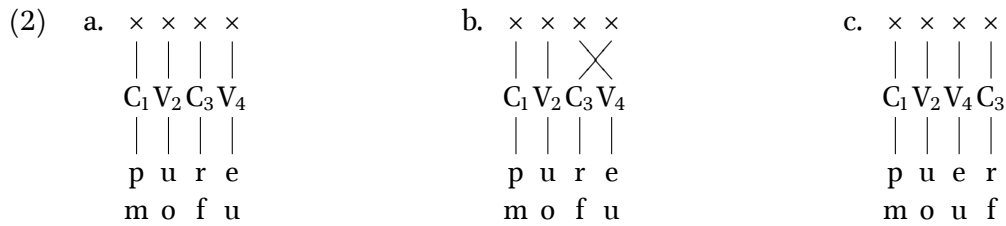
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1.1 Overview

This thesis is about synchronic metathesis. One well known example of synchronic metathesis comes from Rotuman, for which the word ‘rule, decide’ has two different forms: *pure* ~ *puer* (Churchward 1940:14, discussed in more detail in §2.4.1). In this thesis I present new data from Amarasi, a language which also has synchronic metathesis. Observe the natural textual data in (1) below.

- (1) Going to a party: 130902-1, 1.43 🔊
- a. *oras hai m-nao =te*,
time 1PX 1PX-go =SET
‘While we were going,’
 - b. *nai? Owen in a?piur?=e n-mouf, n-mofu =ma na-mneuk*.
Mr. O. 3SG cloth=DEF 3-fall 3-fall =and 3-lose
‘Owen’s handkerchief fell, it fell and was lost’

The metathesis of Amarasi *mofu* ~ *mouf* ‘fall’ in (1) is formally almost identical to Rotuman metathesis in examples such as *pure* ~ *puer* ‘rule, decide’. In each case the final CV sequence of a CVCV stem metathesises to VC, as illustrated in (2) below.



Synchronic metathesis in Amarasi is phonologically very similar to previously described cases in other languages. Furthermore, in certain environments the phonology alone determines whether the metathesised or unmetathesised form of a word will appear in Amarasi. However, phonology alone cannot predict that reversal of the position of the metathesised and unmetathesised words in (1) produces a sentence judged ungrammatical by native speakers, as shown in (3) below.

- (3) * *nai?* Owen in *a?piur?*=e *n-mofu*, *n-mouf*=ma *na-mneuk*.
 Mr. O. 3SG cloth=DEF 3-fall 3-fall =and 3-lose
 ‘Owen’s handkerchief fell, it fell and was lost’ elicit. 22/02/16 p.19

The forms of synchronic metathesis in several languages have been well described. This has led to much discussion about the kinds of phonological models which best handle metathesis, as found in works including Besnier (1987), van der Hulst and van Engelenhoven (1995), Hume (1998), Hume and Seo (2004), Hume (2004) and Heinz (2004), among others.

Despite this interest in the form of synchronic metathesis, there has been relatively little attention given to the the functions of synchronic metathesis and the different environments in which an unmetathesised or metathesised form of a word is used. This thesis partially redresses this imbalance. I provide a detailed analysis of both the form of synchronic metathesis in Amarasi as well as the different functions and environments of metathesis. This includes one instance of phonologically conditioned metathesis and two different morphological uses of metathesis; neither of which can be reduced to a phonologically conditioned process.

My thesis begins in Chapter 2 with a discussion of processes of synchronic metathesis in languages of the world. The focus in this chapter is on languages spoken in the same region as Amarasi, particularly languages with morphological metathesis. There are many similarities in both the form and use of metathesis in these languages. Chapter 2 allows me to position the Amarasi data within its geographic and typological context.

After a discussion of Amarasi phonology and phonotactics in Chapter 3, in Chapter 4 I provide a detailed investigation of the form of metathesis in Amarasi. Depending on the phonotactic structure of the stem to which it applies, metathesis is associated with a bewildering array of disparate phonological processes including: vowel deletion, consonant deletion, consonant insertion and multiple kinds of vowel assimilation. All these

phonological processes can be derived from a single rule of metathesis and two associated phonological rules by proposing that Amarasi has an obligatory CVCVC foot in which C-slots can be empty. The structure of the words *faut* ‘stone’, *kaut* ‘papaya’ and *ai* ‘fire’ under this analysis are given in (4) below. Evidence independent of metathesis for empty C-slots in Amarasi is presented in (§4.5.1.3). Such evidence consists of five language internal phenomena as well as comparative data.

(4) a.	$\begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{V} & \text{C} \\ & & & & \\ \text{f} & \text{a} & \text{t} & \text{u} & \end{array}$	b.	$\begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{V} & \text{C} \\ & & & & \\ \text{k} & \text{a} & \text{u} & \text{t} & \end{array}$	c.	$\begin{array}{cccc} \text{C} & \text{V} & \text{C} & \text{V} & \text{C} \\ & & & & \\ \text{a} & & \text{i} & & \end{array}$
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The presence of phonological processes in addition to metathesis also leads me to label forms corresponding to unmetathesised forms as ‘U-forms’ and those corresponding to metathesised forms as ‘M-forms’.¹

In Chapter 5 I describe phonologically conditioned metathesis in Amarasi. Before vowel initial enclitics, metathesis occurs to clearly mark a phonological boundary between a clitic host and enclitic. The final consonant of a clitic host is shared between the host and clitic. Metathesis creates a final consonant cluster which is resolved by the final consonant de-linking from the clitic host but remaining linked to the enclitic, thus creating a crisp edge between the host and enclitic. Metathesis before vowel initial enclitics is motivated by the different syntactic status of clitic hosts and enclitics, but is phonologically conditioned.

In Chapter 6 I provide a detailed analysis of Amarasi metathesis within the syntax. In the syntax metathesis is a morphological process used to signal attributive modification. Metathesis is a construct form which marks the presence of a dependent modifier of the same word class as the head, as illustrated in (5a) below. Metathesis alone distinguishes attributive phrases from phrases with a different syntactic structure, such as equative clauses, illustrated in (5b) below. A syntactically metathesised form cannot occur at the end of a phrase and thus usually entails the presence of an unmetathesised form which syntactically completes it. Metathesised and unmetathesised forms comprise a parallel and complementary pair of morphological forms within the syntax.

(5) a.	$[\text{NP } \textit{faut} \textit{ko?u}]$ <p style="text-align: center;">stone big</p> <p style="text-align: center;">‘(a) big stone’</p>	b.	$[\text{NP } \textit{fatu}] [\text{NP } \textit{ko?u}]$ <p style="text-align: center;">stone big</p> <p style="text-align: center;">‘Stones are big.’</p>
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¹ The terms U-form and M-form can be taken as abbreviations for the form where ‘U’ stands for *unmetathesised* and ‘M’ for *metathesised*. They can also be taken as abbreviations for the functions of these forms, as in the syntax M-forms mark *modification* and in the discourse U-forms mark *unresolved* events or situations. The ‘U’ in U-form can also be an abbreviation for the *underlying* form. This congruence between the initial letters of the formal and functional labels in Amarasi is a happy coincidence.

In Chapter 7 I provide a detailed analysis of Amarasi metathesis within the discourse. In the discourse an unmetathesised form marks an unresolved event or situation, which requires another clause to achieve resolution. This is the use of metathesis illustrated in (1) above. A discourse driven unmetathesised form cannot occur in isolation and typically requires a metathesised form to achieve resolution. Unmetathesised and metathesised forms comprise a parallel and complementary pair of morphological forms within the discourse.

I conclude in Chapter 8 with a unified analysis of metathesis in Amarasi. Metathesis in Amarasi is not merely a phonological epiphenomenon or exotic curiosity. Rather, metathesis is the key which unlocks the structure and genius of the Amarasi language. Metathesis also reflects fundamental Timorese notions of societal and cosmic organisation. Metathesis is one marker of identity in a region obsessed with marking multiple levels of identity between different groups. The complementarity of metathesis and unmetathesis within the syntax and that within discourse — and also cross-cutting discourse and syntax — reflects the Timorese division of the world into a series of parallel and complementary pairs. More than simply being the key which unlocks the structure of the language, metathesis is also a deep reflection of the structure of Amarasi society and culture.

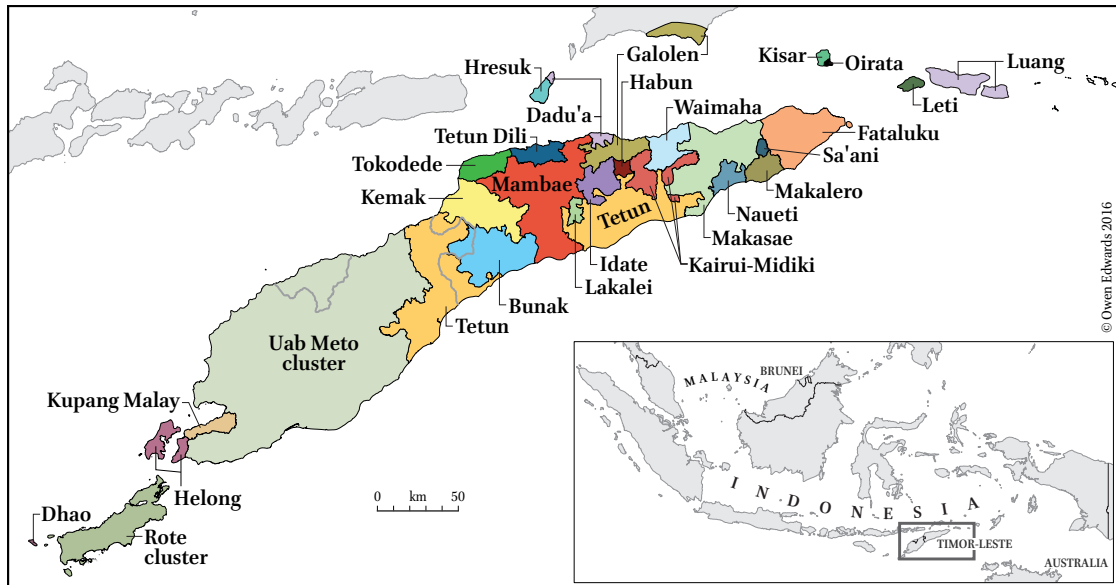
This thesis also contains three appendices. Appendix A discusses cases of morphological metathesis in languages outside of the greater Timor region. Appendix B provides three complete glossed Amarasi texts of different genres: one historical narrative, one myth and one conversation. These three texts allow the reader to see how metathesis operates across a complete text. Appendix C provides information and metadata on the texts referred to throughout this thesis, as discussed further in §1.4 below.

1.2 Language Background

Amarasi is a variety of Uab Meto. Uab Meto, also known as Meto, Dawan(ese), Timorese or Atoni,² is a cluster of closely related Austronesian languages and dialects spoken on the western part of the island of Timor; both in the East Timorese enclave of Oecusse, as well as in the Indonesian province of Nusa Tenggara Timur. The location of the Uab Meto cluster is shown in Figure 1.1 along with other languages of Timor. The identity and location of languages in Timor-Leste is based on Williams-van Klinken and Williams (2015).

² “Since Uab Meto varieties have no /d/, ‘Dawan’ as a language name is widely thought to be from another language’s term for ‘enemy’, and is offensive to many Uab Meto speakers. In some areas they have become either immune or resigned to its use, and no longer object every time someone uses ‘Dawan’. In other areas they object consistently.” (Grimes et al. 2012) Regarding the name *Timorese*, speakers of other languages spoken on Timor object to the monopoly of the term *Timor* for only one language. The name *Atoni*, comes from the term *atoni?* which means ‘man, person’ in known varieties of Uab Meto and can be used for the people group, but never for their speech.

Figure 1.1: Language Groups of Timor



Uab Metro speakers identify their speech as a single language and call it *uab meto*?, (*bahasa*) *Timor* or (*bahasa*) *Dawan*. Speakers of Uab Metro also recognize roughly a dozen named varieties of Uab Metro. These varieties themselves have named dialects, with further differences being found between different villages and hamlets of a single dialect. A map of self-identified Uab Metro varieties is given in Figure 1.2.

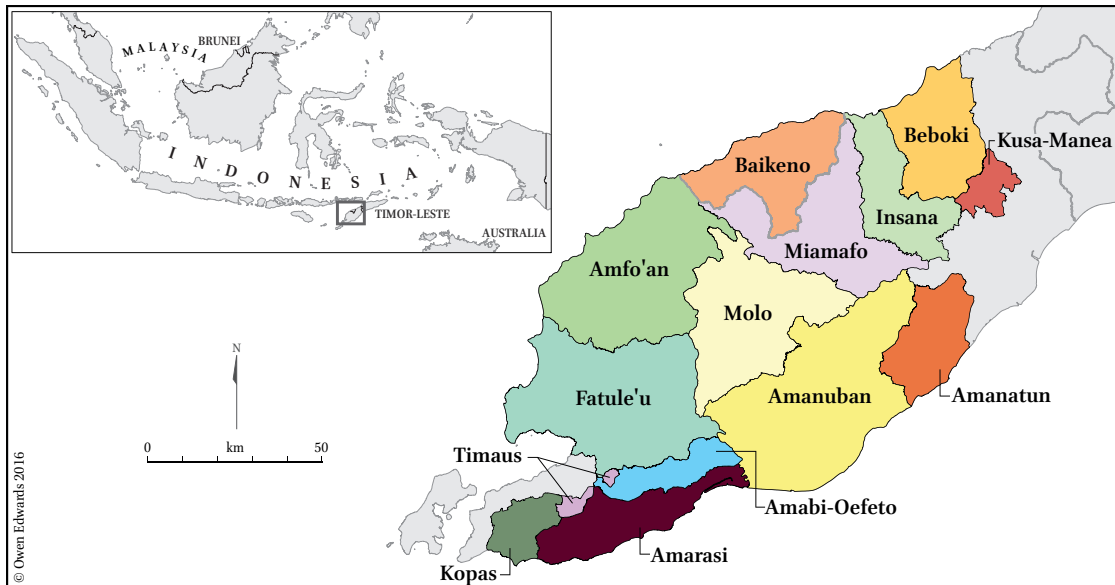
The borders of the self-identified varieties of Uab Metro shown in Figure 1.2 match almost exactly the borders of the pre-colonial political kingdoms of western Timor,³ and do not appear to follow known linguistic differences. In reality, the Uab Metro cluster is a complex language/dialect chain, and is comparable to more well known cases such as the German language/dialect chain or the Romance language/dialect chain. The nature and extent of variation among these Uab Metro varieties has not yet been systematically studied. Phonological, lexical, semantic and grammatical diversity is not insignificant and speakers frequently report difficulty communicating with speakers from other varieties. As a result, Kupang Malay or Indonesian is often used between speakers of different Uab Metro varieties in order to achieve effective communication. Edwards (2016b) provides an initial reconstruction of the phonological history of Uab Metro.

Amarasi is spoken in the south-west of the Uab Metro speech area. One linguistic feature which sets Amarasi apart from most other Uab Metro varieties is the use of the liquid /r/ instead of /l/ (most Uab Metro varieties have only a single liquid).⁴ Amarasi speakers identify

³ The main exception is Kusa-Manea, which was part of the Tetun speaking Wehali kingdom.

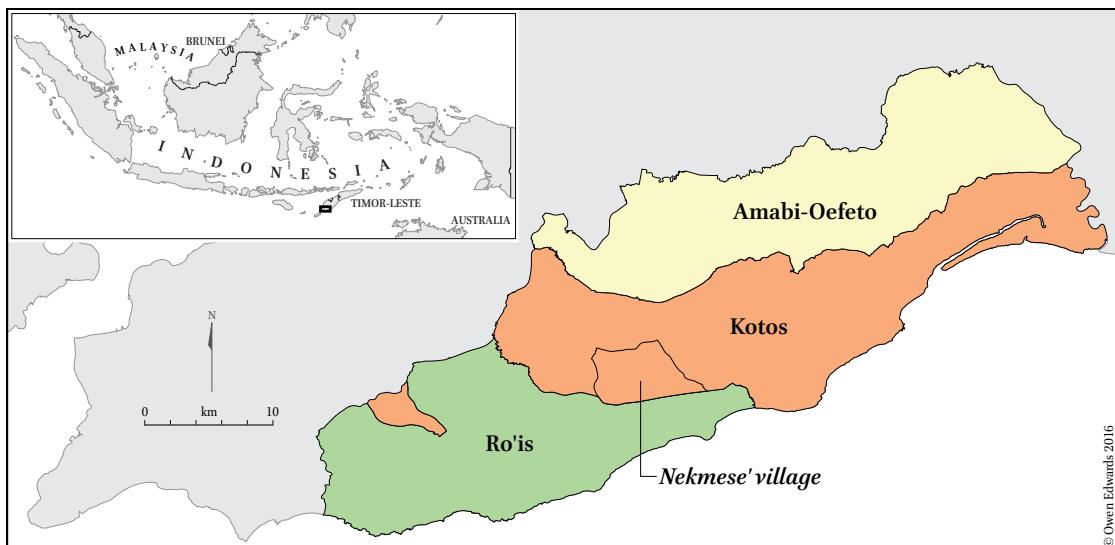
⁴ Amabi and some southern varieties of Fatule'u also have /r/ instead of /l/. Kusa-Manea also has /r/ in native words, but has /l/ in many Tetun loanwords. Timaus has both /l/ and /r/ due to a *d₃ > /r/ sound change.

Figure 1.2: Self-Identified Varieties of Uab Meto



three Amarasi dialects: Ro'is, Kotos and Tais Nonof. Ro'is is spoken in the west, Kotos in the east and Tais Nonof along the eastern coast. Initial data collected from Tais Nonof indicates that it is linguistically nearly identical to Kotos Amarasi.⁵ Similarly, Kotos speakers report that the Amabi-Oefeto variety of Uab Meto is very similar to their speech, and they give it the name *Ketun*. An initial map of the linguistic dialects of Amarasi is given in Figure 1.3.

Figure 1.3: Linguistic Varieties of Amarasi



⁵ Although my initial data indicates that Tais Nonof is almost identical to Kotos Amarasi, Tais Nonof speakers identify their speech as a variety of Ro'is Amarasi.

My description of Amarasi is of a Kotos variety spoken by inhabitants of the hamlet (*kampung*) Koro'oto, located in the modern village (*desa*) Nekmese', shown in Figure 1.3. From 1968–1975 west Timor underwent an administrative restructure with the creation of the administrative units of *kecamatan* and *desa*. In Amarasi 60 hamlets were amalgamated into 23 *desa*. In Amarasi this amalgamation was also accompanied by the physical relocation of traditional hamlets in order to allow for a more efficient development of infrastructure and delivery of services.

Nekmese' was created by the amalgamation of four hamlets: Koro'oto, Fo'asa', Tuamese' and Naet. These hamlets still exist as *dusun* (the administrative level below *desa*), form the basis of the parishes of the dominant Christian denomination in the region (the protestant GMT church⁶) and people maintain their gardens and fields in the vicinity of the old hamlets.⁷ Despite the administrative and physical restructure of 1968–1975, the traditional hamlets of Nekmese' are alive and well as distinct social and linguistic units. A summary of the speech variety which is the focus of this thesis is given in (6) below. Unless explicitly labelled otherwise, all presented data is Kotos Amarasi from the hamlet of Koro'oto.

- (6) a. Language: *Uab Meto*
b. Variety: *Amarasi*
c. Dialect: *Kotos*
d. Hamlet: *Koro'oto*

1.3 Methodology

The core of the Amarasi data on which this thesis is based is a corpus of recorded texts totalling over fourteen hours of which a little over three hours has been transcribed, translated and glossed. These texts are of a variety of genres and include narratives, folk-tales, conversations and traditional poetry. An index of the texts which comprise my corpus is given in Appendix C.

Most of these texts were collected over the course of three field trips totalling seven months I made in 2013, 2014 and 2016. During these field trips I was hosted in Timor by Heronimus Bani (Roni), a native speaker of Amarasi, in the village of Nekmese'. These texts were recorded either by me or by Roni and then transcribed and translated by native speakers

⁶ GMT is an acronym of *Gereja Masehi Injili di Timor*; 'The Evangelical Protestant Church of Timor'. There are four GMT parishes in Nekmese': one serving Koro'oto, one for Fo'asa' and Tuamese', and two for Naet.

⁷ Inhabitants of Koro'oto have moved the furthest, with *desa* Nekmese' being located close to the original locations of Fo'asa' and Tuamese'. The inhabitants of Naet have moved from their original location towards Nekmese', but Naet remains dislocated from the rest of Nekmese'. The inhabitants of Naet speak the Tais Nonof variety of Amarasi.

of Amarasi, either Roni or Yedida Ora (Oma). I then checked the initial transcriptions against the recording and glossed the text in Toolbox.

During 2012 I was also a participant in a two week language documentation workshop held in Kupang: *Preserving Knowledge through Recording and Writing Local Languages*. During this workshop a number of additional Amarasi texts were recorded and then transcribed by Oma. I subsequently translated and glossed these texts during the course of writing this thesis. Based on my field work I have also compiled a draft Amarasi dictionary of 1,789 unique roots and 2,033 headwords, including phrasal headwords. I also worked with Roni during my final field trip to produce a picture dictionary of Amarasi with a focus on the natural world (Edwards and Bani in press).

This data is occasionally supplemented by a translation of the New Testament and Genesis into Amarasi: Unit Bahasa & Budaya (2015).⁸ This translation was carried out by native Amarasi speakers. It is full of grammatical constructions that differ from both Indonesian and Kupang Malay (used as front translation) and before publication was checked with at least three different groups of native speakers comprising three or more speakers in each group (representing a good cross section of age, gender and educational levels) for clarity and naturalness. The material was tested and further refined with each successive group, then followed by a smoothing read-through looking at naturalness and flow before publishing.

The main use of this translation was in carrying out concordance searches to refine definitions of unfamiliar words which occurred in my recorded texts. Data from this translation is occasionally presented in this thesis when it contains good, clear exemplars of rare constructions. However, no part of the analysis of this thesis rests solely on data found only in the Amarasi Bible translation. See Heider et al. (2011) and Dryer (2013:2) for discussion of the use of Bible translations as sources of linguistic data.

This corpus data is supplemented by a number of elicitation sessions I conducted with Roni in 2016. This elicitation involved working through recorded texts with Roni and manipulating individual parts of sentences for grammaticality judgements. When a manipulated sentence was accepted as grammatical, I would then have Roni say it back to me. This often resulted in him rejecting a sentence he had originally accepted. Elicitation was also carried out with Oma on a number of occasions.

⁸ This translation can be accessed online at www.e-alkitab.org or downloaded for free on Android devices from Google Playstore (search: Amarasi Bible).

1.4 Presentation of Data

Data from Amarasi, or another variety of Uab Meto, is transcribed phonemically and presented in dark blue italic font; i.e. *fatu* ‘stone’. Example sentences are given with up to two gloss lines. A typical example is given in (7) below.

- (7) *ahirnya ahh, n-aim naan baardz=es =am na-maika? n-* PHONEMIC
ahirnya n-ami naan bare=es =ma na-maika? UNDERLYING
 in.the.end 3-look.for\M 2DEM place\M=one =and 3-settle GLOSS
 ‘In the end, he looked there for a place and settled.’ 120715-4, 0.55 ◀▶

The first line is the phonemic transcription with morpheme breaks indicated. Affixes are separated by hyphens, enclitics by the equals sign and instances of word initial epenthetic /a/ are separated by the pipe ‘|’. One example occurs in *a|n-kobub* ‘piled up’ in (8) below.

Instances of Indonesian/Kupang Malay code-switching or unassimilated loans are transcribed in a sans-serif font in Indonesian orthography. (The phonemes /ʔ/ and /ŋ/ in Indonesian words are transcribed with their IPA letter values.) Thus, in example (7) the word *ahirnya* is from Indonesian *akhirnya* via Kupang Malay *ahirnya* /ahirpa/. Phonetic strings which are pauses are indicated by a final <hh> and are usually unglossed. In example (7) *ahh* is a pause with the phonetic quality approximating [a:], similarly *nehh* is a pause which sounds like [ne:]. False starts are not glossed and indicated by a final en-dash ‘-’. One example is the final *n-* in example (7) above. Commas indicate pauses or intonation breaks and full stops represent the end of a sentence. Capital letters are only used for proper names.

The second line gives the underlying form of morphemes before processes of metathesis, consonant insertion and vowel assimilation occur. It also gives the underlying forms of enclitics which have multiple forms (§3.7.3). The third line gives the morpheme by morpheme gloss. When a morpheme is ambiguous between several values, these values are separated by a slash ‘/’ an example is the verbal agreement prefix *m-* ‘1PX/2’ which agrees with first person exclusive, second person singular and second person plural. A full list of the abbreviations used in glosses is given on page xi.

Table 1.1: Glosses for U-forms and M-forms

Gloss	Use
U	U-form
Ū	1. U-form of consonant final stem
	2. U-form before consonant cluster
M	M-form
M̄	M-form before vowel initial enclitic
Ṁ	M-form before consonant cluster

Glosses indicating U-forms (unmetathesised) and M-forms (metathesised) are usually only given when potentially relevant to the discussion at hand. Glosses for U-forms and M-forms in different phonotactic environments are given in Table 1.1, with a number of examples given in (8)–(11) below. See Chapter 4 for more discussion of the distribution of each of these forms. Glosses for U-forms or M-forms are not given when a form does not distinguish between them.

- (8) *nenō naa paha ʔpina-n ia, a|n-kobub on bare meseʔ*
 nenō naa paha ʔpina-n ia n-kobub on bare meseʔ
 day\U 0DEM country below\U-3SG.GEN IDEM 3-pile.up\U IRR.LOC place\U one
 ‘In those days the world was piled up in one place.’ 120715-4, 0.05 🔊
- (9) *uma ʔ-tee =ma, ʔ-aiti bruuk.*
 uma ʔ-tea =ma ʔ-aiti bruuk
 1/2SG\come\U 1SG-arrive =and 1SG-pick.up\U pants\U
 ‘I arrived (home) and picked up some pants.’ 130825-6, 10.05 🔊
- (10) *hi m-euk siisdʒ=i =m*
 hi m-eku sisi=i =ma
 2PL 1PX/2-eat\M meat\M=1DET =and
 ‘You ate the meat and,’ 120923-1, 6.01 🔊
- (11) *afi naa au ʔ-tae in sura srainʔ=i =t*
 afi naa au ʔ-tae in surat sraniʔ=i =te
 yesterday 1SG ʔ-look.down 3SG paper\M baptism\M=1DET =SET
 ‘Yesterday when I looked at her baptismal certificate ...’ 130821-1, 6.20 🔊

Gloss lines are followed by a free translation into English. Words not present in the Amarasi example but supplied in the free translation to increase its naturalness are enclosed in brackets (). Important para-linguistic information such as gestures are described in square brackets [] in the free translation. Occasionally a literal translation of part or all of the Amarasi example is given. Literal translations are enclosed in brackets and preceded by the abbreviation ‘lit.’.

The numeric code to the right of the free translation is a reference to which text the example comes from. These codes follow the format ‘yy-mm-dd-no., time in text’. Thus, the code ‘120715-4, 0.55’ in example (7) above indicates that this example begins at about 55 seconds into the fourth recording made on the 15/07/2012.

Example sentences are usually accompanied by an embedded sound file, indicated by the speaker icon ‘🔊’. These sound files are MP3s embedded in the PDF with Adobe Flash via the LaTeX media9 package and can be activated in compatible PDF readers, such as Adobe Reader, by clicking on the speaker icon wherever it appears. Sound files in WAV format are found on the accompanying CD and/or can be obtained by contacting the author.

In addition to examples which come from my text collection, three other kinds of examples occur. Firstly, data which was encountered during the course of my fieldwork but not recorded is indicated as ‘observation’ usually with the date and page reference to my notebook; i.e. observation 09/10/14, p.113. Secondly, data which were collected during elicitation are marked as ‘elicit.’ with the date and page reference to my notebook; i.e. elicit. 15/03/2016 p.47 Finally, data from the Amarasi Bible translation are referenced by book, chapter and verse, i.e. John 3:16.

When longer examples from a single text are given, a short description usually precedes the text (followed by the unique code cross referencing the text). The data following this title is then labelled alphabetically. An example is given in (12) below. When an example involves more than one speaker, different speakers are indicated with Greek letters.

- (12) How Moo'-hitu made the world: 120715-4 🔊
- a. *n-bi~bi* *oodʒ=e* *naan-n=e* *onai =te,*
n-bi~bi oe=e nana-n=e onai =te
3-INTNS~RL.LOC water=3DET inside-3SG.GEN=3DET and.then
‘Having been in the water for a while,’ 0.43
- b. *a|n-moʔe =ma n-poodʒ=en a|n-bi metoʔ.*
n-moʔe =ma n-poi=en n-bi metoʔ
3-make =and 3-exit=INCEP 3-RL.LOC dry
‘(he) made and went out onto dry land.’ 0.45

When data on languages other than Amarasi or Uab Meto is cited, such data is transcribed in italics phonemically according to IPA conventions.⁹ Data from national languages which have a standard orthography are transcribed orthographically followed by a phonemic IPA transcription, an example is English *mouse* /maʊs/.

1.5 Terminology

In this section I give definitions of potentially ambiguous linguistic terminology. The definitions given here should be taken as a practical guide to understand how terms are used in this thesis and should *not* be taken as strong claims about the theoretical status of any of the elements defined.

As used in this thesis, a *word* is the minimal meaningful phonological string which can occur in isolation.¹⁰ A *morpheme* is “an indivisible stretch of phonetic (or phonological)

⁹ When a language has a palatal glide phoneme /j/ this is transcribed <j> or <y>. A palatal affricate /dʒ/ is always transcribed <dʒ> except in examples of Indonesian/Kupang Malay code switching in Amarasi example sentences where it is transcribed <j> according to Indonesian orthographic conventions.

¹⁰ Two typical environments in which a word might occur in isolation are in response to a question or in collection of a word-list. Likewise, pauses are not usually allowed in the middle of a word. If such a pause occurs, the speaker usually then repeats the entire word from the beginning.

material with a unitary meaning” (Anderson 1992:49). Processes such as metathesis seriously call into question the whole notion of the morpheme. This has given rise to morphological theories in which the morpheme does not play a central role, including Matthews (1974), Anderson (1992) and Stump (2001). I am extremely sympathetic to such theories. Nonetheless, the morpheme is still a useful analytic tool for much of the Amarasi data. A *root* is an underlying single morpheme without any affixes attached.

We can furthermore distinguish between *bound morphemes* and *free morphemes*. A free morpheme is a root which can occur as a word without any other morphemes attached. A typical example is *kaut* ‘papaya’. A bound morpheme is a root which cannot occur as a word. Instead a bound morpheme must surface attached to another morpheme. A *clitic* is a morpheme which is phonologically bound but is the head of a separate syntactic phrase compared with the clitic host. A typical example is the determiner *=e*, which marks definiteness. While this determiner must occur attached to a host (i.e. *kaut=e* ‘the papaya’) it is the head of a separate determiner phrase (§6.5.2). My definitions of all these terms when applied to Amarasi or Uab Meto data are summarised in (13) below, with a number of examples also given.

- (13) Terminological definitions
- a. Morpheme = indivisible phonetic stretch with unitary meaning
n- ‘third person verbal agreement’, *kobub* ‘pile up’, *paha* ‘country’, *=e* 3DET ‘third person determiner’
 - b. Word = minimal phonological string which can occur in isolation
n-kobub ‘piles up’, *paah=e* ‘the country’
 - c. Bound morpheme = morpheme which cannot occur as an independent word
n- ‘third person verbal agreement’, $\sqrt{=e}$ 3DET
 - d. Root = underlying single morpheme
 $\sqrt{n-}$ ‘third person verbal agreement’, \sqrt{kobub} ‘pile up’, \sqrt{paha} ‘country’, $\sqrt{=e}$ 3DET
 - e. Free morpheme = morpheme which is an eligible word
paha ‘country’, *teun* ‘three’
 - f. Affix = bound morpheme which is not a syntactic head
n- ‘third person verbal agreement’, *-m* 1PX/2GEN ‘first person exclusive or second person genitive’
 - g. Clitic = bound morpheme which heads a separate syntactic phrase to the stem
=e 3DET, *=ma* ‘and’, *=kau* =1SG.ACC
 - h. Stem = a word or root to which a bound morpheme attaches
n-kobub ‘piles up’, *paah=e* ‘the country’
 - i. Citation Form = the usual form of a word given in word-list style elicitation

I also make a distinction between two kinds of words and roots, 'functors' and 'lexical words/roots' (Zorc 1978, Grimes 1991:85ff). Functors are morphemes which have grammatical uses, such as relativisers, demonstratives, topic markers and pronouns, while lexical words/roots typically refer to events, states, properties and things.

Chapter 2

Synchronic Metathesis

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2.1 Introduction

In this chapter I discuss cases of synchronic metathesis and the ways in which these processes have been analysed. A language can be said to have synchronic metathesis if some of its words have two different forms in certain situations which differ in the order of some of their segments in a regular and systematic way. Thus, in Rotuman (§2.4.1) the word for ‘flower’ is either *hosa* or *hoas* (Churchward 1940:14).

I identify three types of synchronic metathesis: phonologically conditioned metathesis (§2.2), in which metathesis is an automatic result of a phonological environment, morphemically conditioned metathesis (§2.3), in which metathesis co-occurs with a morphological process such as affixation, and morphological metathesis (§2.4), in which metathesis is the only realisation of a morphological category. The bulk of this chapter is concerned with cases of morphological metathesis.

It is also possible for a single process of metathesis in a single language to be a different kind of metathesis in different situations. Thus, for instance, metathesis in Rotuman is phonologically conditioned in some environments, morphemically conditioned before certain affixes and also the sole morphological expression of indefiniteness (see §2.4.1 for more details). Similarly, metathesis in Amarasi is phonologically conditioned before certain enclitics and a morphological process elsewhere.

One phenomenon excluded from my discussion which could be considered metathesis is that of affixes which have both stem internal and stem external allomorphs. One example is found in Ulwa (Misumalpan, Nicaragua) in which the 3SG.GEN affix *-ka*/*<ka>* attaches to the first iambic foot of the stem.¹ This affix surfaces as a suffix when a word consists of only a single iambic foot and as an infix when the first iambic foot is followed by other syllables. Examples are given in (1) below.

- (1) Ulwa 3SG.GEN *-ka* (Hale and Blanco (1989) in McCarthy and Prince 1993/2001)

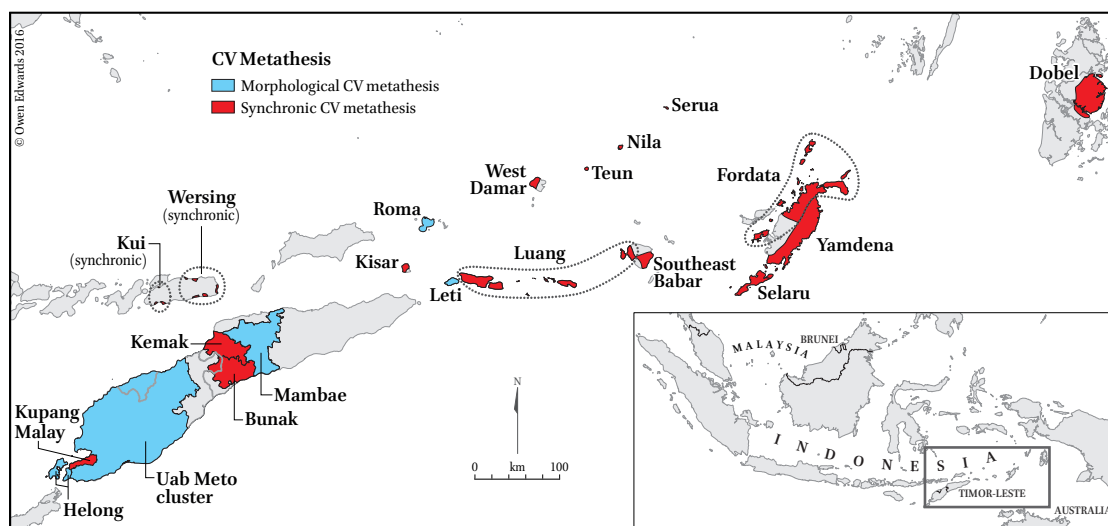
<i>bas</i>	→	<i>bas-ka</i>	‘hair’
<i>ki:</i>	→	<i>ki:-ka</i>	‘stone’
<i>sana</i>	→	<i>sana-ka</i>	‘deer’
<i>su:lu</i>	→	<i>su:<ka>lu</i>	‘dog’
<i>asna</i>	→	<i>as<ka>na</i>	‘clothes’
<i>siwanak</i>	→	<i>siwa<ka>nak</i>	‘root’
<i>ana:la:ka</i>	→	<i>ana:<ka>la:ka</i>	‘chin’

My discussion in this chapter is focussed on instances of synchronic metathesis found in the greater Timor region. The greater Timor region is a geographic hotspot

¹ An iambic foot in Ulwa consists of a light syllable followed by a heavy syllable, two light syllables, or a single heavy syllable.

for synchronic consonant-vowel metathesis. Firstly, there are at least five languages of the greater Timor region in which metathesis has a morphological function. These five languages are Leti (§2.4.2), Roma (§2.4.3), Mambae (§2.4.4), Helong (§2.4.5) and the Uab Meto cluster (of which Amarasi is a member). A further dozen or so languages of the greater Timor region have synchronic metathesis which is phonologically conditioned, morphemically conditioned or not yet unambiguously established as morphological. Many of these languages are poorly described and more data may reveal more instances of morphological metathesis. A map of the languages of the Timor region for which synchronic consonant-vowel metathesis has been identified is given in Figure 2.1 below, based on (Schapper 2015:135ff) and information provided by Charles Grimes (p.c. March 2015) and David Gil (p.c. December 2014).

Figure 2.1: Synchronic Consonant-Vowel Metathesis in the Greater Timor Region



I discuss a number of cases of phonologically conditioned metathesis in §2.2 including a detailed discussion of Kwara'ae (Solomon Islands). In §2.3 I discuss two putative cases of morphemically conditioned metathesis from Timor region. In §2.4 I discuss reported cases of morphological metathesis. I begin with a discussion of Rotuman and then discuss cases from languages of the greater Timor region, working from east to west.

Data is presented as analysed in the given references, with possible alternate analyses occasionally indicated. (Transcription has been adapted to IPA). Instances of morphological metathesis in languages in other parts of the world are discussed in Appendix A.

2.2 Phonologically Conditioned Metathesis

Phonologically conditioned metathesis is any process of metathesis which is triggered under certain phonological conditions. While most such processes are only triggered after the combination of morphemes — typically adding an affix to a stem — these processes are not morphemically conditioned metathesis so long as the process is an automatic response to the new phonotactic shape of the stem. Amarasu has a process of phonological metathesis which affects all stems before vowel initial enclitics (see Chapter 5).

Processes of phonologically conditioned metathesis are similar to other more familiar phonological processes such as final obstruent devoicing in German. In German a voiced obstruent is devoiced word finally, as can be seen from the data given in (2) below.

(2) German final obstruent devoicing (Brockhaus 1995:11f)

Singular	Plural	gloss
<i>Dieb</i> /di:p/	<i>Diebe</i> /di:bə/	'thief'
<i>Bund</i> /bʊnt/	<i>Bunde</i> /bʊndə/	'league'
<i>Zweig</i> /tʃvaɪk/	<i>Zweige</i> /tʃvaɪgə/	'twig'
<i>brav</i> /brɑ:f/	<i>brave</i> /brɑ:və/	'well-behaved'
<i>Gas</i> /ga:s/	<i>Gase</i> /ga:zə/	'gas'

The standard (and simplest) analysis of this data is to propose that voiced obstruents are devoiced finally. A simple formal rule for German obstruent devoicing is given in (3) below.²

(3) [+OBSTRUENT] → [-VOICE] / _σ (Wiese 1996:201)

In German a phonological process (devoicing) affects a segment in a specific phonological environment. Similarly, in the case of phonologically conditioned metathesis a phonological process (metathesis) occurs in a specific phonological environment.

A simple example of phonological metathesis is provided by Faroese. In Faroese the neuter form of adjectives is formed by adding the suffix *-t*. When this suffix is added to a stem which ends in /sk/, this cluster metathesises to /ks/. Examples are shown in (4) below. (Such metathesis is not written in the Faroese orthography.)

(4) Faroese sk → ks / _t (Thráinsson et al. 2004:56)

MASC	FEM	NEUT	
<i>grøn-ur</i> /kɹø:nʊɪ/	<i>grøn</i> /kɹø:n/	<i>grønt</i> /kɹø:nt/	'green'
<i>fesk-ur</i> /fɛskʊɪ/	<i>fesk</i> /fɛsk/	<i>fesk-t</i> /fɛkst/	'fresh'
<i>rask-ur</i> /ɹaskʊɪ/	<i>rask</i> /ɹask/	<i>rask-t</i> /ɹakst/	'good'
<i>týsk-ur</i> /tʰʊiskʊɪ/	<i>týsk</i> /tʰʊisk/	<i>týsk-t</i> /tʰʊikst/	'German'

² German obstruent devoicing involves additional complexities. See (Wiese 1996:200ff) and Brockhaus (1995) for discussion of the way such complexities have been resolved.

In addition to occurring across affix or clitic boundaries, metathesis in Selaru also occurs across word boundaries. Three examples of glide consonant metathesis occurring across word boundaries are given in (8) below, in which the underlying (unmetathesised) forms of morphemes are given in the second line.

- (8) Selaru metathesis across word boundaries: (Coward and Coward 2000:43)
- a. *hinam* *hwahkje desj*
 hina-mw *hahj-ke desj*
 have-2SG.GEN pig-DEF that
 ‘That is your pork (food).’
- b. *arawasim* *sjekje* *desj*
 ara-wasi-mj *sej-ke* *desj*
 1PX.GEN-have-1PX.GEN house-DEF that
 ‘That is our (exclusive) house.’
- c. *itjamatke* *mjat* *dje*
 itj-ama-t-ke j-matj *de*
 1PI.GEN-father-1PI.GEN-DEF 3SG-die already
 ‘Our father is already dead.’

Coward and Coward (2000) analyse this metathesis as a result of automatic glide spreading. They analyse glides as unassociated elements which spread rightwards to an adjacent C-slot. If there is no following C-slot, they attach to the C-slot to the left. Their analysis is shown in (9) below.

- (9) a. V C C V b. V C C V c. V C C V
- | | | | | | | | | | | | | | | |
|---|---|---|---|--|---|---|---|---|--|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| a | s | w | k | | a | s | w | k | | a | s | w | k | e |

Similar examples of glide consonant metathesis are found in a number of languages of the south-eastern Maluku area. Such metathesis has been described for Fordata and Yamdena (Mills 1991:250), Roma (§2.4.3), Luang (§2.2.1) and Leti (§2.4.2). See Figure 2.1 on page 17 for the locations of these languages.

Another example of phonological metathesis is found in Kui (Trans-New-Guinea, Alor), which has a perfective affix *-i*, which optionally metathesises with a previous consonant when attached to stems which end in /n/ or /l/, and apparently when the previous vowel is /a/ or /o/. Examples are given in (10) below. As currently described, this metathesis would be a case of free variation.

- (10) Kui optional metathesis of perfective *-i* Windschuttel and Shiohara (in press)

<i>alon</i>	+	<i>i</i>	→	<i>aloni</i> ~ <i>aloin</i>	'write'
<i>gaman</i>	+	<i>i</i>	→	<i>gamani</i> ~ <i>gamain</i>	'do'
<i>aka:l</i>	+	<i>i</i>	→	<i>aka:li</i> ~ <i>aka:il</i>	'eat'
<i>tangan</i>	+	<i>i</i>	→	<i>tangani</i> ~ <i>tangain</i>	'ask'
<i>uban</i>	+	<i>i</i>	→	<i>ubani</i> ~ <i>ubain</i>	'talk'
<i>gatan</i>	+	<i>i</i>	→	<i>gatani</i> ~ <i>gatain</i>	'free'

2.2.1 Luang

Luang (Austronesian, Maluku) has a process of phonologically conditioned metathesis which is much more complex than the examples described so far in this section. In certain environments two adjacent Luang morphemes are joined into a single rhythm unit; that is, the whole phrase has only one stressed syllable. A combination of a word and affix always join into a single rhythm unit, while two conjoined words contrast with two words which form separate rhythm units:

However, there is contrast in Luang between separate words being joined into one rhythm segment and being left apart. Known information and mainline event information, especially at peak points of the story, are said so rapidly that many words join into one rhythm segment. When information is new to the hearer or if it is brought into prominence the words are said more slowly, and therefore do not join into one rhythm segment, but remain separate units. (Taber and Taber 2015:24)

While Taber and Taber (2015) analyse Luang metathesis as being conditioned by speech speed and/or stress placement, these phonological environments are discourse driven. Metathesis in Luang is thus functionally comparable to discourse driven metathesis in Amarasi (Chapter 7), though in Amarasi such metathesis is a direct marker of a discourse structure rather than being conditioned by an intermediate phonological structure.

There is a complex set of phonological rules (one of which is metathesis) which operate to join two morphemes together in Luang. Which process operates depends on the phonological shape of the two morphemes, as well as their respective word classes. In the simplest case, the final vowel of the first word is deleted. (Such cases of reduction are often then followed by assimilation of certain consonants; see Taber and Taber (2015:25) for details.) Examples are shown in (11) below.

- (11) Luang Vowel Deletion³ (Taber and Taber 2015:25)

<i>ʔama</i>	+	<i>-ni</i>	→	<i>ʔamni</i>	→	[ʔamni]	'his father'
<i>naʔana</i>	+	<i>=wa</i>	→	<i>naʔanwa</i>	→	[naʔanwə]	's/he ate'
<i>rwoka</i>	+	<i>pa</i>	→	<i>rwokpa</i>	→	[rʔwokpə]	'they meet to'

When the first word ends in a high vowel and the second words begins with #CV where the first vowel is not high, the final high vowel of the first word spreads. After spreading the final vowel of a VCV# final word is then deleted, resulting in metathesis similar to the process in Selaru described on page 19 above. When the high back vowel /u/ spreads over a coronal consonant it assimilates and becomes a palatal glide [j]. Examples of Luang high vowel spreading are given in (12) below.

(12) Luang High Vowel Spreading (Taber and Taber 2015:24)

<i>ʔammai</i>	+	<i>la</i>	→	<i>ʔammai</i> <i>l</i> <i>ja</i>	→	[ʔam'mailjə]	'we come to'
<i>rmai</i>	+	<i>pa</i>	→	<i>rmai</i> <i>p</i> <i>ja</i>	→	[rmaipjə]	'they come for'
<i>au</i>	+	<i>maka</i>	→	<i>aum</i> <i>w</i> <i>aka</i>	→	[,au'm ^w akə]	'wood that'
<i>rkeni</i>	+	<i>pa</i>	→	<i>rken</i> <i>p</i> <i>ja</i>	→	[r'kenpjə]	'they put it for'
<i>rmati</i>	+	<i>de</i>	→	<i>rmat</i> <i>d</i> <i>je</i>	→	[r'matdʲə]	'when they died'
<i>nhoru</i>	+	<i>wa</i>	→	<i>nhor</i> <i>w</i> <i>ua</i>	→	[nhor ^w uə]	'already finished'
<i>pwou</i>	+	<i>de</i>	→	<i>pwou</i> <i>d</i> <i>je</i>	→	[,pwou'dje]	'that sail boat'
<i>woru</i>	+	<i>la</i>	→	<i>wor</i> <i>l</i> <i>ja</i>	→	[wɔrljə]	'two in'

When a CCV# final noun is joined into a single rhythm segment with a consonant initial morpheme, the final vowel of the noun is deleted followed by epenthesis of the vowel /a/ to break up the newly created consonant cluster. Examples are shown in (13) below.

(13) Luang Vowel Deletion and Epenthesis (Taber and Taber 2015:26)

<i>likti</i>	+	<i>-ni</i>	→	<i>lik</i> <i>a</i> <i>tni</i>	→	[l'ikatni]	'his house'
<i>ʔonni</i>	+	<i>=wa</i>	→	<i>ʔon</i> <i>a</i> <i>nwa</i>	→	[ʔonanwa]	'the end'
<i>nnaʔerti</i>	+	<i>-ni</i>	→	<i>nnaʔe</i> <i>r</i> <i>atni</i>	→	[nnaʔ'eratni]	'its meaning'
<i>ʔulti</i>	+	<i>pa</i>	→	<i>ʔul</i> <i>a</i> <i>tpa</i>			'skin for'

However, when the first word ends in CCV# and is a verb, metathesis of the final CV sequence occurs. Taber and Taber (2015) state that it is unclear why verbs have a different behaviour from nouns. It is, however, regionally common for nouns and verbs to have different behaviour regarding metathesis. This is found in Mambae (§2.4.4) as well as Amarasi. Examples of Luang verbal metathesis are shown in (14) below.

(14) Luang Metathesis (Verbs only) (Taber and Taber 2015:26)

<i>ʔernu</i>	+	<i>la</i>	→	<i>ʔerun</i> <i>l</i> <i>a</i>	→	[ʔerunlə]	'go down to'
<i>towru</i>	+	<i>dojni</i>	→	<i>towur</i> <i>d</i> <i>ojni</i>	→	[towur'dojni]	'spill completely'
<i>hopla</i>	+	<i>=wa</i>	→	<i>hop</i> <i>a</i> <i>lwa</i>	→	[hɔpalwə]	'sailed'
<i>hopna</i>	+	<i>pa</i>	→	<i>hop</i> <i>a</i> <i>npa</i>	→	[hɔpanpə]	'order for'
<i>kulti</i>	+	<i>pa</i>	→	<i>kul</i> <i>i</i> <i>tpa</i>			'stick together for'

³An alternate analysis of this data would be to posit epenthesis of /a/ after phrase final consonants. This is the analysis taken by Steven (1991) for similar data in Roma (§2.4.3)

To summarise: in Luang metathesis is one of several processes which operates when two morphemes (including words) form a single phrase for the purposes of stress assignment. It is therefore possible to analyse metathesis as being conditioned by the placement of stress.

The phonologically conditioned metathesis in Luang is different to the other examples seen so far in this section. In the case of Faroese and Sidamo, metathesis takes place to resolve a disallowed sequence of segments. In Luang, on the other hand, metathesis is a response to the prosodic feature of stress, with stress placement being determined by factors including discourse prominence. There is also no apparent phonological reason why metathesis affects verbs but not nouns in Luang. While Luang metathesis is phonologically conditioned, it is not clearly phonologically motivated.

Metathesis in Luang may be transitioning from phonologically conditioned metathesis to morphemically conditioned or morphological metathesis. Neighbouring Leti — culturally considered a Luangic dialect — has indeed developed morphological metathesis (§2.4.2).

2.2.2 Kwara'ae

One case of phonologically conditioned metathesis which requires a more extensive discussion is that found in Kwara'ae (Austronesian, Solomon Islands). Metathesis in Kwara'ae has been described by Sohn (1980) and Heinz (2004; 2005). Blevins and Garrett (1998) also present previously unpublished data collected by Andrew Pawley and David Gegeo.

The metathesis in Kwara'ae is different from that found in the other languages discussed in this section, as it affects all words of the language. In Faroese, Sidamo and Kui there is a subset of words with a specific phonological structure which undergo metathesis. Similarly, in Luang it is only verbs which undergo metathesis. In Kwara'ae, on the other hand, nearly every word of the lexicon is affected by metathesis.

2.2.2.1 Forms

Metathesis in Kwara'ae is final consonant-vowel metathesis. Examples are shown in (15) below. In the literature on Kwara'ae the unmetathesised form (U-form) is called the *citation form* and the metathesised form (M-form) is called the *normal form*. I refer to them with the more iconic terms 'U-form' and 'M-form'.

(15) $V_1CV_2 \rightarrow V_1V_2C$ (Heinz 2004:1)

U-form		M-form	
'lo.ʔi	→	'loʔi	'snake'
'bu.ri	→	'buir	'behind'
'bo.re	→	'bqer	'although'

Depending on the length of the word, metathesis in Kwara'ae can occur multiple times. Two examples are given in (16) below. The difference is stress which is seen in examples such as *da. 'ro.ʔa, ni.da* → *'daqr.ʔa, niɛd* 'to share them' is significant and is the phonological conditioning environment by which Heinz (2004) analyses Kwara'ae metathesis.

(16) Kwara'ae Multiple Metatheses: (Heinz 2004:2)

U-form	M-form	
<i>'ke.ta, la.ku</i>	→ <i>'kɛat, laɯk</i>	'my height'
<i>da. 'ro.ʔa, ni.da</i>	→ <i>'daqr.ʔa, niɛd</i>	'to share them'

Metathesis in Kwara'ae often triggers other phonological processes including glide formation, vowel deletion and umlaut. The different phonological processes with which metathesis is associated are described in §2.2.2.1.1–§2.2.2.1.6 below.

Published descriptions of Kwara'ae often report different details for these phonological processes. In part these differences may stem from researchers working with different speakers of different ages. However, a single speaker can also use multiple different M-forms depending on speech speed (Patrick Andrews p.c. February 2015).

In addition to the difference in metathesis, U-forms have the labiodental fricative [f] wherever M-forms have the voiceless glottal fricative [h] (Heinz 2004:18).

2.2.2.1.1 Glide Formation As can be seen from the examples in (15) and (16), when a vowel sequence surfaces in the M-form, the higher vowel is realised as a glide.

If the vowels are of equal height, as in *'bo.re* → *'bqer* 'although', the first vowel is realised as a glide. Sohn (1980:319) likewise states that metathesised forms consist only of one syllable, though he does not give rules for which of the underlying vowels surfaces as a diphthong.

When a word ends in a vowel sequence, the M-form is derived from the U-form through glide formation alone. This is shown in (17) below:

(17) $V_1V_2 \rightarrow \text{ʔ}_1V_2$ (Heinz 2004:13)

U-form	M-form	
<i>ʔo. 'do.a</i>	→ <i>'ʔo.dqa</i>	'behind'
<i>'do.e</i>	→ <i>'dqe</i>	'great, big'
<i>'ne.i, ri.a</i>	→ <i>'nej, riɛ</i>	'this one'

2.2.2.1.2 Vowel Deletion When a word ends in $V_1V_2CV_3\#$, and V_2 and V_3 are of the same quality, the first two vowels undergo glide formation and the the final vowel is deleted. This is shown in (18) below.

(18) $V_{1\alpha}V_{2\beta}CV_{3\beta} \rightarrow V_{1\alpha}V_{2\beta}C$ (Heinz 2004:27-28)

U-form	M-form	
<i>fu.'i.ri</i>	→ <i>hɥir</i>	'that'
<i>bi.'a.la</i>	→ <i>'bɪal</i>	'smoke'

2.2.2.1.3 Vowel Shift The low central vowel /a/ has a different quality after metathesis when the preceding vowel is high vowel. It is described as schwa [ə] by Sohn (1980:315), while Heinz (2004:23) describes it as varying between [ɛ] and [ə] after /i/ and as [ʌ] after /u/. Examples are given in (19) below.

(19) $V[+HI]Ca \rightarrow VəC$: (Heinz 2004:23)

U-form	M-form	
<i>a.'si.la</i>	→ <i>'a,sɪel ~ 'a,sɪal</i>	'sweet'
<i>fɑ.'ʔu.ta</i>	→ <i>'ha,ʔɥat</i>	'which, how, why'

Likewise, certain combinations of vowel 'fuse' into a single vowel rather than a sequence of glide and vowel. Sohn (1980:316) gives a rule in which /oi/ is realised as [ø], /oe/ as [œ], /ae/ as [æ] and /ai/ is realised as either [ɛi] or [ɛ]. This is similar to the processes of umlaut which have operated in the Germanic languages (§2.3, §2.5.1).

(20) $V_{\alpha}CV_{\beta} \rightarrow V_{\alpha\beta}C$ (Sohn 1980:316)

U-form	M-form	
<i>moli</i>	→ <i>mø'l</i>	'lemon'
<i>asofe</i>	→ <i>asœ'f</i>	'rat'
<i>maʔetaʔeelo</i>	→ <i>mæ'ʔ.tæ'ʔ.eol</i>	'doorway'
<i>dami</i>	→ <i>dɛim ~ dɛ'm</i>	'gum'

Heinz (2004) does not report front rounded vowels, but he does report a similar process when the first vowel of the sequence is /a/. He states that "[...] there is some free variation: if $V_2 = [e], [i]$ or $[u]$, sometimes the vowel combination can be realized as a single vowel." He only gives examples of /ae/ → [æ], /ai/ → [ɛ] and /au/ → [ɔ].

(21) $V_{\alpha}CV_{\beta} \rightarrow V_{\alpha\beta}C$ (Heinz 2004:24)

U-form	M-form	
<i>'sa.te</i>	→ <i>'sæ't ~ 'saɛ't</i>	'chin, beard'
<i>'ma.ʔi</i>	→ <i>'me'ʔ ~ 'maɪ'ʔ</i>	'come'
<i>li.'ma.ku</i>	→ <i>'li,mɔ'k ~ 'li,maɥk</i>	'my hand'

2.2.2.1.4 Long Vowels When both the final and penultimate vowel of the U-form are identical, Sohn (1980), Pawley and Gegeo (cited in Blevins and Garrett 1998) and Heinz (2004) all transcribe the vowel of the M-form as half-long, using the symbol [·]. Other descriptions of Kwara'ae, such as, Simons (1977) and Tryon and Hackman (1983) do not transcribe such vowels as long.

(22) $V_{\alpha}CV_{\alpha} \rightarrow V_{\alpha}C$ (Heinz 2004:25)

U-form		M-form	
' <i>ki.ni</i>	→	' <i>ki'n</i>	'female'
' <i>ma.na</i>	→	' <i>ma'n</i>	'her/his eye'
' <i>mo.ko</i>	→	' <i>mo'k</i>	'smell'

However, as noted by Heinz (2004:25) no author justifies the use of this half-long mark, with Heinz indicating that this is a point for further research. An instrumental phonetic study of Kwara'ae vowels would probably settle the matter one way or the other,⁴ and it could be that such vowels are long in some contexts and short in others, depending on variables such as phrasal stress and the rate of speech.

2.2.2.1.5 Voiceless Vowels Optional voiceless vowels also occur after certain consonants in the U-form. Heinz (2004:19) reports such vowels after the consonants [ʔ], [h], [l] and [s]. These vowels do not count as vowels for the purposes of stress assignment, with stress falling on the penultimate vowel, not counting final voiceless vowels. After word final stops, voiceless vowels do not occur, though the final stop is often strongly aspirated.

(23) $V_1CV_2 \rightarrow V_1V_2CV_2$ (Heinz 2004:19)

U-form		M-form	
' <i>ma.ʔu</i>	→	' <i>maʔʔu</i>	'fear'
' <i>ʔa.fe</i>	→	' <i>ʔaʔhɛ</i>	'wife'
' <i>bu.su</i>	→	' <i>bu'su</i>	'to burst'
' <i>ro.do</i>	→	' <i>ro'dʰ</i>	'night'
' <i>naʔ.ku</i>	→	' <i>naʔkʰ</i>	'T'

Pawley and Gegeo (cited in Blevins and Garrett 1998) describe voiceless vowels in a wider variety of contexts than is described by Heinz (2004). According to Pawley and Gegeo, a final voiceless vowel is the usual realisation of words in the M-form. Such vowels only do not occur when there is a word final nasal or if the resulting diphthong is a sequence of a high vowel followed by a non-high vowel.

(24) $V_1CV_2 \rightarrow V_1V_2CV_2$ (Pawley and Gegeo in Blevins and Garrett 1998:530)

U-form		M-form	
' <i>fusi</i>	→	' <i>huisʔ</i>	'cat'
' <i>kado</i>	→	' <i>kaodʔ</i>	'thin'
' <i>oso</i>	→	' <i>o'sʔ</i>	'lie'

⁴ For Amarasi I carried out an instrumental study of vowel length in which I showed that there is a statistically significant difference in length between the penultimate vowel of a U-form with identical penultimate and final vowels and the penultimate vowel of the M-form of such words. I analyse this difference in length as being due to the M-forms containing a sequence of two identical vowels. (see §3.2.1.4.2 and §4.2.3.3).

According to Heinz (2004:20), the differences between his data and the data cited by Blevins and Garrett (1998) likely comes from working with speakers of different generations. Heinz states: “[...] it’s reasonable that her [Kwara’ae informant’s] speech pattern reflects another stage in the decline of the final vowel.”

2.2.2.1.6 Summary The phonological processes with which metathesis in Kwara’ae is associated include glide formation, umlaut and vowel deletion. The effects of deriving the M-form on the first and second vowels of the U-form in Kwara’ae are given in Table 2.1. This table is adapted from (Heinz 2004:26) with qualities reported by Sohn (1980) included in brackets. The symbols used by Heinz for the high vowel glides: [ɥ] and [ɨ], have been replaced with the symbols [w] and [j].

Table 2.1: Kwara’ae Metathesis

V ₁ ↓	i	e	a	o	u	←V ₂
i	iʻ	–	jɛ, jə	jo	ju	
e	ej	ɛʻ	ɛa	ɛo	ew	
a	aj, ej, eʻ, (ej, ɛʻ)	æʻ, aɛ	aʻ	aɔ	aw, oʻ	
o	oj, (oʻ)	ɔe, we, (œʻ)	ɔa	ɔʻ	ow	
u	wi	wɛ	wɔ, (wə)	–	uʻ	

2.2.2.2 Distribution of Metathesis

Kwara’ae U-forms and M-forms belong to different speech registers in the language. The M-form is the form of words used in everyday normal speech. The U-form is used in traditional songs, for clarification (Heinz 2004:3) and when calling out. Watson-Gegeo and Gegeo (1986:19) report that calling out has three main uses in Kwara’ae discourse:

First, people call out for practical reasons in running a household, such as to locate a missing person or to bring a family member home for a meal. Secondly, a Kwara’ae man or woman working in the bush and hearing someone working nearby but out of sight will call out to seek identification of the other person. Thirdly, people call out from house to house, or as someone passes on the path, as a strictly social activity. They ask polite questions, or joke, tease, and engage in pleasant banter. (Watson-Gegeo and Gegeo 1986:19)

In addition to the use of unmetathesised forms, calling out is marked by a special intonation contour and certain emphatic particles. Two examples of such calling out are given in (25) below. Note also the extra length on the final syllable of the second form of ‘father’ in example (25a) as well as the particle *ku* in (25b). These two features are also distinctive of calling out.

- (25) Kwara'ae Calling Out: (Watson-Gegeo and Gegeo 1986:24,21)
- a. *maʔ!* *maʔa:!*
 father\M father\U
 Dad! Da-ad!
- b. *Sala!* *Sal!* *Sal* *ku!* *lae mai? tua hain* *Mosa!*
 Sala\U Sala\M Sala\M PART go here stay with:3SG.POSS Mosa\U
 Sala! Sala! Hey, Sala! Come here and babysit Mosa!

The use of different forms in different speech registers is confirmed by Patrick Andrews (p.c. February 2015) who reports that (among other uses) the unmetathesised forms are used when making a point to a child or to emphasise words in a speech. He compares the use of the metathesised forms to that of English contractions, such as *couldn't* from *could not*, with the former being the everyday form and the latter being used in special circumstances. This difference in distribution suggests that different forms are used in different (discourse) pragmatic contexts.

Heinz (2004) proposes an analysis of Kwara'ae metathesis framed within Optimality Theory in which metathesis is conditioned by stress. Under this analysis, metathesis in Kwara'ae is a response to the need to make stressed syllables heavy, with a vowel-glide combination counting as a heavy syllable.

Given that different forms are used in different registers, an analysis of Kwara'ae metathesis as being driven by stress would predict that different registers have different stress rules. While it is likely that such a hypothesis would be borne out, to the best of my knowledge this has not yet been demonstrated.

Nearly every word in Kwara'ae is affected by metathesis. If it is the case that different speech registers have different stress patterns, which in turn drives the metathesis, Kwara'ae exhibits a (rampant) case of phonologically conditioned metathesis.

2.3 Morphemically Conditioned Metathesis

Morphemically conditioned metathesis refers to instances of metathesis which are triggered by the combination of morphemes, but not any new phonological environment created by this combination. A number of languages with synchronic metathesis have both morphemically conditioned metathesis and morphological metathesis. Such languages include Rotuman (§2.4.1), Tunisian Arabic, Mutsun Ohlone, Sierra Miwok and Alsea. (Metathesis in these last five languages is discussed in Appendix A.)

Morphemically conditioned metathesis can be compared to more familiar examples of morphemically conditioned processes, such as German umlaut in the formation of plural nouns. In German, umlaut involves the fronting of a back vowel. One environment which

(often) triggers umlaut in German is addition of either of the plural suffixes *-e* /-ə/ or *-er* /-ər/. Examples of German nouns in which umlaut occurs with addition of the plural suffix *-e* /-ə/ are given in (26) below.

(26) German umlaut

Singular	Plural	gloss
<i>Fuchs</i> /f <u>o</u> ks/	<i>Füchse</i> /f <u>y</u> ksə/	'fox'
<i>Fuß</i> /f <u>u</u> :s/	<i>Füße</i> /f <u>y</u> :sə/	'foot'
<i>Kopf</i> /k <u>o</u> pf/	<i>Köpfe</i> /k <u>œ</u> pfə/	'head'
<i>Sohn</i> /z <u>o</u> :n/	<i>Söhne</i> /z <u>ø</u> :nə/	'son'
<i>Hand</i> /h <u>a</u> nt/	<i>Hände</i> /h <u>ɛ</u> ndə/	'hand'
<i>Zahn</i> /ts <u>a</u> :n/	<i>Zähne</i> /ts <u>ɛ</u> :nə/	'tooth'
<i>Maus</i> /m <u>a</u> ʊs/	<i>Mäuse</i> /m <u>ɔ</u> yzə/	'mouse'

It is not a universal feature of German phonology that back vowels are fronted before schwa. This can be seen with other suffixes, such as the plural *-en* /-ən/ which does not trigger umlaut. Two examples are *Dorn* /dɔrn/ 'thorn' → *Dornen* /dɔrnən/ 'thorns' and *Frau* /fʁaʊ/ 'woman' → *Frauen* /fʁaʊən/. Similarly, not all words undergo umlaut before plural *-e* /-ə/. Two examples are *Brot* /brɔ:t/ 'bread' → *Brote* /brɔ:te/ 'breads' and *Tag* /ta:k/ 'day' → *Tag* /ta:gə/ 'days'. Such data shows that the synchronic vowel in (26) is not a plausible conditioning environment. There are also words for which the plural is marked only by umlaut.

Such facts have led most analysts to view the German umlaut synchronically as a process separate from that of suffixation. This, for instance, is the approach taken by Wiese (1996:181ff), who posits that certain lexical entries in German have a floating [+FRONT] feature, the linking of which is triggered partly by morphological features. Wiese (1996) analyses German umlaut as a lexical phonological rule which is triggered in certain morphologically derived environments.

Under such an analysis, German umlaut is a phonological process just like German final obstruent devoicing. The difference between the two processes is that final obstruent devoicing is triggered by a phonological environment (word finally) while umlaut is triggered by a morphological environment. The development of umlaut in the Germanic languages has many similarities with the development of processes of synchronic metathesis. These similarities are discussed in §2.5.1.

2.3.1 Wersing

One example of morphemically conditioned metathesis occurs in Wersing (Trans-New Guinea, Alor) in which the final CV sequence of CVCV stems metathesises when the realis suffix *-a* is attached to verbs or the specific enclitic *=a* is attached to nouns. Examples are shown in (27a) and (27b) below, in which the second line shows the underlying forms.

- (27) Wersing Metathesis: Schapper and Hendery (2014)
- | | |
|--|--|
| <p>a. <i>ganiŋ</i> <i>wetiŋ gə-tait-a</i>
 ganin wetin g-tati-a
 3CLSF:HUM five 3-stand-REAL
 ‘There are five people standing.’</p> | <p>b. <i>hans sauk=a</i>
 hans saku=a
 Hans elder=SPEC
 ‘Mr. Hans’</p> |
|--|--|

Such metathesis affects only certain CVCV stems, probably depending on the quality of the vowels involved. A search of Schapper and Hendery (2014) revealed *guru* ‘teacher’ + =a SPEC → *gurua*, not **guura* (Schapper and Hendery 2014:456).

A search of Schapper and Hendery (2014) also does not reveal any vowel initial suffixes or enclitics apart from realis *-a* and specific =*a* which trigger metathesis. Antoinette Schapper (p.c. July 2016) confirms that no other vowel initial suffixes or enclitics are known to occur in Wersing. Given this fact, it might be possible to analyse Wersing metathesis as phonologically conditioned, though the phonological environment motivating metathesis is currently unclear. In Amarasí metathesis before vowel initial enclitics can be analysed as occurring in order to keep the clitic host and enclitic phonologically distinct (see Chapter 5).

2.3.2 Bunak

Morphemically conditioned metathesis also occurs in Bunak (Trans-New Guinea, Timor). In Bunak the initial CV sequence of a CVVC stem metathesises when a prefix is added and the first vowel of the root is high, /i/ or /u/, and the second vowel is non-high, /e/, /a/ or /o/. While stress is normally penultimate in Bunak, CV[+HIGH]V[-HIGH]C words have final stress (Antoinette Schapper p.c. September 2015). Such final stress remains after metathesis.

- (28) Bunak Metathesis (Schapper 2009:67)

<i>gV-</i> + <i>téke?</i> → <i>ge-téke?</i> ‘watch’
<i>gV-</i> + <i>íwal</i> → <i>g-íwal</i> ‘pick’
<i>gV-</i> + <i>luél</i> → <i>g-ulél</i> ‘skin, peel’
<i>gV-</i> + <i>luél</i> → <i>g-ulél</i> ‘skin, peel’
<i>gV-</i> + <i>luél</i> → <i>g-ulél</i> ‘skin, peel’
<i>gV-</i> + <i>mién</i> → <i>g-imén</i> ‘immediately’
<i>gV-</i> + <i>niát</i> → <i>g-inát</i> ‘first (one)’
<i>gV-</i> + <i>nuás</i> → <i>g-unás</i> ‘stink’
<i>gV-</i> + <i>nuék</i> → <i>g-unék</i> ‘be smelly’
<i>gV-</i> + <i>sié?</i> → <i>g-isé?</i> ‘rip’
<i>gV-</i> + <i>tuék</i> → <i>g-uték</i> ‘be heavy’
<i>gV-</i> + <i>ziék</i> → <i>g-izék</i> ‘fry’

Examples of Bunak metathesis are given in (28) with the prefix *gV-* which marks third person animate possessors on nouns and third person animate objects or undergoers with

verbs. Schapper (2009) notes that the eight stems in (28) are the only ones in her corpus which are both eligible to take prefixes and of the appropriate phonological structure to undergo metathesis. Before other consonant initial stems, the unspecified vowel of the prefix *gV-* is a copy vowel.

An alternate analysis of the Bunak data would be to posit that the shape VCVC for these stems is underlying, with metathesis of initial VC → CV when such stems are used in isolation. Schapper (2009) does discuss this possibility.

Before vowel initial stems the unspecified vowel of a prefix is deleted: i.e. *gV-* + *íwal* ‘pick’ → *gíwal* and *gV-* + *úbe* ‘block’ → *gúbe*. Such vowel deletion also takes place before the metathesising stems. The 1NCL/2 prefix is *V-* consisting only of an unspecified vowel, which is also regularly deleted before vowel initial and metathesising stems.

This means that metathesis is the only phonological signal of 1NCL/2 agreement for metathesising stems. The paradigms of two consonant initial stems, two vowel initial stems and two metathesising stems are given in Table 2.2 below to show the different allomorphs of the agreement prefixes.

Table 2.2: Bunak Prefixation[†] (Schapper 2009:66,340)

	‘watch’	‘fetch’	‘pick’	‘hang’	‘peel’	‘rip’
Stem	<i>téke?</i>	<i>wít</i>	<i>íwal</i>	<i>óbon</i>	<i>luél</i>	<i>sié?</i>
1EXCL	<i>ne-téke?</i>	<i>ni-wít</i>	<i>n-íwal</i>	<i>n-óbon</i>	<i>n-ulél</i>	<i>n-isé?</i>
1NCL/2	<i>e-téke?</i>	<i>i-wít</i>	\emptyset - <i>íwal</i>	\emptyset - <i>óbon</i>	\emptyset - <i>ulél</i>	\emptyset - <i>isé?</i>
3ANIM	<i>ge-téke?</i>	<i>gi-wít</i>	<i>g-íwal</i>	<i>g-óbon</i>	<i>g-ulél</i>	<i>g-isé?</i>

[†] I follow Schapper (2009) in representing the deleted 1NCL/2 affix as a zero prefix.

With the loss of the vowel of the 1NCL/2 prefix, the morphemically conditioned metathesis in Bunak has developed a morphological function. In this respect its development is similar to the development of Germanic umlaut (§2.5.1) in which an original conditioning environment was lost. The Bunak data shows one pathway in which morphological metathesis can develop. Other pathways are discussed in §2.5.1.1 below.

2.4 Morphological Metathesis

In this section I discuss every described case of morphological metathesis in the greater Timor region, as well as metathesis in Rotuman. Other cases of morphological metathesis known to me are discussed in Appendix A. Many of the forms and functions of metathesis described in this section have parallels with the forms and function of metathesis in Amarasí. I highlight such similarities during my discussion.

A single language can have multiple kinds of synchronic metathesis: phonologically conditioned metathesis, morphemically conditioned metathesis and/or morphological metathesis. This means that it is not always possible to propose a unified analysis of every instance of metathesis in a particular language. Thus, for instance, while metathesis in Rotuman is phonologically conditioned in some contexts, it is a morphological process in others. Analyses of Rotuman in which metathesis is analysed only as phonologically motivated are therefore insufficient to account for all the data.

Similarly, a single morphological process in a single languages can have different functions in different contexts. One example is the English the suffix ‘-(e)s’ with allomorphs /-əz/, /-z/ and /-s/. This suffix is a plural marker on nouns and a third person agreement marker on verbs. A similar situation is found with morphological metathesis in some languages with metathesis on nouns and verbs having different morphological functions.

2.4.1 Rotuman

Rotuman has perhaps the most famous case of morphological metathesis. Rotuman is an Oceanic (Austronesian) language spoken on the island of Rotuma, an island of the Pacific Ocean located about 480 kilometres north of the main islands of Fiji.

Rotuman was first described by Churchward (1940) which is a grammar and dictionary of the language. Churchward also published several Rotuman texts between 1937–39 in the journal *Oceania* which were reprinted in one volume as Churchward (1939). Both Besnier (1987) and Vamarasi (2002) also present descriptions of Rotuman based on their own fieldwork. Each of these descriptions differs in details. This may be partly because the authors worked with different speakers at different times and may also be partly because they use different language to describe the same phenomena.

Although a number of attempts have been made to analyse every instance of metathesis in Rotuman as phonological metathesis, these analyses are not sufficient to account for the entirety of the data.

2.4.1.1 Forms

Each word in Rotuman has two forms, which I call the the U-form and M-form. The traditional names coined by Churchward (1940) are the *complete phase* for the U-form and the *incomplete phase* for the M-form. The U-form is historically more conservative when compared with the M-form.

Churchward (1940) identifies four phonological processes which derive the M-form from the U-form. These processes are vowel deletion (a.k.a apocope, truncation or subtraction),

ablaut, metathesis and vowel shortening. There are also words which do not have two distinct forms. Which process applies depends on the phonological shape of the U-form.

2.4.1.1.1 Vowel Shortening/Diphthongisation When a word ends in a sequence of vowels which are not identical, (Churchward 1940:85) describes the M-form as being formed by shortening the initial vowel of the sequence. Examples are given in (29) below.

(29) Rotuman $V_{\alpha}V_{\beta} \rightarrow \check{V}_{\alpha}V_{\beta}$ (Churchward 1940:85)

U-form		M-form	
<i>pupui</i>	→	<i>pupūi</i>	‘floor’
<i>ʔesʔao</i>	→	<i>ʔesʔāo</i>	‘useful’
<i>lelei</i>	→	<i>lelēi</i>	‘good’
<i>fɔʔou</i>	→	<i>fɔʔōu</i>	‘new’

Instead of vowel shortening, Vamarasi (2002) describes a process of diphthongisation in which the less sonorous vowel becomes a glide. This glide formation may be either a further development of Churchward’s shortened vowels, or it may be that a single phenomenon was perceived and described differently by each of these authors.

(30) Rotuman $V_{\alpha}V_{\beta} \rightarrow \check{V}_{\alpha}V_{\beta} \sim V_{\alpha}\check{V}_{\beta}$ Vamarasi (2002:4,7–9)

U-form		M-form	
<i>lio</i>	→	<i>ljo</i>	‘voice’
<i>fau</i>	→	<i>faw</i>	‘year’
<i>fui</i>	→	<i>fuj</i>	‘piece of garland’
<i>fpi</i>	→	<i>fṽj</i>	‘chop down’
<i>momoe</i>	→	<i>momog</i>	‘k.o. tree’

According to Besnier (1987:210) the vowel sequences which diphthongise are those in which the second vowel is /a/ as well as sequences of a high vowel followed by /o/. Besnier also reports that /a/ is realised as [ɔ] after a glide derived from one of the high-front vowels.

(31) Rotuman $V_{\alpha}V_{\beta} \rightarrow \check{V}_{\alpha}V_{\beta}$ (Besnier 1987:210)

U-form		M-form	
<i>ʔea</i>	→	<i>ʔja</i>	‘to say’
<i>fɔa</i>	→	<i>fwa</i>	‘coconut scraper’
<i>kia</i>	→	<i>kjɔ</i>	‘neck’
<i>sua</i>	→	<i>swɔ</i>	‘shoot (of a plant)’

2.4.1.1.2 Metathesis When the U-form ends in VCV and the penultimate vowel is higher than the final vowel, the M-form is derived by final consonant-vowel metathesis. Examples are given in (32) below.

(32) Rotuman $V_1CV_2 \rightarrow V_1V_2C$ (Churchward 1940:14)

U-form		M-form	
<i>pure</i>	→	<i>puer</i>	'to rule, decide'
<i>hosa</i>	→	<i>hoas</i>	'flower'
<i>tiko</i>	→	<i>tiok</i>	'flesh'
<i>pepa</i>	→	<i>peap</i>	'paper'

Both Vamarasi (2002) and Besnier (1987) report that after metathesis the penultimate vowel becomes a glide; /u/ and /o/ become [w] while /i/ and /e/ become [j]. Examples are given in (33) below.

(33) Rotuman $V_1CV_2 \rightarrow \bar{V}_1V_2C$ (Vamarasi 2002:3)

U-form		M-form	
<i>pure</i>	→	<i>pwɛr</i>	'rule'
<i>fupa</i>	→	<i>fwap</i>	'to distribute'
<i>?iko</i>	→	<i>?jɔk</i>	'thrust'

Besnier (1987:208) reports that when the penultimate vowel is a high vowel, the final vowel becomes [ɔ] after metathesis. Otherwise, the final vowel retains its original quality. Examples are given in (34) below.

(34) Rotuman $V_1CV_2 \rightarrow \bar{V}_1V_2C$ (Besnier 1987:208)

U-form		M-form	
<i>tife</i>	→	<i>tjɔf</i>	'pearl shell'
<i>pitfa</i>	→	<i>pjɔtf</i>	'rat'
<i>hune</i>	→	<i>hwɔŋ</i>	'to breathe'
<i>puka</i>	→	<i>pwɔk</i>	'k.o. creeper'
<i>hepa</i>	→	<i>hɔp</i>	'broad'
<i>loŋa</i>	→	<i>lwɔŋ</i>	'towards the interior of the island'

The diphthongisation reported by Besnier (1987) and Vamarasi (2002) seems to be a recent development in the language. From the detailed account of Rotuman phonetics given by Churchward (1940:64–84), it is clear that he was an excellent phonetician. Additionally, given his identification of shortened vowels in the derivation of M-forms (§2.4.1.1.1), it seems highly likely that if diphthongisation (or shortened vowels) were present after metathesis he would have reported it.

2.4.1.1.3 Umlaut When the penultimate vowel is a back vowel and the final vowel a front vowel, the M-form is derived via ablaut, so long as the penultimate vowel is not higher than the final vowel.

Churchward (1940:79) reports /u/ becomes [y], /o/ becomes [œ] when the final vowel is /e/ and /o/ becomes [ø] when the final vowel is /i/. He also transcribes the outcome of

umlauted /v/ as <á>. He describes <á> as “[...] a little wider [lower] than *a* in ‘cat’ [...] but differs from it in containing just a suggestion of the sound of *u* in ‘cut’ or ‘but.’” I transcribe Churchward’s <á> as [œ]. Examples are given in (35) below, which also gives hypothetical intermediate forms showing the way such umlaut could have developed from metathesis. In Kwara’ae (§2.2.2.1.3) words containing some of the vowel combinations shown in (35) for Rotuman have M-forms which vary between displaying metathesis and umlaut.

(35) V[+RND]CV[+FR] → V[+RND,+FR]C (Churchward 1940:79-80)

U-form		M-form	
<i>ʔuli</i>	> * <i>ʔuil</i>	> <i>ʔyl</i>	‘skin’
<i>mori</i>	> * <i>moir</i>	> <i>mør</i>	‘orange (fruit)’
<i>mose</i>	> * <i>moes</i>	> <i>mæs</i>	‘to sleep’
<i>ʔofi</i>	> * <i>ʔofj</i>	> <i>ʔœf</i>	‘to bite’

Vamarasi (2002) reports that /o/ becomes [ø] under umlaut, /u/ becomes [y] and /v/ becomes the lower mid-front-rounded [œ]. Examples are given in (36)

(36) Rotuman V[+BA]CV[+FR] → V[+FR]C (Vamarasi 2002:3)

U-form		M-form	
<i>futi</i>	→ <i>fyt</i>		‘to pull’
<i>mose</i>	→ <i>møs</i>		‘to sleep’
<i>pʋri</i>	→ <i>pœri</i>		‘banana’

Besnier’s data agrees with Vamarasi on the outcome of /o/ and /u/, though he reports that /v/ (equivalent to Churchward’s and Vamarasi’s /v/) becomes either [ɛ] or [æ] in free variation in certain words. Examples are given in (37) below.

(37) Rotuman V[+BA]CV[+FR] → V[+FR]C (Besnier 1987:209)

U-form		M-form	
<i>pʋti</i>	→ <i>pɛt</i>		‘scar’
<i>hʋʔi</i>	→ <i>hɛʔ</i>		‘to pull’
<i>pʋni</i>	→ <i>pɛn</i>		‘paint’

All authors agree that ablaut of /u/ or /o/ spreads leftwards to identical vowels. Examples are given in (38) below

(38) Rotuman Umlaut Spreading: (Churchward 1940:79f)

U-form	→	M-form	
<i>furfuruki</i>	→	<i>fyrfyryk</i>	‘pimple’
<i>roromi</i>	→	<i>rørøm</i>	‘unexpectedly’
<i>popore</i>	→	<i>pœpær</i>	‘to dash, dart’

2.4.1.1.4 Apocope In all situations not covered by diphthongisation, metathesis or umlaut, the M-form is derived by deleting the final vowel of the U-form. This includes when each vowel is identical and when the penultimate vowel is lower than a final back vowel.

(39) Rotuman VCV → VC (Churchward 1940:13)

U-form		M-form	
<i>haya</i>	→	<i>hay</i>	'to feed'
<i>hɔŋu</i>	→	<i>hɔŋ</i>	'to awaken'
<i>læʔe</i>	→	<i>læʔ</i>	'coral'
<i>tokiri</i>	→	<i>tokir</i>	'to roll'
<i>hoto</i>	→	<i>hot</i>	'to jump'
<i>heleʔu</i>	→	<i>heleʔ</i>	'to arrive'

The lack of overt metathesis in such examples is comparable to the Amarasi data in which words with a certain phonotactic shape form their M-form by surface vowel deletion and/or consonant deletion (Chapter 4).

2.4.1.1.5 No Change Words ending in two identical vowels do not usually have distinct U-forms and M-forms according to Churchward (1940:85), except before certain suffixes in which case the final vowel of U-form is lengthened. Examples are given in (40) below.

(40) Rotuman $V_{\alpha}V_{\alpha} \rightarrow V_{\alpha}V_{\alpha}$ (Churchward 1940:85)

U-form		M-form	
<i>rii</i>	→	<i>rii</i>	'house'
<i>ree</i>	→	<i>ree</i>	'to do'

Besnier (1987) reports that when the sequence of two identical vowels is /aa/, the M-form is formed by deleting the final vowel. In other situations Besnier reports no difference in the two forms. Examples are given in (41) below.

(41) Rotuman /aa/ → /a/ (Besnier 1987:212)

U-form		M-form	
<i>ʔaa</i>	→	<i>ʔa</i>	'bite'
<i>ree</i>	→	<i>ree</i>	'do'
<i>luu</i>	→	<i>luu</i>	'rope'

2.4.1.1.6 Summary of Forms The ways in which the Rotuman M-form is derived from the U-form for words ending in CV are shown in Table 2.3. The M-form is one syllable shorter than the U-form, with the exceptions of word final sequences of identical vowels and Churchward's metathesised forms.

Table 2.3: Medial Vowels of Rotuman U-forms and M-forms

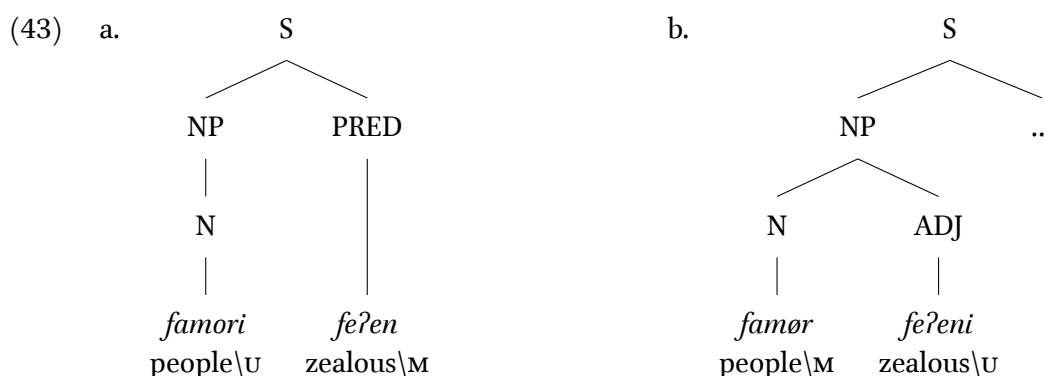
V ₁ ↓	Churchward (1940)					Vamarasi (2002)					Besnier (1987)					←V ₂
	i	e	a	o	u	i	e	a	o	u	i	e	a	o	u	
i	i	ie	ia	io	i	i	jɛ	ja	jɔ	i	i	jɔ	jɔ	jo	i	i
e	e	e	ea	e	e	ɛ	ɛ	ja	ɛ	ɛ	e	e	ja	e	e	e
a	œ	æ	a	a	ɒ	œ	æ	a	a	ɒ	ɛ	ɛ	a	a	ɔ	a
o	ø	œ	oa	o	o	ø	ø	wa	ɔ	ɔ	ø	ø	wa	o	o	o
u	y	ue	ua	uo	u	y	wɛ	wa	wɔ	u	y	wɔ	wɔ	wo	u	u

2.4.1.2 Functions

In the noun phrase the use of each form has two main functions. Firstly, each non-final word in a noun phrase occurs in the M-form. The M-form is used when a noun is modified; it is a construct form (§2.5.2.1) used to mark the presence of a dependent modifier. This is also a function of metathesis in Leti (§2.4.2) and Amarasi (Chapter 6).

Compare the phrases in (42) below from Churchward (1940:14), each phrase consists of the noun *famori/famør* ‘people’ followed by the adjective *feʔen/feʔeni* ‘zealous’. In (42a) the noun *famori* ‘people’ is in the U-form and the adjective has a predicative reading. In (42b) the noun *famør* ‘people’ is in the M-form, and the adjective has an attributive meaning. The structure of each phrase is given in (43). (The use of the M-form of the adjective in (42a) and (43a) is discussed below.)

- (42) a. *famori feʔen*
 people\U zealous\M
 ‘The people are zealous.’
- b. *famør feʔeni*
 people\M zealous\U
 ‘(The) zealous people.’



The second main function of each form is to mark the definiteness of the noun phrase. When the final word of the noun phrase is in the U-form it is definite plural, when the final word is in the M-form it is indefinite. Examples are given in (44) below from Churchward

(1940:15). The normal reading of a noun in Rotuman is plural, with a dedicated suffix *-t/-ta* used to mark singular.

- | | | |
|------|--|--|
| (44) | a. <i>famori</i> <i>ʔea</i>
people\U say
'The people say.' | b. <i>famør</i> <i>ʔea</i>
people\M say
'Some people say.' |
|------|--|--|

The reason the adjective *feʔen* occurs in the M-form in (42a) and (43a) is due to “[...] the general rule that, except in certain circumstances, a verb — or an adjective used as a verb — is used in its incomplete phase [M-form]” (Churchward 1940:15). This is similar to Amarasi in which the default form of verbs is the M-form (see §7.1.1).

One environment in which verbs occur in the U-form is to mark “positiveness, finality or (in questions) the desire to be positive or certain” (Churchward 1940:88). In addition to verbs, this function also occurs with a number of other word classes including: locative pronouns, some temporal nouns, demonstratives and interrogative pronouns. Two examples of Rotuman U-form questions are given in (45) and (46) below.

- | | | |
|------|--|--|
| | Rotuman U-form questions: | (Churchward 1940:95) |
| (45) | a. <i>ʔe una</i>
LOC middle\U
'In the middle, did you say?.' | b. <i>ʔe uan</i>
LOC middle\M
'In the middle.' |
| (46) | a. <i>ʔe fapʔaja</i>
LOC three.days\U
'In three days time, did you say?' | b. <i>ʔe fapʔaŋ</i>
LOC three.days\M
'In three days time.' |

Churchward (1940:95) also gives the example of the imperative *leume!* ‘come\U’ which is “freq[ueently] used when one or more calls of *leum!* [‘come\M’] fail to move the person summoned” as another example of this ‘positiveness’ use.

The use of U-forms in Rotuman with verbs (and some other word classes) to mark ‘positiveness’ is comparable to the fact that in Amarasi U-forms on verbs (and some other word classes) are discourse driven. In Amarasi such U-forms mark an unresolved state/event which requires another clause for resolution (Chapter 7). In particular, in both Rotuman and Amarasi, verbal U-forms are used in questions (§7.7).

Finally, Churchward (1940:88) states that for verbs ending in a pronominal suffix, the U-form is used to mark the completive tense, though he does not give examples. This use of verbal U-forms is the same as the use of verbal U-form in Helong (§2.4.5.2.2) in which U-forms mark the perfective aspect.

2.4.1.3 Analyses

2.4.1.3.1 Hale and Kisson (1998) Hale and Kisson (1998) attempt to unify the different environments in which Rotuman U-forms and M-forms occur, by analysing each form as conditioned by the number of syllables which follow each form. Hale and Kisson (1998) argue that, with two exceptions, the U-form of words is used before suffixes and enclitics which are monosyllabic or non-syllabic, while the M-form is used before polysyllabic suffixes and enclitics.

An example of the U-form before a monosyllabic suffix is given in (47) and an example before a non-syllabic suffix is given in (48). An example of the M-form before a disyllabic affix is given in (49) and an example before a trisyllabic enclitic is given in (50).

- (47) *puʔa* + *ŋa* → *puʔa-ŋa*
 be greedy NMLZ greedy\U-NMLZ
 'greed' (Hale and Kisson 1998:120)
- (48) *vaka* + *t* → *vaka-t*
 canoe SG canoe\U-SG
 'a canoe' (Hale and Kisson 1998:120)
- (49) *furi* + *ʔian* → *fyr-ʔian*
 turn INGRESSIVE turn\M-INGRESSIVE
 'start turning' (Hale and Kisson 1998:120)
- (50) *vaka* + *teʔisi* → *vak=teʔisi*
 canoe this canoe\M=this
 'this canoe' (Hale and Kisson 1998:121)

Under this analysis, the M-form is also required before a noun or adjective, all of which are polysyllabic. The generalisation identified by Hale and Kisson (1998) is that the M-form is (mostly) used before polysyllabic suffixes, enclitics and modifiers, while the U-form is used elsewhere. However, as acknowledged by Hale and Kisson (1998), there are two exceptions to this generalisation.

The first exception is the monosyllabic singular marker *-ta*. Before this article M-forms occur, as illustrated in (51) below.

- (51) *mori* + *ta* → *mør-ta* **mori-ta*
 orange SG orange\M-SG
 'the orange' (Vamarasi 2002:14)

The second exception is that the M-forms of nouns are used without any following affix/enclitic for a plural indefinite meaning, while the U-form is used for a plural definite meaning. This has been illustrated in (44) above, repeated as (52) below.

- (52) a. *famori* *ʔea*
 people\U say
 ‘The people say.’
- b. *famør* *ʔea*
 people\M say
 ‘Some people say.’

Hale and Kiskey (1998:121f) analyse these exceptions by positing zero affixes with moraic weight. Their analysis of the exceptional forms of *vaka/vak* ‘canoe’ is shown in (53) below.

- (53) Rotuman Exceptional M-forms: (Hale and Kiskey 1998:122)

<i>vaka</i>	/vaka + \emptyset_{PL} + \emptyset_{DEF} /	‘the canoes’
<i>vak ta</i>	/vaka + ta + \emptyset_{DEF} /	‘the one canoe’ (i.e. ‘the canoe’)
<i>vaka-t</i>	/vaka + ta/	‘a/one canoe’

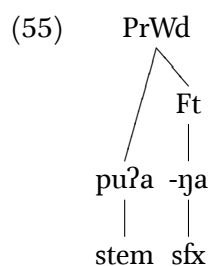
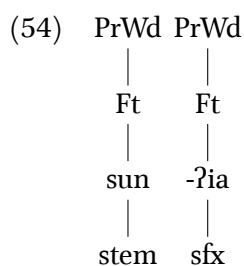
I cannot find a clear explanation in Hale and Kiskey (1998) for why the noun *vaka* surfaces in the U-form when followed by the two suffixes \emptyset_{PL} + \emptyset_{DEF} . If I understand the analysis correctly, each null suffix should have moraic weight, with this combination of two suffixes being poly-moraic (polysyllabic) and thus triggering the M-form. Similarly, Hale and Kiskey (1998) do not seem to explicitly account for the use of verbal U-forms to mark positiveness, or the use of M-forms to mark incomplete aspect.

Although an analysis involving multiple null suffixes with moraic weight is unconvincing as an appropriate synchronic analysis of the Rotuman data, Hale and Kiskey (1998) *do* provide the insight that many uses of the Rotuman M-form can be analysed as phonologically conditioned. Historically it was probably the case that the use of each form was completely phonologically conditioned.

2.4.1.3.2 McCarthy (2000) McCarthy (2000) bases his analysis upon the observation in Hale and Kiskey (1998) that the use of the two stems is often conditioned by the number of syllables of a following suffix or enclitic and attempts an analysis in which every instance of Rotuman metathesis is purely phonologically conditioned. McCarthy’s analysis is framed in optimality theory.

McCarthy (2000:156) draws upon the principle of Foot Binariness, whereby feet are required to consist of a minimum of two syllables or two morae. McCarthy proposes that polysyllabic suffixes and enclitics are prosodically external to the stem as they are eligible to form independent feet. Non-syllabic and monosyllabic suffixes, on the other hand cannot form feet and are thus bound to the stem.

McCarthy (2000:163) represents forms like *sun-ʔia* ‘hot-INGRESSIVE’ with the structure given in (54) and forms like *puʔa-ŋa* ‘greedy-NMLZ’ with the structure given in (55). In both these diagrams ‘PrWd’ stands for ‘prosodic word’; an independent prosodic unit.



The constraint ALIGN-HEAD- σ , which requires stressed syllables to be word final, is also crucial in McCarthy’s analysis. Both this constraint and the constraint MAX (prohibiting deletion) are ranked more highly than the constraint LINEARITY, which prohibits metathesis. Each of these three constraints is given in (56)–(58) below.

- (56) ALIGN-HEAD- σ : Align(H'(PrWd), R, PrWd, R) (The main-stressed syllable is final in every prosodic word)
- (57) MAX: Every element of S_1 has a correspondent in S_2 (No deletion)
- (58) LINEARITY: S_1 is consistent with the precedence structure of S_2 and vice versa (No Metathesis)

Metathesis, is thus “[...] the most faithful constraint mapping of a /...VCV/ input that still satisfies ALIGN-HEAD- σ .” McCarthy (2000:174) gives the optimality table in (59) below.

(59)

	Input: /pur ₁ e ₂ /	ALIGN-HEAD- σ	MAX	LINEARITY
a.	☞ pwe ₂ r ₁			*
b.	pur ₁		*!	
c.	pur ₁ e ₂	*!		

Under this analysis Rotuman metathesis is purely phonologically conditioned, and has no morphological function. In fact, (McCarthy 2000:168) explicitly rejects the idea of there being a “phase [metathesis] morpheme”. M-forms occur in order to fulfil the requirement that a stressed syllable should occur word finally.

However, McCarthy (2000) does not provide an explicit account for the use of M-form alone to mark indefiniteness, shown in (44) above, repeated as (60) below.

- (60)
- | | |
|--|--|
| <p>a. <i>famori</i> ʔea
 people\U say
 ‘The people say.’</p> | <p>b. <i>famor</i> ʔea
 people\M say
 ‘Some people say.’</p> |
|--|--|

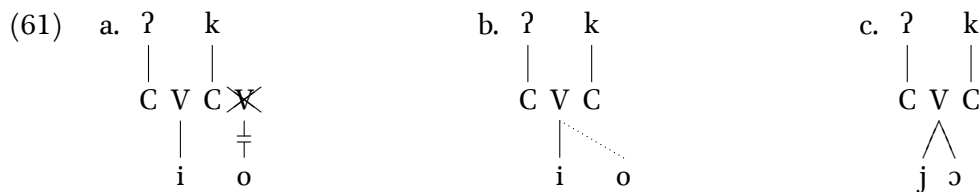
Given that there is no phonological difference between the phrases in (60) — except for the difference in U-forms and M-forms — an analysis of Rotuman M-forms as purely phonologically conditioned is not sufficient to account for all the Rotuman data.

McCarthy’s analysis has the following advantages: (i.) it captures the generalisation that the use of each form is (mostly) phonologically conditioned and (ii.) it dispenses

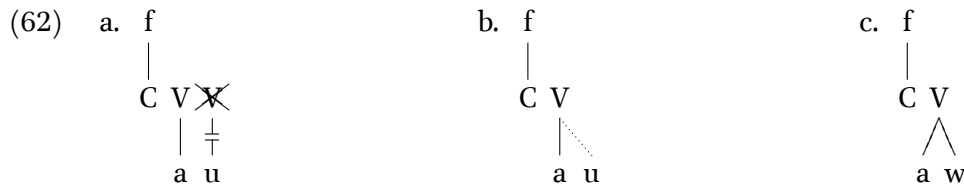
with the need to stipulate a morphological process of metathesis. However, this analysis is unsuccessful as it cannot account for all the Rotuman data.

2.4.1.3.3 Besnier (1987) Besnier (1987) analyses the derivation of the M-form from the U-form under an autosegmental framework. Each of the phonological processes of vowel deletion, glide formation, metathesis and diphthongisation are analysed by Besnier (1987) as being motivated by deletion of the word final vowel slot. After the final vowel slot is deleted, either some or all of the floating vocalic features then re-associate leftwards to the next available vowel slot.

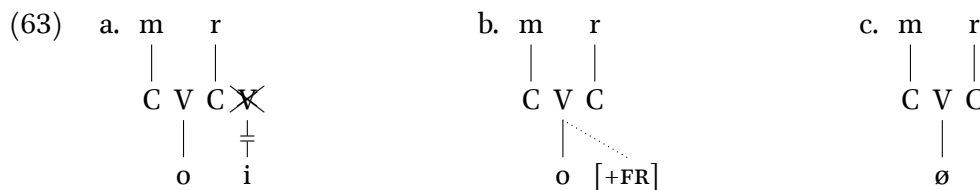
This process is illustrated for *ʔiko* → *ʔjɔk* ‘thrust’ in (61) below. In (61a) the final V-slot is deleted. The vowel of this V-slot then re-associates leftwards in (61b). The final step is to convert the vowel /i/ into a glide in (61c) to allow both vowels to occupy the single V-slot.



The process is identical for words such as *fau* → *faw* ‘year’, the only difference being that no consonant occurs between the two vowels. The formation of *fau* → *faw* ‘year’ is shown in (62) below.

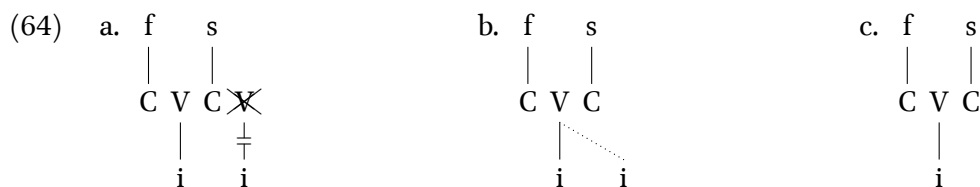


The same process occurs for words such as *mori* → *mør* ‘orange (fruit)’, in which ablaut takes place. This is illustrated in (63) below. The only difference in Besnier’s analysis is that rather than all the vowel features re-associating leftwards in (63b), only the feature [+FRONT] re-associates, producing the front rounded vowel /ø/ in (63c).



For words such as *fisi* → *fis* ‘white’ in which apocope takes place to derive the M-form,

Besnier's analysis is identical, with the features of the two vowels combining in the final step. This is illustrated in (64) below.



Besnier (1987) presents an analysis of metathesis in Rotuman in which metathesis is the result of final vowel deletion with subsequent leftwards re-association of the floating vocalic features. This analysis is attractive as it successfully reduces the phonological processes of diphthongisation, ablaut, vowel deletion and metathesis to a single process; V-slot deletion.

Besnier does not provide a motivation for final V-slot deletion. Given that in some environments the M-form is the only expression of a morphological function, i.e. the construct form or indefinite plural (§2.4.1.2), the motivation for final V-slot deletion would presumably be morphological in these environments. Under this analysis metathesis is a by-product of a morphological process of subtraction.

While this analysis works well for modern day Rotuman, it is probably not sufficient to account for Rotuman as described by Churchward (1940), in which neither vowel becomes a glide after metathesis. In order to account for this data, we would have to posit that both vowels survive in the M-form. This is also necessary for Amarasi metathesis (Chapter 4).

2.4.1.4 Summary

Metathesis in Rotuman is associated with several other phonological processes, including vowel shortening, diphthongisation, ablaut and vowel deletion. In the modern language, it is possible to analyse all these processes as caused by a rule of final V-slot deletion.

In terms of function, it is possible to analyse *some* instances of Rotuman metathesis as phonological, however, this is not possible for every example of metathesis. Instead, Rotuman appears to have three kinds of metathesis: phonological when followed by polysyllabic suffixes and enclitics, morphemically conditioned, when followed by the singular enclitic *-ta*, and morphological, when marking indefiniteness.

There are a number of points of similarity between metathesis in Rotuman and metathesis in Amarasi. Firstly, in both languages metathesis is associated with a number of other phonological processes. Secondly, in both languages metathesis marks non-final words in the noun phrase. Thirdly, in both Rotuman and Amarasi verbal U-forms can be used to mark questions.

2.4.2 Leti

Leti is an Austronesian language of Indonesia spoken on an island with the same name off the eastern-most tip of the island of Timor (see Figure 2.1). It is closely related to Luang (§2.2), which has phonological metathesis. Leti metathesis has been described by van Engelenhoven (1994; 1996; 2004).

2.4.2.1 Forms

In Leti each word has a least two forms; a vowel final U-form and an M-form which is often consonant final. A single Leti U-form does not necessarily correspond to a single M-form. Rather, the phonological shape of both the form in question and the following morpheme must be taken into account when determining the shape of the M-form. For instance, the Leti U-form *iina* ‘fish’ can have either of the M-forms *iin* or *ian*, depending on the phonological shape of the following morpheme. In this respect, Leti is similar to Amarasi in which a single U-form can have up to three different M-forms in different environments (see Chapter 4).

Four different phonological processes operate in Leti to derive each different form: glide formation, internal metathesis, external metathesis and apocope. Each of these processes is described with reference to the phonological shape of the U-form of the first word. A U-form in Leti can end in one of four ways:

- i. VV# i.e. *nia* ‘snake’
- ii. VCV# i.e. *kusa* ‘cat’
- iii. V_αV_αCV# i.e. *iina* ‘fish’
- iv. VCCV# i.e. *emna* ‘moray eel’

2.4.2.1.1 No Change When the second word begins with a consonant cluster, the first word does not undergo any phonological processes and appears in the vowel final U-form.

(65) No phonological process (van Engelenhoven 2004:91)

U-form			M-form	
<i>lau</i>	+	<i>tniei</i>	→	<i>lau tniei</i> ‘civet + guts’
<i>ruuni</i>	+	<i>tniei</i>	→	<i>ruuni tniei</i> ‘dugong + guts’

2.4.2.1.2 Glide Formation When the second word begins with a non-high vowel (one of /e/, /ɛ/, /a/, /ɔ/ or /o/) and the first word ends with a high vowel, the final vowel of the first word is realised as a glide.

This is an automatic phonetic process, as glides do not contrast phonemically with high vowels in Leti. A high vowel is automatically realised as a glide when it occurs before a stressed non-high vowel (van Engelenhoven 2004:59).

(66) Leti CV[+HI] → CṾ[+HI] / _V[-HI] (van Engelenhoven 2004:91)

U-form		M-form			
<i>lau</i>	+	<i>aana</i>	→	<i>lau aana</i>	[law'a:na] 'civet + child'
<i>ruuni</i>	+	<i>aana</i>	→	<i>ruuni aana</i>	[ru:nj'a:na] 'dugong + child'

2.4.2.1.3 Internal Metathesis If the second word begins with a CV sequence, or a sequence of a high vowel followed by a vowel (phonetically a glide followed by a vowel; as discussed in §2.4.2.1.2 above), and the U-form of the first word ends in CCV#, then the M-form of the first word corresponds to the U-form via metathesis of the final CV sequence.

(67) Leti C₁VC₂ → C₁C₂V / _CV (van Engelenhoven 2004:91)

U-form		M-form		
<i>emna</i>	+	<i>nama</i>	←	<i>eman nama</i> 'moray + tongue'
<i>plilki</i>	+	<i>ruri</i>	←	<i>plilik ruri</i> 'k.o. lizard + bone'
<i>trutnu</i>	+	<i>uata</i>	←	<i>trutun uata</i> 'Blurr-fish + head'

There is a process of consonant assimilation which operates in Leti which provides evidence that the underlying form of CCV final U-forms is in fact the M-form. A penultimate /d/ or /l/ in the M-form assimilates to a final /n/ in the U-form. Likewise, a penultimate /d/ in the M-form assimilates to a U-form final /l/. Examples are given in (68) below.

(68) Leti Consonant Assimilation (van Engelenhoven 2004:74)

M-form		U-form		
<i>βenan</i>	→	<i>βenna</i>		'kill'
<i>edan</i>	→	<i>enna</i>		'pineapple'
<i>βulan</i>	→	<i>βulla</i>		'moon'
<i>sudal</i>	→	<i>sulla</i>		'prop'

Given a U-form such as *enna* 'pineapple', it is impossible to predict whether the M-form will be **enan* or *edan*. Likewise, given the U-form *βulla* either the correct M-form *βulan* or the incorrect form **βudal* can be derived. This provides evidence that the M-form in such examples is morphologically underlying with the U-form being formed by metathesis of the final VC → CV.

Another kind of internal metathesis occurs when the antepenultimate and penultimate vowels of the first word are identical; a V_αV_αCV_β final word. In the M-form the final consonant and vowel metathesise and the penultimate vowel is deleted. Like the process of VC → CV metathesis shown in (67) above, this only occurs when the second word begins with CV. Examples are given in (69) below.

(69) Leti $V_{\alpha}V_{\alpha}CV_{\beta} \rightarrow V_{\alpha}V_{\beta}C/_CV$ (van Engelenhoven 2004:91)

U-form		M-form	
<i>iina</i>	+ <i>nama</i>	→ <i>ian nama</i>	'fish + tongue'
<i>ruuni</i>	+ <i>ruri</i>	→ <i>ruin ruri</i>	'dugong + bone'
<i>maanu</i>	+ <i>uata</i>	→ <i>maun uata</i>	'bird + head'

2.4.2.1.4 External Metathesis When the second word begins with a consonant followed by a non-high vowel and the first word ends in VV or VCV where the final V is a high vowel, the initial consonant of the second word and the final vowel of the first word metathesise. According to the regular phonetic rule of glide formation, the final V of the first word becomes a glide. This process is similar to the process of phonological metathesis of glides found in Selaru (§2.2).

(70) Leti $V[+HI]\#CV\text{-HI} \rightarrow CV[+HI]V\text{-HI}$ (van Engelenhoven 2004:91)

U-form		M-form	
<i>srui</i>	+ <i>nama</i>	→ <i>sruniama</i>	[srunj'ama] 'garfish + tongue'
<i>lau</i>	+ <i>nama</i>	→ <i>lanuama</i>	[lanw'ama] 'civet + tongue'
<i>niki</i>	+ <i>nama</i>	→ <i>nikniama</i>	[niknj'ama] 'bat + tongue'
<i>asu</i>	+ <i>nama</i>	→ <i>asnuama</i>	[asnw'ama] 'dog + tongue'

2.4.2.1.5 Apocope Apocope (a.k.a truncation or vowel deletion) occurs in two environments in Leti. Firstly, apocope occurs when the first segment of the second word is a high vowel (but not a glide), no matter the shape of the first word. Examples are shown in (71) below:

(71) Leti $V \rightarrow \emptyset /_V[+HI]$ (van Engelenhoven 2004:91)

U-form		M-form	
<i>srui</i>	+ <i>irnu</i>	→ <i>sru irnu</i>	'garfish + nose'
<i>lau</i>	+ <i>irnu</i>	→ <i>la irnu</i>	'civet + nose'
<i>niki</i>	+ <i>irnu</i>	→ <i>nik irnu</i>	'bat + nose'
<i>asu</i>	+ <i>irnu</i>	→ <i>as irnu</i>	'dog + nose'
<i>ruuni</i>	+ <i>irnu</i>	→ <i>ruun irnu</i>	'dugong + nose'
<i>maanu</i>	+ <i>irnu</i>	→ <i>maan irnu</i>	'bird + nose'
<i>plilki</i>	+ <i>irnu</i>	→ <i>plilk irnu</i>	'k.o. lizard + nose'
<i>trutnu</i>	+ <i>irnu</i>	→ <i>trutn irnu</i>	'Blurr-fish + nose'

Secondly apocope takes place when the first word ends in VCV# or VV# (but not VVCV), and the second word begins with a high vowel, as seen in (71) above, or a consonant (including glides) followed by a high vowel, as shown in (72) below.

(72) Leti $V \rightarrow \emptyset / _ (C)V[+HI], / _ VV$ (van Engelenhoven 2004:91)

U-form			M-form	
<i>sru</i>	+	<i>ruri</i>	→	<i>sru ruri</i> ‘garfish + bone’
<i>lau</i>	+	<i>ɥata</i>	→	<i>la ɥata</i> ‘civet + head’
<i>niki</i>	+	<i>ɥata</i>	→	<i>nik ɥata</i> ‘bat + head’
<i>asu</i>	+	<i>ruri</i>	→	<i>as ruri</i> ‘dog + bone’

Secondly, apocope takes place when the first word ends in VV or VCV with a non-high final vowel and the first vowel of the second word is also a non-high vowel. This is shown in (73) below.

(73) Leti Apocope: $V[-HI] \rightarrow \emptyset / _ (C)V[-HI]$ (van Engelenhoven 2004:91)

U-form			M-form	
<i>nia</i>	+	<i>aana</i>	→	<i>ni aana</i> ‘snake + baby’
<i>kusa</i>	+	<i>aana</i>	→	<i>kus aana</i> ‘cat + baby’
<i>iina</i>	+	<i>aana</i>	→	<i>ian aana</i> ‘fish + baby’
<i>emna</i>	+	<i>aana</i>	→	<i>emn aana</i> ‘moray + baby’
<i>nia</i>	+	<i>nama</i>	→	<i>ni nama</i> ‘snake + tongue’
<i>kusa</i>	+	<i>nama</i>	→	<i>kus nama</i> ‘cat + tongue’

2.4.2.1.6 Summary The different processes which operate in Leti to derive the M-form from the U-form are summarised in Table 2.4 below. This table is followed by Table 2.5 which shows instantiated examples of each of these processes. Metathesis in Leti is one of several phonological processes which operate in the language. Other processes include apocope and glide formation.

Which form is the underlying form is not consistent in Leti. In some cases the U-form must be posited as underlying as the quality of the final vowel cannot be recovered after apocope, while in other cases the M-form must be posited as underlying as the quality of the penultimate consonant cannot be recovered after metathesis. This is different to the Amaras data in which the U-form must be posited as underlying due to processes of vowel assimilation (§4.2.3) and consonant deletion (§4.2.2) which take place in the M-form.

Table 2.4: Leti U-form and M-forms

U-form↓ before:	CCV	CV+HI	C ₂ V-HI	V+HI	V-HI
V(C)V	V(C)V	V(C)	V(C)	V(C)	V(C)
V(C)V[+HIGH]	V(C)V	V(C)	V(C)C ₂ V	V(C)	V(C)V
V{ $\frac{C}{V}$ }CV	V{ $\frac{C}{V}$ }CV	V{ $\frac{C}{V}$ }VC	V{ $\frac{C}{V}$ }VC	V{ $\frac{C}{V}$ }C	V{ $\frac{C}{V}$ }C
V{ $\frac{C}{V}$ }CV[+HIGH]	V{ $\frac{C}{V}$ }CV	V{ $\frac{C}{V}$ }VC	V{ $\frac{C}{V}$ }VC	V{ $\frac{C}{V}$ }C	V{ $\frac{C}{V}$ }CV

□ apocope, ■ glide formation, ■ ext. metathesis, ■ metathesis

Table 2.5: Leti Instantiated U-form and M-forms

U-form↓	before:	CCV	CV[+HI]	C ₂ V-HI	V[+HI]	V-HI	
VV	<i>nia</i>	<i>nia</i>	<i>ni</i>	<i>ni</i>	<i>ni</i>	<i>ni</i>	'snake'
VV[+HIGH]	<i>lau</i>	<i>lau</i>	<i>la</i>	<i>laC₂ɥ</i>	<i>la</i>	<i>laɥ</i>	'civet'
VCV	<i>kusa</i>	<i>kusa</i>	<i>kus</i>	<i>kus</i>	<i>kus</i>	<i>kus</i>	'cat'
VCV[+HIGH]	<i>asu</i>	<i>asu</i>	<i>as</i>	<i>asC₂ɥ</i>	<i>as</i>	<i>asɥ</i>	'dog'
VVCV	<i>iina</i>	<i>iina</i>	<i>ian</i>	<i>ian</i>	<i>iin</i>	<i>iin</i>	'fish'
VVCV[+HIGH]	<i>maanu</i>	<i>maanu</i>	<i>maun</i>	<i>maun</i>	<i>maan</i>	<i>maanɥ</i>	'bird'
VCCV	<i>emna</i>	<i>emna</i>	<i>eman</i>	<i>eman</i>	<i>emn</i>	<i>emn</i>	'moray eel'
VCCV[+HIGH]	<i>plilki</i>	<i>plilki</i>	<i>plilik</i>	<i>plilik</i>	<i>plilk</i>	<i>plilkɥ</i>	'k.o. lizard'

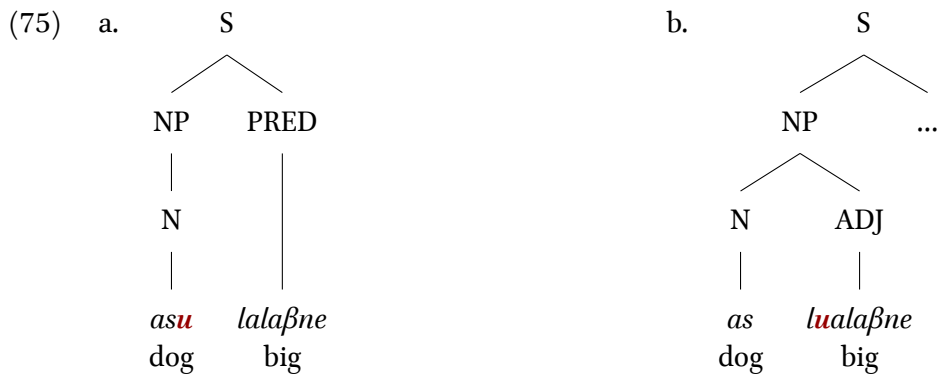
□ apocope, ■ glide formation, ■ ext. metathesis, ■ metathesis

2.4.2.2 Functions

The M-form of words occur in Leti in two main environments: when the word is non-final in the noun phrase and when it is indefinite. The enclitic =*e* in many of the following examples replaces the final /a/ of the word to which it attaches. It is a kind of definiteness marker (van Engelenhoven 2004:160). Words which do not end in /a/ do not occur with this enclitic.

2.4.2.2.1 Modification All non-final words in the noun phrase occur in the M-form. This is the same function as that of the Rotuman M-forms and similar to the function of metathesis in the noun phrase in Amarasí (Chapter 6). In (74a) below, the noun *asu* is in the U-form and the adjective is predicative, as shown in the tree in (75a). In (74b) below, the noun is in the M-form, and the adjective is attributive, as shown in the tree in (75b).

- (74) a. *asu lalaβne*
asu *la~laβna=e*
 dog\U RED~big=DEF
 'The dog is big.'
- b. *aslualaβne*
asu *la~laβna=e*
 dog\M RED~big=DEF
 'The big dog.'



Any non-final word of the noun phrase, including adjectives and adverbs also occur in the M-form. This is shown in example (76) below in which a noun, adjective and adverb all occur in the M-form when the final word of the noun phrase is a demonstrative.

- (76) *kus mēmetam daβar dí*
kusa mē~metma daβra dí
cat\M RED~black\M very\M DEM1
 ‘This very black cat.’ (van Engelenhoven 2004:177)

However, nouns followed by a numeral do not occur in the M-form, as shown in (77). van Engelenhoven (2004:176) analyses verbs as constituting independent heads within the noun phrase. This is consistent with the Amarasi data discussed in §6.5.1 in which I show that (cardinal) numerals do not induce M-forms on nouns in Amarasi.

- (77) *asualaβna βɔrue*
asu la~laβna βɔrua=e
dog\M RED~big\U two=DEF
 ‘The two big dogs.’ (van Engelenhoven 2004:176)

2.4.2.2.2 Indefinite The second function of the M-form in Leti is to mark words as indefinite. Like Rotuman, it is the metathesised form of words which is indefinite and the unmetathesised form which is definite.

This is shown by the contrast between examples (78) and (79) below. In (78), the noun *iina* ‘fish’ is definite, and thus occurs in the U-form. In (79), however, it is indefinite and occurs in the M-form having undergone internal metathesis.

- (78) *rɔɔne iine βalio.*
r-ɔɔna-e iina-e βali-o
3PL-eat\U-DEF fish\U-DEF also-INDICATIVE
 ‘They eat the fish also.’
- (79) *rɔɔne ian βalio.*
r-ɔɔna-e iina βali-o
3PL-eat\U-DEF fish\M also-INDICATIVE
 ‘They eat a fish also.’ (van Engelenhoven 1996:210)

Verbs also occur in the M-form when they are ‘indefinite’. Such ‘indefinite’ verbs have a semantics indicating that the action specified by the verb was not properly carried out, translated by van Engelenhoven with the phrase ‘kind of’. This use seems comparable to the imperfective aspect.

An example of such an ‘indefinite’ verb can be seen with the verb *rɔɔna* ‘eat’ in example (80) below, which has undergone apocope. This example contrasts with the ‘definite’ verb in

example (78) above. When both verb and noun are indefinite, both occur in the M-form, as shown in (81).

(80) *rɔɔn* *iine* *βalio*.
 r-ɔɔna iina-e βali-o
 3PL-eat\M fish\U-DEF also-INDICATIVE
 ‘They kind of eat the fish also.’ (van Engelenhoven 1996:210)

(81) *rɔɔn* *ian* *βalio*.
 r-ɔɔna iina βali-o
 3PL-eat\M fish\M also-INDICATIVE
 ‘They kind of eat a fish also.’ (van Engelenhoven 1996:209)

Metathesis, as one of the processes by which the M-form is derived, has two functions in Leti: it marks following nominal modifiers as attributive and it is employed to mark words as indefinite. Both these functions of metathesis also occur in Rotuman.

2.4.2.3 Analyses

My discussion in this section focusses on the analyses of Leti internal metathesis (see section 2.4.2.1.3) that have been proposed, as this is the phenomenon most similar to the Uab Meto data. The other processes are discussed where relevant.

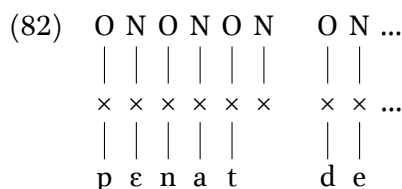
The two main analyses of Leti metathesis are van der Hulst and van Engelenhoven (1995), framed within Government Phonology, and Hume (1998) framed within Correspondence Theory, a theory related to Optimality Theory. I discuss each in turn.

2.4.2.3.1 van der Hulst and van Engelenhoven (1995) In the account of van der Hulst and van Engelenhoven (1995) syllable structure in Leti is strictly comprised of an onset followed by a nucleus (ON), essentially CV. Initial consonant clusters, as found for instance in *βrɔɔna* ‘axe’, are analysed as underlyingly ONO, with the nucleus slot unfilled. Likewise, words with a coda, such as *pena*, the M-form of *penat* ‘grass’, are analysed as having an unfilled final nucleus slot, thus *penatN*. Unfilled nuclei are permitted within Government Phonology so long as the following nucleus is filled.

Metathesis is analysed by assigning those words which display metathesis alternates a template which is one syllable larger than the number of surface syllables. Consonant and vowel melodies are inserted into the oversized template from left to right.

Recall from §2.4.2.2, that one of the environments in which metathesis occurs is when the head noun of a noun phrase is followed by another word which also belongs to the noun phrase. When this other word follows, a final empty nucleus is licensed by the presence of the filled nucleus in the next word. The consonants and vowels thus map unproblematically

onto the oversized template. This produces the metathesised M-form *penat* from *penta* ‘grass’, as shown in (82) below:



According to van der Hulst and van Engelenhoven (1995) licensing of an empty nucleus cannot occur across a phonological phrase boundary (i.e. noun phrase boundary). Thus, when there is no following word within the same phrase, there is also no following filled vowel nucleus. This forces the final vowel of a word such as *penta* ‘grass’ to map onto the final nucleus slot, after which regular left-to-right mapping occurs, as shown in (83a) which can be contrasted with (83b) with an unlicensed empty final nucleus which should not occur phrase finally.



On the other hand, words which do not have metathesis alternates, such as *niki* ‘bat’, are simply assigned templates with the same number of underlying nuclei as surface nuclei.

Hume (1998) finds several problems with the account of Leti metathesis given by van der Hulst and van Engelenhoven (1995). Problems include: the difficulty of accounting for words such as *βρωνα* ‘axe’ with initial consonant clusters if one assumes a strictly onset-nucleus syllable structure, the level of stipulation required to account for words such as *lau* ‘civet’ which contain vowel sequences, as well as the question of why there should be a systematic mismatch between segmental melodies and templatic positions in a large part of the lexicon. I refer the reader to Hume (1998:179ff) for a more detailed account of these problems.

2.4.2.3.2 Hume (1998) Hume (1998) provides an account of Leti metathesis under Correspondence Theory based on van Engelenhoven’s data. Hume identifies two different types of internal metathesis; phrase medial and phrase final. She gives the equivalent of Table 2.6 below summarising these two kinds of metathesis.

Phrase medial metathesis only occurs before consonant clusters, as in *ulti prai* ‘skin for a drum’ ← *ulit* + *prai*. Hume analyses such metathesis as resulting from the constraint *COMPLEX, being ranked more highly than the constraints CRISP-EDGE and LINEARITY. These

Table 2.6: Phrase medial and final metathesis in Leti (Hume 1998:148)


Phrase-medial			
<i>ukra ppalu</i>	'finger, toe + bachelor = index finger'	<i>ukar + ppalu</i>	
<i>ukra mɔani</i>	'finger, toe + man = middle finger'	<i>ukar + muani</i>	
cf. <i>ukar laβna</i>	'finger, toe + big = thumb, big toe'	<i>ukar + laβan</i>	
Phrase-final	cf. Phrase-medial		
<i>urnu</i>	<i>urun mɔa</i> 'breadfruit + Moanese'	<i>urun + mɔa</i>	
<i>bubru</i>	<i>bubur βetra</i> 'porridge + maize'	<i>bubur + βetar</i>	
<i>βuura</i>	<i>βuar laβna</i> 'mountain, to be big'	<i>βuar + laβan</i>	

constraints are given in (84) below. In my analysis of Amarasi metathesis I also make use of the constraint CRISP-EDGE (Chapter 5).

- (84) a. *COMPLEX (tautosyllabic consonant clusters are prohibited)
 b. LINEARITY (No metathesis)
 c. CRISP-EDGE (Morpheme and syllable boundaries are aligned)

The ranking of these constraints in the order *COMPLEX > CRISP EDGE > LINEARITY produces the table in (85), in which *ulti prai* is selected as the optimal candidate. Put in general terms, this table states that it is better to reorder the segments of a word than it is to have a cluster of three consonants.

(85)

Input: {ulit+prai}	*COMPLEX	CRISP-EDGE	LINEARITY
a. u.lit. prai	*!		
b. ul.ti. pra.i	*!		*
c.  ul.tip.ra.i		*	*


Hume points out that this analysis would incorrectly predict that the second word, not the first word should metathesise to produce the unattested ***ulitpari*. Hume deals with this by utilising the constraint O-CONTIGUITY, which states that vowels may only shift to the outer edge of a morpheme. I refer the reader to Hume (1998:165ff) for a complete discussion of the operation of this constraint.

Hume analyses phrase final metathesis based on the fact “[...] that in phrase final position all morphemes end in a vowel.” (Hume 1998:163). After a few notes on the make-up of the phonological and syntactic phrase in Leti, Hume introduces the constraint ALIGN-PHRASE, given in (86) below.

- (86) ALIGN-PHRASE: (Φ, Rt; Vowel, Rt)
 Align the right edge of a phonological phrase with a vowel.

This constraint is ranked more highly than LINEARITY, so the metathesised form *kunsi* ‘key’ is selected as the output phrase finally, as in (87). In plain language, (87) states that consonant-vowel metathesis is better than having a phrase final consonant.

(87)

Input: {kunis}	ALIGN-PH	LINEARITY
a. kunis	*!	
b.  kungsi		*

Hume (1998) analyses phrase medial metathesis as a strategy to avoid consonant clusters and phrase final metathesis as a strategy to have a phonological phrase end with a vowel.

2.4.2.4 Summary

Both van der Hulst and van Engelenhoven (1995) and Hume (1998) analyse metathesis in Leti as a phonologically conditioned phenomenon. According to van der Hulst and van Engelenhoven (1995) metathesis occurs when a word with an oversized template occurs before another word, while according to Hume (1998) it is a strategy to avoid consonant clusters or word final consonants.

However, neither phonological account adequately accounts for metathesis alternations which differ purely in semantics, such as (78) and (79), repeated below as (88) and (89). In each of these examples the definiteness of the noun for ‘fish’ is conveyed by metathesis.⁵

(88) *rɔɔne* *iine* *βalio*.
 r-ɔɔna-e iina-e βali-o
 3PL-eat\U-DEF fish\U-DEF also-INDICATIVE
 ‘They eat the fish also.’

(89) *rɔɔne* *ian* *βalio*.
 r-ɔɔna-e iina βali-o
 3PL-eat\U-DEF fish\M also-INDICATIVE
 ‘They eat a fish also.’

(van Engelenhoven 1996:210)

It would be possible to follow Hume’s analysis, and argue that there is actually a phonological phrase boundary between the penultimate and final words in (88), but not in (89). However, to my current knowledge there is no evidence independent of metathesis for the existence of such a phonological phrase boundary between these two words. Such evidence could include different intonation or stress patterns, or whether a pause is permitted between the two words.

In the absence of such independent evidence for phonological phrase boundaries, an analysis of Leti metathesis based on the presence of phrase boundaries would become circular: metathesis occurs at phrase boundaries, phrase boundaries are signalled by metathesis.

⁵ Arguments that would adduce the definiteness marker *-e* in their account of metathesis, do not stand up to scrutiny. This indexer only occurs on words which end in /a/; in which case it replaces this vowel (van Engelenhoven 1996:207; 2004:159-61). Alternations such as *maanu/maun* ‘bird’ never occur with this indexer.

Metathesis in Leti has developed beyond that attested in its neighbour Luang (§2.2). In Luang metathesis appears analysable as a strategy to join two words into a single rhythm segment. While this analysis may also be possible for some instances of Leti metathesis, Leti metathesis has also become associated with the morphological marking of indefiniteness in the noun phrase and of aspect in the verb phrase.

There are a number of similarities between the Leti data and the Amarasi data. Firstly, in both languages a single U-form can have a number of different M-forms depending on the shape of the U-form and the environment in which it appears. Secondly, in both languages M-forms are used to mark non-final words within the noun phrase.

2.4.3 Roma

Roma is an Austronesian language spoken on an island to the north-east of Timor (see Figure 2.1). It is closely related to Leti. My discussion of Roma is based on Steven (1991), who focusses on describing the phonology of the language.

2.4.3.1 Forms

Roma has three different processes of metathesis. Two of these metathesis processes are phonologically conditioned and one is morphological. Firstly, Roma has a process of phonologically conditioned metathesis in which a high vowel or glide metathesises with a following consonant. This process is similar to the processes in Selaru (§2.2) and Luang (§2.2). Examples are given in (90) below.

(90) Roma Phonological Metathesis: (Steven 1991:63f)

<i>aw-</i>	+	<i>karar</i>	→	<i>akwarar</i>	[ʔa'k ^w arar]	'I cry'
<i>mw-</i>	+	<i>karar</i>	→	<i>mkwarar</i>	[m̩'k ^w arar]	'you (sg.) cry'
<i>mj-</i>	+	<i>karar</i>	→	<i>mkjarar</i>	[m̩'k ^j arar]	'you (pl.) cry'
<i>n-mai</i>	+	<i>me</i>	→	<i>namamje</i>	[n̩'mamje]	'he came in order to'
<i>aniku</i>	+	<i>kaka</i>	→	<i>anikkwaka</i>	[ʔanik'k ^w aka]	'my older brother'

Secondly, /h/ obligatorily metathesises with a preceding consonant in Roma. One example is *am-* 'PL.EXCL + *hapa* 'plant' → *ahmapa* 'we (excl.) plant' (Steven 1991:69).

Thirdly, Roma has a process of final VC → CV morphological metathesis. This process is similar to the same process described for Leti. This process only affects consonant final nouns in Roma. Examples are given in (91) below.

(91) Roma VC → CV metathesis Steven (1991)

U-form	M-form	gloss	U-form	M-form	gloss
<i>hiwit</i>	→ <i>hiwti</i>	'machete'	<i>snjinin</i>	→ <i>snjinni</i>	'song'
<i>ulit</i>	→ <i>ulti</i>	'skin'	<i>jair</i>	→ <i>jari</i>	'wave'
<i>ihan</i>	→ <i>ihna</i>	'fish'	<i>ori</i>	→ <i>oir</i>	'water'
<i>hurta</i>	→ <i>hurat</i>	'letter'	<i>hljatu</i>	→ <i>hljaut</i>	'story'

Evidence that the consonant final forms are underlying comes from processes of consonant assimilation which occur after metathesis. These processes include devoicing of medial /d/ and assimilation of final /l/ and /r/. (These processes of consonant assimilation after metathesis are similar to those described for Leti on page 45.) Examples of Roma consonant assimilation are given in (92) below.

(92) Roma Consonant Assimilation Steven (1991)

U-form	M-form	gloss
<i>madar</i>	→ <i>matta</i>	'cuscus'
<i>odan</i>	→ <i>otna</i>	'drying rack'
<i>wulan</i>	→ <i>wulla</i>	'moon'
<i>melan</i>	→ <i>mella</i>	'mouse'
<i>tjalan</i>	→ <i>tjalla</i>	'road'

2.4.3.2 Functions

Only nouns undergo metathesis in Roma. Verbs occur with a single consonant final form. For nouns, metathesis has two main functions. Firstly, subjects undergo metathesis while objects occur unmetathesised. Metathesis is thus a subject marker or marker of nominative case. Compare the examples in (93) below.

(93) Roma metathesis: (Steven 1991:67)

- a. *N-la n-dahal hiwit-a.*
3SG-go 3SG-search machete\U-EPENTH
'He searched for a machete'
- b. *Hiwti ta-walli.*
machete\M NEG-exist
'There wasn't any machetes.'

In (93a) the noun *hiwit* is an object and thus occurs unmetathesised. The final vowel found after this object is an epenthetic vowel which occurs after all phrase final consonants (Steven 1991:69f). In (93b) the same noun is the subject and thus occurs metathesised.

Secondly, nouns occur metathesised in isolation (including the citation form) but unmetathesised when an attributive modifier follows. Metathesis thus signals that the noun is unmodified; a kind of anti-construct form. This is the same function as the prefix *o-* in Tolaki (discussed in §2.5.2.1). Steven (1991) gives the examples in (94) below.

- (94) Roma Unmetathesised Forms in the Noun Phrase: (Steven 1991:67)

<i>horarna</i>					'clothes' (citation)
<i>horaran</i>	+	<i>ehi</i>	→	<i>horaran ehi</i>	'these clothes'
<i>krahna</i>					'house' (citation)
<i>krahan</i>	+	<i>popotna</i>	→	<i>krahan popotna</i>	'large house'

However, if a genitive pronoun or the locative marker *la* precedes the noun it obligatorily occurs in the unmetathesised form even if a modifier follows. Steven (1991) gives the examples in (95) below.

- (95) Roma Metathesis after Locative or Possessive Pronouns: (Steven 1991:67)

<i>aniku</i>	+	<i>horaran</i>	+	<i>ehi</i>	→	<i>aniku horarna ehi</i>	'these clothes of mine'
<i>la</i>	+	<i>krahan</i>	+	<i>popotna</i>	→	<i>la krahna popotna</i>	'at the large house'

Similarly, before the enclitics =*ei* DEF and =*ida* INDEF nouns obligatorily occur in the M-form. Final high vowels then become glides and final /a/ is deleted. Glide formation and deletion of /a/ are both regular process in Roma which occur whenever a vowel initial enclitic or suffix attaches to a host which ends in a vowel (Steven 1991:78f). Examples are given in (96) below.

- (96) Roma Metathesis before Vowel Initial Enclitics: (Steven 1991:67)

<i>hiwit</i>	+	= <i>ei</i>	→	<i>hiwtiei</i>	→	<i>hiwtjei</i>	'the machete'
<i>horaran</i>	+	= <i>ei</i>	→	<i>horarnaei</i>	→	<i>horarnei</i>	'the clothes'
<i>hljaut</i>	+	= <i>ida</i>	→	<i>hljatuida</i>	→	<i>hljatwida</i>	'a story'

In Roma metathesis marks the subject of a verb phrase as well as signalling that a noun is unmodified. Metathesis is also obligatory when a noun occurs after possessive pronouns, locative *la* or before vowel initial enclitics.

There are two similarities between metathesis in Roma and in Amarasi. Firstly, metathesis interacts with attributive modifiers. In Roma metathesis signals lack of an attributive modifier while in Amarasi metathesis signals the presence of an attributive modifier. Secondly, in both Roma and Amarasi metathesis is obligatory before vowel initial enclitics.

2.4.4 Mambae

Mambae is a cluster of related Austronesian languages/dialects spoken in Timor-Leste (East Timor), from the north coast around Dili all the way to the south coast (see Figure 2.1). The distribution and function of metathesis appears to vary across the Mambae area, with metathesis reported as more common in the south and less common in the north. Data in this section is from a south-eastern variety of Mambae, known as Mambae Same.

Data is drawn from Grimes et al. (2014), as well as fieldwork carried out as part of a 2012 language documentation workshop in Kupang, which included a Mambae speaker. Although current knowledge of Mambae metathesis is preliminary, it is worth reporting what is known.

 Table 2.7: Mambae Metathesised Citation Forms[†]

PMP	Mambae	gloss	PMP	Mambae	gloss
* asu	<i>aus</i>	‘dog’	* kutu	<i>uut</i>	‘louse’
* balabaw	<i>laoh</i>	‘mouse, rat’	* lima	<i>liim</i>	‘five’
* batu	<i>haut</i>	‘stone’	* maRuqanay	<i>maen</i>	‘man’
* bituqən	<i>hiut</i>	‘star’	* matay	<i>maet</i>	‘die’
* binai	<i>hiin</i>	‘woman’	* pija	<i>fiil</i>	‘how many’
* daRaQ	<i>laar</i>	‘blood’	* qahəlu	<i>aul</i>	‘pestle’
* əsa	<i>iid</i>	‘one’	* quzan	<i>uus</i>	‘rain’
* hapuy	<i>aef</i>	‘fire’	* talih	<i>tael</i>	‘rope’
* həsi	<i>siis</i>	‘meat’	* tasik	<i>taes</i>	‘sea’
* inum	<i>eun</i>	‘drink’	* təlu	<i>teul</i>	‘three’
* kami	<i>aem</i>	‘we (excl.)’	* tunu	<i>tuun</i>	‘roast’
* kita	<i>iit</i>	‘we (incl.)’	* zalan	<i>saal</i>	‘path’

[†] The regular sound changes attested from PMP to Mambae in this table and Table 2.8 are: *b > h, *ŋ > k, *j > l, *p > f, *R > r/Ø, *z > s, *ə > e/a, *map > b *ay/*ai/*aqi > e and *aw > o. (If the forms for PMP *əsa > *iid* ‘one’ are related, the sound changes would be irregular, though paralleled in this form by some other languages of the region.) After metathesis word final /a/ assimilates to the quality of the previous vowel and /i/ is lowered to /e/ after /a/.

Table 2.8: Mambae Unmetathesised Citation Forms

PMP	Mambae	gloss	PMP	Mambae	gloss
* ama	<i>ama</i>	‘father’	* ma-qitəm	<i>meta</i>	‘black’
* bulu	<i>hulu</i>	‘hair’	* ma-putiq	<i>buti</i>	‘white’
* hikan	<i>ikan</i>	‘fish’	* mata	<i>mata</i>	‘eye’
* ijuŋ	<i>ilu</i>	‘nose’	* muntaq	<i>muta</i>	‘vomit’
* ina	<i>ina</i>	‘mother’	* ŋajan	<i>kala</i>	‘name’
* lima	<i>lima</i>	‘hand, arm’	* qaRta	<i>ata</i>	‘servant’
* ma-iRaQ	<i>mera</i>	‘red’	* susu	<i>susu</i>	‘breast’

2.4.4.1 Forms

On initial inspection it is clear that final consonant-vowel metathesis has operated at least diachronically in Mambae. On a single 226 item word-list there are 38 disyllabic Mambae words which are inheritances from Proto-Malayo-Polynesian (PMP). Of these, 24 are cited metathesised and 14 are cited unmetathesised. Forms cited metathesised compared to their

Proto-Malayo-Polynesian etyma are given in Table 2.7 above and forms cited unmetathesised compared to their Proto-Malayo-Polynesian etyma are given in Table 2.8.

Metathesis in Mambae is currently known to be associated with two other phonological processes. The first is assimilation of final /a/ to the quality of the previous vowel after metathesis. This is shown in (97) below. (Where the unmetathesised form is not (yet) known to occur, this is indicated with an asterisk.) Such assimilation also occurs in Amarasi.

(97) Mambae $V_\alpha Ca_\beta \rightarrow V_\alpha V_\alpha C$

PMP	U-form	M-form	
*binai	<i>hina</i> →	<i>hiin</i>	‘woman’
*kita	<i>ita</i> →	<i>iit</i>	‘we (incl.)’
*lima	<i>lima</i> →	<i>liim</i>	‘hand, arm’/‘five’
*pija	<i>fila</i> →	<i>fil</i>	‘how many’
	<i>sila</i> →	<i>siil</i>	‘return’
*quzan	* <i>usa</i> →	<i>uus</i>	‘rain’
*Rumaq	<i>uma</i> →	<i>uum</i>	‘house’

Secondly, word final /i/ usually lowers to /e/ after metathesis when the penultimate vowel is /a/. Examples are given in (98) below, all of which can be compared to the pairs *nori* ‘teaching, lesson’ → *noir* ‘teach’ and *foni* ‘(rooster’s) crow’ → *foin* ‘to crow’. in which /i/ does not lower after /o/. Such examples can also be compared with words such as *araik* ‘lower, humble’, *sabai~sabait* ‘cloud’ and *tais* ‘no, not’, all of which end in the sequence /aiC/.⁶

(98) Mambae $aCi \rightarrow aeC$

PMP	U-form	M-form	
*babuy	* <i>hahi</i> →	<i>haeh</i>	‘pig’
*hapuy	* <i>afi</i> →	<i>aef</i>	‘fire’
*kami	<i>ami</i> →	<i>aim ~ aem</i>	‘we (excl.)’
*talih	<i>tali</i> →	<i>tael</i>	‘rope’
*tasik	* <i>tasi</i> →	<i>taes</i>	‘sea’

2.4.4.2 Functions

When one moves beyond isolated words in the citation form, one finds that some words have M-forms and U-forms. In some cases Grimes et al. (2014) lists both variants and it is hard to discern any difference in use between the two in the example sentences given. Such examples include *lama ~ laam* ‘tongue’ as well as *kuku ~ kuuk* ‘mouth, lips; edge’. However, a closer examination of the data allows us to detect two patterns in the use of both forms. More data is necessary to determine how productive each of these patterns might be.

⁶ Sequences of underlying /ai/ in unmetathesised forms are often realised as [əi] with the first vowel centralised (Grimes et al. 2014:6).

Firstly, metathesis plays a role in compounding and other phrase formation processes, with the first element of a phrase tending to occur in the M-form and the final element in the U-form. Examples of unmetathesised words phrase finally are given in (99) below. All these words appear to be metathesised in the citation form.

(99) Mambae Phrase Formation Grimes et al. (2014)

citation	phrase	gloss	trans
<i>hiin</i>	<i>aan hina</i>	child female	'girl, daughter'
<i>hiin</i>	<i>taes hina</i>	sea female	'north coast'
<i>maen</i>	<i>taes mane</i>	sea male	'south coast'
<i>haut</i>	<i>ulu hatu</i>	head stone	'head, skull'
<i>iid</i>	<i>liim nai nida</i>	five and one	'six'
<i>teul</i>	<i>liim nai telu</i>	five and three	'eight'
<i>faat</i>	<i>liim nai fata</i>	five and four	'nine'

It is not a strict rule that phrase final elements are always in the U-form. Thus, in addition to *taes hina* 'north coast' and *taes mane* 'south coast', we also find *taat hiin* 'grandmother' and *taat maen* 'grandfather'. The degree of lexicalisation could play a role, with lexicalised phrases occurring with M-form initial elements and U-form final elements.

Finally, there are a number of words which appear in both forms in isolation. In each case the meaning of the pair is different, though (historically) related. Some examples are given in (100) below.

(100) Mambae U-form/M-form Pairs Grimes et al. (2014)

	U-form	M-form	
'hand, arm'	<i>lima</i>	<i>liim</i>	'five'
'year, age, birthday'	<i>tona</i>	<i>toon</i>	'year'
'gather, come together'	<i>futu</i>	<i>fuut</i>	'with'
'teaching, lesson'	<i>nori</i>	<i>noir</i>	'teach'
'long ago, previously'	<i>muna</i>	<i>muun</i>	'before'
'death'	<i>mate</i>	<i>maet</i>	'die, be dead'

The final three pairs given in (100) above have a verbal meaning when metathesised and a more nominal meaning when unmetathesised. It is unknown how many other similar verbal and nominal pairs differ only in metathesis in Mambae, but at this stage it appears to be a regular pattern.

Examples of both the unmetathesised and metathesised forms of *mate* ~ *maet* 'die, be dead; death' are given in (101) below, an excerpt from a narrative about the war for independence in Timor-Leste. The unmetathesised forms appear to be used in a more active (process) sense while the metathesised forms are used in a more stative (result) sense.

(101) Mambae narrative:

- a. *mas ni momentu kidura*
but LOC time DISTAL
'But at that time.'
- b. *artuub rini fe mate*
person many REL die\U
'many people died.'
- c. *man tilu ni ai lala met mate*
like ? LOC tree inside complete die\U
'(It was the) same in the jungle (they) all died.'
- d. *maa rende telo met mate*
come surrender finish complete die\U
'(They) came and surrendered and died.'
- e. *i artuub rini fe mate*
then person many REL die\U
'And many people died.'
- f. *ni uum seer maet, ni familia seer maet met*
LOC house several die\M LOC family several die\M also
'Several were dead in a house, several were also dead in a family.'
- g. *ubu kiid fe mori*
CLASSIFIER one REL live
'(Maybe only) one person lived.'
- h. *maet ba loos deslaa kilat hua*
die\M NEG because weapon fruit
'Dead not because of rifle bullets.'
- i. *mas maet deslaa moras, i namaa ba nei*
but die\M because sick and food NEG EXIST
'but dead because of sickness and lack of food.'

Metathesis in Mambae appears to be at least semi-productive. There are pairs of semantically related words which are also phonologically related by metathesis.

There are many similarities between metathesis in Mambae and Amarasi. Firstly, in Amarasi any final /a/ also assimilates to the quality of the previous vowel after metathesis. One example is *nima* → *nim* 'five' (§4.2.3.2). Some other varieties of Uab Meto, such as Baikeno, also attest lowering of /i/ to /e/ after metathesis.

Secondly, there is the tendency in Mambae for using metathesised forms when they are non-initial in a compound and unmetathesised forms when they are final. In Amarasi this is not a tendency but a rule of the grammar (Chapter 6). In Amarasi metathesised nominals are a construct form used before attributive modifiers, and unmetathesised nominals are used phrase finally.

Thirdly, in Mambae unmetathesised forms are associated with verbs and metathesised forms are associated with nouns. In Amarasi the default form for nominals is the unmetathesised form while the default form for verbs is the metathesised form (§7.1.1).

2.4.5 Helong

Helong is an Austronesian language spoken in the westernmost part of the island of Timor, and the neighbouring island of Semau (see Figure 2.1). Helong metathesis is described by Balle and Cameron (2012), who present data from the Semau dialect, as well as by Steinhauer (1996a), who presents data from the Bolok dialect.⁷ This data has been supplemented by data from Balle (2015).

2.4.5.1 Forms

Words in Helong have two forms, which I call the U-form and the M-form. In most cases the M-form is derived from the U-form by metathesis of the final CV → VC. Examples of each relevant vowel combination are given in (32) below.⁸

(102) Helong $V_1C_1V_2 \rightarrow V_1V_2C_1$ (Balle and Cameron 2012:11, 33–52)

U-form	M-form		U-form	M-form	
<i>nini</i>	→ <i>niin</i>	‘use’	<i>leko</i>	→ <i>leok</i>	‘beautiful’
<i>dani</i>	→ <i>dain</i>	‘song’	<i>lako</i>	→ <i>laok</i>	‘go’
<i>atuli</i>	→ <i>atuil</i>	‘person’	<i>sodo</i>	→ <i>sood</i>	‘greet’
<i>dehe</i>	→ <i>deeh</i>	‘some’	<i>susu</i>	→ <i>suus</i>	‘breast’
<i>dake</i>	→ <i>daek</i>	‘work’	<i>diku</i>	→ <i>diuk</i>	‘beat’
<i>one</i>	→ <i>oen</i>	‘they’	<i>lalu</i>	→ <i>laul</i>	‘palm-wine’
<i>klapa</i>	→ <i>klaap</i>	‘garden’			

There is also at least one example of a VCCV# word displaying metathesis of the final vowel across a consonant cluster. This is the Malay loan *banjku* → *baunj* ‘bench’ (Balle 2015). Words with this structure are rare in Helong, and appear to consist entirely of loans from Malay. It is likely that the medial cluster in such words is treated as a unitary consonant. Additionally, words which have a penultimate vowel sequence also form their M-form by final consonant-vowel metathesis. One example is the Malay loan *biasa* → *biaas* ‘normal(ly)’ (Balle and Cameron 2012:23).

When the U-form ends in VCa, the M-form is derived by deleting the final /a/, with the exception of words in which the penultimate vowel is also /a/ (such as *klapa* → *klaap* ‘garden’ in (102) above). Examples of this apocope are given in (103) below.

⁷ There are three recognised dialects of Helong, Semau Helong is spoken on Semau island, while Funai Helong and Bolok Helong are spoken in Timor mainland (Balle and Cameron 2012:6).

⁸ Helong does not have words in which the penultimate vowel is high and the final vowel mid, or in which the final vowel is high and the penultimate vowel mid.

(103) $V_{\alpha}Ca_{\beta} \rightarrow V_{\alpha}C$ (Balle and Cameron 2012:13f)

U-form		M-form	
<i>doha</i>	→	<i>doh</i>	'watch'
<i>del<i>a</i></i>	→	<i>del</i>	'chair'
<i>uma</i>	→	<i>um</i>	'house'
<i>hida</i>	→	<i>hid</i>	'promise'

Words which end in a sequence of two vowels and words which end in a consonant (including consonantal suffixes) do not appear to have distinct U-forms and M-forms. A number of such words do appear to have contracted forms which are shorter than the full form, however, the use of these contracted forms is not the same as the use of M-forms formed by metathesis or apocope.

2.4.5.2 Functions

All words which end in VCV are attested with both U-forms and M-forms in Helong. However, the function of each form varies according to the word class of the word in question. We can identify three different functions: in the noun phrase M-forms mark specificity (§2.4.5.2.1), for verbs M-forms mark imperfective aspect (§2.4.5.2.2) and with other word classes U-forms are used phrase finally and M-forms phrase initially and phrase medially (§2.4.5.2.3).

2.4.5.2.1 Metathesis in the Noun Phrase In the noun phrase metathesis marks specificity. Examples are given in (104)–(106) below. In (104a) the noun *buku* 'book' is in the U-form, and is non-specific. In sentence (104b) the noun *buuk* 'book' is in the M-form and is specific, in (104b) specificity is further marked by the specific demonstrative *nas*. Example (104c) shows it is ungrammatical to use an M-form noun with the non-specific demonstrative *las*.

- (104) a. *Kat buku eney.*
 take book\U six
 'Take (any) six books.'
- b. *Kat to~toay buuk eney n-a-s.*
 take RED~all book\M six SPEC-DEM-PL
 'Take all (of those) six books.'
- c. **kat to~toay buuk eney l-a-s*
 take RED~all book\M six NSPEC-DEM-PL
 'Take all (of those) six books.' Balle (2015)

A similar example can be seen by comparing the sentences in (105) below. In (105a) the unmetathesised noun *klapa* 'garden' agrees in specificity with the non-specific demonstrative *las*, while in (105b) the same noun occurs metathesised agreeing with the specific demonstrative *na*.

- (105) a. *Nol klapa l-a-s putij isin banan.*
 and garden\U NSPEC-DEM-PL produce contents good
 ‘And gardens produce good contents.’
- b. *Oen tama-s lako-s se klaap n-a.*
 3PL\M enter-PL go-PL ALL garden\M SPEC-DEM
 ‘They go into that garden.’ (Balle and Cameron 2012:15)

When a noun occurs with a following modifier, the modifier undergoes metathesis to signal the specificity of the noun. An example is given in (106) below, in which the specificity of the noun phrase is marked by the quantifier *dehe* ‘some’. In (106a) the quantifier *dehe* ‘some’ occurs in the U-form and the referent is non-specific, while in the equivalent example (106b) it occurs in the M-form and has a specific referent.

- (106) a. *Kat buku dehe.*
 take book\U some\U
 ‘Take some books.’
- b. *Kat buku deeh dey n-i-a.*
 take book\U some\M from SPEC-PROX-DEM
 ‘Take some (of those) books from here.’ Balle (2015)

In the description of metathesis given by Steinhauer (1996b), metathesis is described as affecting every non-final element in the noun phrase. He gives the examples in (107) below. (The change of medial /h/ → /s/ after metathesis is a phenomenon specific to the Bolok dialect.)

- (107) Noun + adj. → Noun\M adj (Steinhauer 1996b:477)

<i>atuli</i>	+	<i>ɲeɲoʔ</i>	→	<i>atuil ɲeɲoʔ</i>	‘person + stupid’
<i>ale</i>	+	<i>kunis</i>	→	<i>ael kunis</i>	‘paddy + yellow’
<i>lelo</i>	+	<i>lima-ʔ</i>	→	<i>leol limaʔ</i>	‘day + fifth’ = ‘Friday’
<i>blaho</i>	+	<i>mutiʔ</i>	→	<i>blaos mutiʔ</i>	‘mouse + white’
<i>bahi</i>	+	<i>mea</i>	→	<i>bais mea</i>	‘pig + red’

Steinhauer also identifies metathesis as marking the difference between attributive modifiers and predicative modifiers, as shown in (108) below. This description matches closely one of the functions of metathesis found in both Rotuman (§2.4.1.2) and Leti (§2.4.2.2).

- (108) a. [NP *lelo*] [PRED *deneʔ*]
 sun\U go.down
 ‘The sun sets.’
- b. [NP *leol deneʔ*]
 sun\M go.down
 ‘west’ (Steinhauer 1996b:477)

The functions of metathesis within the noun phrase as described by Steinhauer (1996b) is different to the function described by Balle and Cameron (2012). It is possible that these two

descriptions of Helong metathesis differ due to each describing a different dialect of Helong. Balle and Cameron (2012) describe Semau Helong and Steinhauer (1996b) describes Bolok Helong.

To summarise, metathesis marks specificity in the Helong noun phrase and/or marks the presence of an attributive modifier. Marking of an attributive modifier is similar to the functions of metathesis in Rotuman, Leti, Roma and Amarasi. Marking of specificity is similar to one of the functions of metathesis in Rotuman and Leti. In both Rotuman and Leti it is the (historically) metathesised form which is indefinite, while in Helong it is the *unmetathesised* form which is non-specific. Although a similar morphological process is used in each instance, the function of that morphological process in Helong is the opposite to that found in Rotuman and Leti.

2.4.5.2.2 Verbal Metathesis Metathesis has two main functions on the verb in Helong. Firstly, verbs are in the U-form when they do not take an object and in the M-form when they do take an object. This is similar to the use of M-forms in the noun phrase with an attributive modifier as described by Steinhauer (1996b).

Compare the sentences in (109) below. In (109a) the verb *dake* ‘work, do’ occurs in the U-form as there is no overt object. However, in example (109b) there is an object and the verb takes the M-form.

- (109) a. *un lako dake.*
 3SG go\U work\U
 ‘S/he’s gone to (do some) work.’
 b. *un lako daek kukis.*
 3SG go\U work\M cake
 ‘S/he’s gone to make cake.’ (Balle and Cameron 2012:11)

The other use of metathesis on verbs is to mark aspect. U-forms mark perfective or completed aspect, while M-forms mark imperfective or progressive aspect. Compare the examples in (110) and (111) below. In examples (110a) and (111a) the verb *lako* ‘go’ is in the U-form and the sentence thus has perfective aspect. In examples (110b) and (111b), however, the verb *laok* is in the M-form, and each example is imperfective.

- (110) a. *un lako daek kukis.*
 3SG go\U work\M cake
 ‘S/he’s (already) left to make cake.’
 b. *un laok daek kukis.*
 3SG go\M work\M cake
 ‘S/he’s (in the process of) leaving to make cake.’

- (111) a. *un lako daek kukis nol asii l-a?*
 3SG go\U work\M cake with who NSPEC-DEM
 ‘With whom has s/he (already) left to make cake?’
 b. *un laok daek kukis nol asii l-a?*
 3SG go\M work\M cake with who NSPEC-DEM
 ‘With whom is s/he (in the process of) leaving to make cake?’

2.4.5.2.3 Metathesis with Other Word Classes In addition to nouns and verbs, other word classes including adjectives, adverbs, ‘particles’ and most pronouns also have a U-form and an M-form. For these other word classes U-forms are (mostly) used phrase finally and M-forms are used phrase initially and phrase medially.

Examples of non-final adjectival M-forms are given in (112b)–(112d) below, which can be contrasted with the final U-form in (112a).

- (112) a. *auk leko.*
 1SG beautiful\U
 ‘I’m beautiful.’
 b. *auk leok isi.*
 1SG beautiful\M very\U
 ‘I’m very beautiful.’
 c. *auk leok dui.*
 1SG beautiful\M more
 ‘I’m more beautiful.’
 d. *auk leok baktetebes.*
 1SG beautiful\M truly
 ‘I’m truly beautiful.’

Balle and Cameron (2012) give one exception to this pattern. This is the adverbial *ana lo* ‘a lot, enough, exceptional(ly)’. This phrase is a conventionalised understatement, literally meaning ‘not a little’ and is formally a separate clause. Before this adverbial an adjective occurs in the U-form. This is shown in (113) below.

- (113) *auk leko ana lo.*
 1SG beautiful\U exceptionally
 ‘I’m exceptionally beautiful.’ (Balle and Cameron 2012:12)

An example of a metathesised adverbial, *nabael* ‘still’ is given in (114b) below. This can be contrasted with the unmetathesised and phrase final *nabale* in (114a).

- (114) a. *mo nahin n-a laja isi lo nabale.*
 but meaning SPEC-DEM clear very not.yet still\U
 ‘But the meaning is still not particularly clear.’
 b. *mo nahin n-a laja isi lo nabael tuun.*
 but meaning SPEC-DEM clear very not.yet still\M just
 ‘But the meaning is still not particularly clear.’

Finally, most of the pronouns have both U-forms and M-forms. The Helong pronouns are given in Table 2.9 below. Note that despite the fact that the 2PL pronoun *mia* ends in a vowel sequence, it has an M-form, formed by deleting the final /a/. The 1SG pronoun *auk* does not have distinct U-forms and M-forms, however, it does have a shorter form *au*, which is used when the pronoun is an object. The form *auk* is used for 1SG subjects.

Table 2.9: Helong Pronouns (Balle and Cameron 2012:16)

	U-form	M-form
1SG	<i>auk</i>	<i>auk</i>
2SG	<i>ku</i>	<i>ku</i>
3SG	<i>una</i>	<i>un</i>
1PI	<i>kita</i>	<i>kit</i>
1PX	<i>kami</i>	<i>kaim</i>
2PL	<i>mia</i>	<i>mi</i>
3PL	<i>one</i>	<i>oen</i>

An example of the U-form and M-form of the 3PL pronoun *one* is given in (115) below. In (115a) the 3PL pronoun *one* is sentence final and thus occurs unmetathesised. In sentences (115b) and (115c) the same pronoun occurs non-finally and is thus in the M-form.

- (115) a. *kaim lako-ŋ meo one.*
 1PL.EXCL\M go-1 visit 3PL\U
 ‘We’re going to visit them.’
- b. *oen lako-s meo in-ama-n n-u-a-s.*
 3PL\M go-PL visit parents-PL.GEN SPEC-REMOTE-DEM-PL
 ‘They’re going to visit their parents.’
- c. *tiata oen lako-s meo oen in-ama-n n-a-s.*
 so 3PL\M go-PL visit 3PL\M parents-PL.GEN SPEC-DEM-PL
 ‘So, they’re going to visit their parents.’ (Balle and Cameron 2012:12)

2.4.5.3 Summary

In terms of form, metathesis in Helong is associated with one other phonological process: deletion of final /a/.

In terms of function, there are two kinds of metathesis in Helong. There is a process of phonological metathesis whereby non-final words which are neither verbs nor members of the noun phrase occur metathesised phrase medially. Helong metathesis is morphological on nouns and verbs. It marks specificity in the noun phrase and imperfective aspect in verbs.

There are two main similarities between metathesis in Helong and in Amarasi. Firstly, in each language words with a final /a/ do not follow the normal pattern of CV → VC

metathesis. In Helong final /a/ is deleted, while in Amarasi final /a/ undergoes assimilation after metathesis. Secondly, in both languages the metathesis has different functions for nouns and verbs.

Even though Amarasi and Helong are immediate neighbours, the similarities between metathesis in each are fewer and less striking than the similarities between metathesis in Amarasi and Mambae or between Amarasi and Leti. This could be partly to do with metathesis being manipulated as a marker of ethnic identity; when groups are in contact with one another there is a greater imperative to differentiate between one another. Metathesis as marker of identity is explored in more detail in §8.2.

2.5 Conclusions

I conclude my examination of synchronic metathesis by discussing the historical origins of metathesis (§2.5.1), the functions of synchronic metathesis (§2.5.2) and the form of synchronic metathesis (§2.5.3). The way in which metathesis historically develops helps explain some of the similarities seen in the forms and functions of synchronic metathesis.

2.5.1 Origins of Non-concatenative Morphological Processes

In this section I provide an overview of the ways in which non-affixal morphological processes including metathesis can develop. I begin with a discussion of the development of Germanic umlaut; a process which is likely to be familiar to readers. In §2.5.1.1 I then discuss the ways in which morphological metathesis develops and show that its development closely parallels that of Germanic umlaut in many ways.

Umlaut is the term given to a vowel shift which happened in many of the Germanic languages and resulted in pairs such as English *foot* /fot/ ~ *feet* /fi:t/ and *mouse* /maʊs/ ~ *mice* /maɪs/. In these English examples the vowel of the plural forms is descended from an original rounded vowel which was fronted before a suffix with the front vowel /i/. This suffix was then lost but the front rounded vowel remained. The process is illustrated in (116) below. See Harbert (2007:58ff) for an overview.

(116) *mu:s > /maʊs/ *mouse*
*mu:s-iz > *mu:s-i > *my:s-i > *my:s-ə > *my:s > *mi:s > /maɪs/ *mice*

In modern-day standard English umlaut is a purely morphological process with all trace of its original conditioning environment being lost. However, this is not always the case. One language in which a phonologically conditioned process of umlaut developed into a morphological process in some environments but not in others is Old Norse. This is similar to metathesis in languages such as Rotuman, Helong and Amarasi in which metathesis is a

phonologically conditioned process in some environments and a morphological process in others.

In Old Norse there is process of vowel shift known as *u*-mutation or *u*-umlaut. Under this process stressed /a/ becomes [ɔ] (transcribed <ɔ>) before a following /u/ and unstressed /a/ becomes /u/ before a following /u/. This process is formalised in (117) below.⁹

(117) Old Norse *u*-umlaut:

a → ɔ /'_(C)u
 → u /_(C)u
 → a elsewhere

When a suffix containing /u/ is attached to a stem with /a/, *u*-umlaut occurs. Examples include *stað*- 'place' + *-um* DAT.PL → *stɔðum* and *harm*- 'sorrow, grief' + *-um* DAT.PL → *hɔrmum* (Gordon 1957:283,286). The declension of two weak feminine nouns is given in (118) below to further illustrate the productivity of the process.

(118) Old Norse Weak Feminine Declension (Gordon 1957:289)

	'story'		'star'	
	SG	PL	SG	PL
NOM	<i>saga</i>	<i>sɔgur</i>	<i>stjarna</i>	<i>stjɔrnur</i>
ACC	<i>sɔgu</i>	<i>sɔgur</i>	<i>stjɔrnu</i>	<i>stjɔrnur</i>
GEN	<i>sɔgu</i>	<i>sagna</i>	<i>stjɔrnu</i>	<i>stjarna</i>
DAT	<i>sɔgu</i>	<i>sɔgum</i>	<i>stjɔrnu</i>	<i>stjɔrnur</i>

This phonological process also affects verbs. The conjugation of the verb *kalla* 'to call' is given in (119) to illustrate. This paradigm also shows examples of unstressed /a/ → /u/.

(119) Old Norse Conjugation of *kalla* 'to call' (Gordon 1957:305)

	PRESENT		PAST	
	ACTIVE	MIDDLE	ACTIVE	MIDDLE
1SG	<i>kalla</i>	<i>kɔllumk</i>	<i>kallaða</i>	<i>kɔlluðumk</i>
2SG	<i>kallar</i>	<i>kallask</i>	<i>kallaðir</i>	<i>kallaðisk</i>
3SG	<i>kallar</i>	<i>kallask</i>	<i>kallaði</i>	<i>kallaðisk</i>
1PL	<i>kɔllum</i>	<i>kɔllumk</i>	<i>kɔlluðum</i>	<i>kɔlluðumk</i>
2PL	<i>kallið</i>	<i>kallizk</i>	<i>kɔlluðuð</i>	<i>kɔlluðuðzk</i>
3PL	<i>kalla</i>	<i>kallask</i>	<i>kɔlluðu</i>	<i>kɔlluðusk</i>

With this data alone we would conclude that Old Norse *u*-umlaut is a purely phonologically conditioned process. However, there are also instances in which *u*-umlaut occurs where there is no following /u/. One example is in the nominative and accusative plurals of neuter nouns, two of which are given in (120) below.¹⁰ In fact, this single paradigm attests both phonologically conditioned and morphological instances of *u*-umlaut.

⁹ Primary stress fell on the initial syllable in Old Norse.

¹⁰ Historically such forms had a suffix *-u*. This suffix had been lost by the time of Old Norse.

(120) Old Norse Strong Neuter Declension

(Gordon 1957:283)

	'child'		'land'	
	SG	PL	SG	PL
NOM	<i>barn</i>	<i>bǫrn</i>	<i>land</i>	<i>lǫnd</i>
ACC	<i>barn</i>	<i>bǫrn</i>	<i>land</i>	<i>lǫnd</i>
GEN	<i>barns</i>	<i>barna</i>	<i>lands</i>	<i>landa</i>
DAT	<i>barni</i>	<i>bǫrnum</i>	<i>landi</i>	<i>lǫndum</i>

The best analysis of this Old Norse data is probably to posit a morphological process of *u*-umlaut to account for the neuter plural forms and posit a phonologically conditioned process of *u*-umlaut before suffixes with the vowel /u/.

In modern Icelandic the process of *u*-umlaut still occurs, as illustrated in the paradigm of *barn* /partn/ 'child' given in (121) below, and also seen in the verb *kalla* /k^hatla/ 'call' with the 1PL.PRES form *köllum* /k^hœtlym/ and the 1PL.PAST form *kölluðum* /k^hœtlyðym/ (Hólmarsson et al. 1989:43).

(121) Icelandic declension of *barn* /partn/

(Hólmarsson et al. 1989:36)

	SG		PL	
NOM	<i>barn</i>	/partn/	<i>börn</i>	/pœrtn/
ACC	<i>barn</i>	/partn/	<i>börn</i>	/pœrtn/
GEN	<i>barns</i>	/partns/	<i>barna</i>	/partna/
DAT	<i>barni</i>	/partni/	<i>börnum</i>	/pœrtnym/

In Icelandic the phonological conditioning environment has become so opaque due to later processes including epenthesis of /u/ — i.e. *harmur* /harmyr/ 'grief, sorrow' (from Old Norse *harmr*) — that it is best to analyse *u*-umlaut as a morphological process in environments such as the neuter plural and as a morphemically conditioned process in other environments.

The development of Old Norse *u*-umlaut shows how a process which originally occurred only in certain phonological environments can develop into a morphological process. Old Norse has a single phonological process which is morphological in some environments and phonologically conditioned in other environments. Similarly, Icelandic has a single phonological process which is morphological in some environments and morphemically conditioned in other environments.

In §2.5.1.1 below I discuss some phonologically natural processes by which morphological metathesis can develop. Such pathways can result in some languages synchronically having a single process of metathesis which is phonologically conditioned in some environments and morphemically conditioned or morphological in other environments. Such languages include Rotuman (§2.4.1) and Helong (§2.4.5), as well as Amarasi.

2.5.1.1 Historical Origins of Morphological Metathesis

The most comprehensive account of the historical origins of metathesis is that of Blevins and Garrett (1998), with an updated but shorter, account given in Blevins and Garrett (2004). According to this account there are three sources of metathesis: perceptual metathesis, compensatory metathesis and metathesis which arises out of epenthesis and apocope ('pseudometathesis'). The examples of morphological metathesis discussed in this chapter are instances of epenthesis and apocope (§2.5.1.1.1) or compensatory metathesis (§2.5.1.1.2).

2.5.1.1.1 Epenthesis and Apocope One pathway by which a language can acquire a process of morphological metathesis is through epenthesis and apocope. Languages which appear to have acquired metathesis in this way include Leti (§2.4.2) and probably the north American Salishan languages (discussed in more detail in Appendix A).

Under this process, epenthesis of a vowel occurs in one part of a word with subsequent deletion of an original non-epenthetic vowel. One version of this process, that which took place for Leti internal metathesis, is shown in (122) below. At stage 2 an epenthetic vowel is added word finally. The previous vowel is then deleted at stage 3 and at stage 4 the final epenthetic vowel is reinterpreted as non-epenthetic.

(122) VCVC > VCVC̣ > VCC̣ > VCCV
 stage 1 stage 2 stage 3 stage 4

Each stage of this process is illustrated for Leti in Table 2.10 below. At stage 1 a word final schwa is inserted, at stage 2 this schwa then either assimilates to the quality of the previous vowel or is lowered to /a/, finally at stage 3 the unstressed penultimate vowel is deleted, giving rise to the metathesised forms. Other developments such as consonant assimilation and glottal stop deletion with compensatory lengthening of the previous vowel then occurred at stage 3'. Proto-Malayo-Polynesian reconstructions are from Blust and Trussel (ongoing). Stress is marked by an acute accent.

Table 2.10: Development of Leti Metathesis (Blevins and Garrett 1998:542ff)

PMP	pre-Leti	stage 1	stage 2	stage 3	stage 3'	
*haŋin	> *ánin	> *áninə	> *ánini	> <i>anni</i>		'wind'
*kulit	> *úlit	> *úlitə	> *úlitɪ	> <i>ulti</i>		'skin'
*kəmpuŋ	> *ápun	> *ápunə	> *ápunu	> <i>apnu</i>		'belly'
*likud	> *líʔur	> *líʔurə	> *líʔuru	> *líʔru	> <i>liiru</i>	'last'
*ma-qitam	> *métam	> *métamə	> *métama	> <i>metma</i>		'red'
*bulan	> *βúlan	> *βúlanə	> *βúlana	> *βúlna	> <i>βulla</i>	'moon'
*hikan	> *íʔan	> *íʔanə	> *íʔana	> *íʔna	> <i>iina</i>	'fish'

According to this account, epenthesis of final schwa only occurred in certain phonological environments, such as phrase finally, while no epenthesis occurred in other positions. Unmetathesised Leti forms are developments of the pre-Leti forms in Table 2.10.

An alternate account is proposed by Mills and Grima (1982), who instead of positing final schwa insertion followed by assimilation, simply posit that the inserted vowel was a copy vowel. (Blevins and Garrett 1998:545f) cite several arguments in favour of the analysis involving schwa insertion.

This analysis can account for instances of Leti internal metathesis. However, recall from §2.4.2.1.4 that Leti also has a process of external metathesis, as seen for instance in *asu* ‘dog’ + *lalaβna* ‘big’ → *aslualaβne*. Such metathesis can be accounted for by compensatory metathesis, as discussed in §2.5.1.1.2 below. Thus, *aslualaβna* ‘dog + big’ is hypothesised to have gone through the pathway **asulalaβna* > **asulualαβna* > **asũlualαβna* > *aslualaβna*.

Another probable case of metathesis developing by epenthesis and apocope occurred in the Salishan languages (§A.7), though in this case apocope was apparently motivated by stress shift. The various processes have been discussed by Demers (1974) who cites data from Lummi, a straits Salish variety closely related to both Saanich (§A.7.1) and Klallam (§A.7.2). Examples of Lummi metathesis are given in (123) below.

(123) Lummi Metathesis (Demers 1974:15)

	PERFECTIVE		IMPERFECTIVE	
‘Someone hit him’	<i>ts’sá-tɥs</i>	→	<i>ts’ás-tɥs</i>	‘He’s getting hit’
‘I smashed it’	<i>t’sá-tsən</i>	→	<i>t’ás-t</i>	‘He’s breaking it’
‘They gather it’	<i>q’pá-ts</i>	→	<i>q’áp-ɥ</i>	‘gathering’
‘I’m stuck’	<i>tʰ’qʷá-tsən</i>	→	<i>tʰ’áqʷ-sən</i>	‘I’m getting stuck’

Demers (1974) proposes that the imperfective is formed in all instances by infixation of a glottal stop, which is associated with a number of other rules. These processes are summarised in Table 2.11 below, for the metathesis of *ts’sá* → *ts’ás* ‘hit’.

Table 2.11: Formation of Lummi (Im)perfectives

process	PERFECTIVE	IMPERFECTIVE
1. base	<i>ts’ásə-t-ɥ-s</i>	<i>ts’ásə-t-ɥ-s</i>
2. infixation		<i>ts’áʔsə-t-ɥ-s</i>
3. stress protraction	<i>ts’ásá-t-ɥ-s</i>	
4. schwa deletion	<i>ts’ás-t-ɥ-s</i>	<i>ts’áʔs-t-ɥ-s</i>
5. glottal stop deletion		<i>ts’ás-t-ɥ-s</i>

The first row gives the proposed underlying base forms. Each form has two vowels, with stress on the first vowel. The second row shows infixation of the glottal stop in the imperfective. In the third row so-called ‘stress protraction’ occurs, whereby stress moves

over an obstruent to the adjacent closed syllable in the perfective form. Stress protraction does not occur in the imperfective as the glottal stop is treated as a sonorant, and syllables closed by a sonorant maintain stress. In row four unstressed schwas are deleted and in row five any glottal stop before an obstruent is deleted, thus deleting the original marker of the imperfective.

In summary, Demers (1974) analyses (surface) metathesis in Lummi as resulting from glottal stop infixation followed by stress shift followed by unstressed schwa deletion followed by glottal stop deletion.

While such a combination of processes may be the historic source of metathesis in the Salishan languages,¹¹ it does not seem possible to apply this analysis to the synchronic data in every language. In particular Blevins and Garrett (1998:540) note that the Klallam data, in which roots containing vowels other than schwa also undergo metathesis, resists such a synchronic analysis (§A.7.2).¹²

Vowel deletion in different environments also appears to be a likely source of metathesis in Tunisian Arabic, Ohlone and Sierra Miwok. The synchronic data for these languages is discussed in Appendix A.

2.5.1.1.2 Compensatory Metathesis Compensatory metathesis is the term given by Blevins and Garrett (1998:527ff) to metatheses which arise through anticipatory co-articulation of an unstressed vowel with the stressed vowel, followed by reduction and eventual loss of the unstressed vowel. In §4.6.2 I present evidence showing that Amarasi metathesis probably developed via this route. The progression of this process is shown in (124) below, illustrated with Rotuman *pure* → *puer* ‘to rule, decide’.¹³

(124)	púre	púere	púerě	púer
	\acute{V}_1CV_2	$> \acute{V}_1V_2CV_2$	$> \acute{V}_1V_2C\check{V}_2$	$> \acute{V}_1V_2C$
	stage 1	stage 2	stage 3	stage 4

There is direct evidence that this process has occurred in Kwara’ae (§2.2.2) as intermediate stage 3 forms are still attested in certain environments (§2.2.2.1.5). While there is no direct evidence that this is the process which occurred in Rotuman, Blevins and Garrett (1998) argue that the distribution of metathesised forms in Rotuman is consistent with their account.

¹¹ For instance, Thompson and Thompson (1969:217) mention stress shift and apocope as a potential source for metathesis in Klallam.

¹² Blevins and Garrett (1998:540) do, however, compare Klallam $\chi t f' i-t \rightarrow \chi i t f'-t$ ‘scratch’ to Lushootseed $\chi^w i t f' i-d$ ‘mark it, plough land’ and $\chi^w i t f'-dup$ ‘I’m ploughing now’, citing data from Bates et al. (1994).

¹³ While I only discuss examples of this process operating from the right edge of a word, it can also operate from the left edge of a word. Blevins and Garrett (1998:537) discuss the case of Ngkot̩ (Pama-Nyungan, Australia) in which such left edge metathesis has occurred historically.

This distribution is the observation provided by Hale and Kisson (1998) (§2.4.1.2) that M-forms mostly occur before polysyllabic suffixes while U-forms occur before monosyllabic suffixes. This is combined with the fact that stress regularly falls on the penultimate syllable of a word in Rotuman and that some affixes count as part of the word for stress placement, while other affixes do not (Churchward 1940:75).

Due to penultimate stress, stems with a monosyllabic suffix were stressed on the stem final vowel, and such vowels were ‘protected’ from the co-articulation and weakening which affected final unstressed vowels elsewhere. This resulted in the long (unmetathesised) form of stems only surviving before monosyllabic suffixes, with short (metathesised) forms of stems occurring elsewhere. The different development of isolated stems, stems with a monosyllabic suffix and stems with a polysyllabic suffix in Rotuman are given in (125) below.

(125) Development of Rotuman Short and Long Forms (Blevins and Garrett 1998:532)

	stage 1		stage 2		stage 3		stage 4
∅	Ŵ ₁ CV ₂	>	Ŵ ₁ V ₂ CV ₂	>	Ŵ ₁ V ₂ CŴ ₂	>	Ŵ ₁ V ₂ C
-σ	V ₁ CŴ ₂ -σ	>	V ₁ CŴ ₂ -σ	>	V ₁ CŴ ₂ -σ	>	V ₁ CŴ ₂ -σ
-σσ	Ŵ ₁ CV ₂ -σσ	>	Ŵ ₁ V ₂ CV ₂ -σσ	>	Ŵ ₁ V ₂ CŴ ₂ -σσ	>	Ŵ ₁ V ₂ C-σσ

In modern-day Rotuman metathesis not only occurs before certain suffixes, but is also a morphological process marking a definite/indefinite contrast. The final step for this development was for the suffix marking definiteness to be lost. This suffix was probably originally a monosyllabic copy vowel (Grace 1959, Blevins and Garrett 1998). The presumed development for the word *puer* → *puer* ‘to rule, decide’ is shown in (126) below.

(126) -∅ *púre > *púere > *púerě > *púer > *púer*
 -V *puré-e > *puré-e > *puré-ě > *puré > *púre*

Compensatory metathesis with subsequent loss of the conditioning environment is one way in which a language can develop a morphological process of metathesis. The distribution of M-forms and U-forms in Rotuman, Helong and Mambae appears to be consistent with such a process. In Amarasí there is comparative evidence attesting the posited intermediate forms (§2.5.1.1).

Metathesis can thus arise in a language in a specific phonological environment through a series of phonetically natural changes, in a similar manner to the development of umlaut in the Germanic languages. As with Germanic umlaut, when the original conditioning environment is lost, metathesis can become the only expression of a morphological process.

2.5.2 Functions of Morphological Metathesis

The functions of morphological metathesis discussed in this chapter are summarised in Table 2.12 which also includes the functions of morphological metathesis in Amarasí. Functions

of Mambae metathesis are enclosed in brackets to indicate that this analysis is based on preliminary data.

In addition to the morphological functions of metathesis listed in Table 2.12, metathesis in a number of these languages is also phonologically conditioned in some environments. This is the case for Rotuman, Helong and Amarasi. In this respect, these three languages are similar to Old Norse *u*-umlaut (§2.5.1) in which a single phonological process is phonologically conditioned in some environments and purely morphological in other environments.

Table 2.12: Functions of Morphological Metathesis

Language	Functions		
	Verbs	Nouns	
Rotuman	imperfective	indefinite	modified
Leti	imperfective	indefinite	modified
Roma		subject	unmodified
Mambae	(stative?)	(N→N/V?)	(modified?)
Helong	imperfective	definite	modified
Amarasi	unresolved		modified

Table 2.12 shows that Rotuman and the languages of the greater Timor region use morphological metathesis to mark fairly typical morphological categories. Two common functions are to mark aspect on verbs and definiteness in the noun phrase. Additionally, Rotuman and every language of the greater Timor region which is known to have morphological metathesis uses it to express the presence or absence of an attributive modifier in the noun phrase. This is the only function of morphological metathesis in the noun phrase in Amarasi.

In other linguistic traditions, the morphological form used to mark the presence of an attributive modifier is known as the construct form and I include a brief overview of these forms in §2.5.2.1 below.

2.5.2.1 Construct Form

The construct form (also commonly called the ‘construct state’ or ‘annexed state/form’) is a morphological form best known in the Semitic languages. It is a form used to mark the head-dependent relationship between two members of a syntactic phrase, usually by a special morphological form taken by the head of that phrase.

One language with a construct form is Syrian Arabic, in which two nouns can stand in juxtaposition with the head noun in the construct form. Most such Syrian Arabic noun phrases can be compared to English compound nouns or English genitive constructions. In

Syrian Arabic the construct form is marked by the suffix *-(e)t*. In some instances this suffix replaces the final vowel of the stem to which it attaches. Examples of the construct form in Syrian Arabic are given in (127) below.

(127) Syrian Arabic construct form (Cowell 1964:163)

Absolute		Construct	
<i>ħafle</i>	'show'	<i>ħafle-t mu:si:qa</i>	'concert (<i>lit.</i> music show)'
<i>ħza:ne</i>	'closet'	<i>ħza:ne-t ʔu:dʔvi</i>	'the closet of my room'
<i>masʔale</i>	'matter'	<i>masʔale-t zadd</i>	'a matter of concern'
<i>ħa:le</i>	'condition'	<i>ħa:le-t əf-ʔərke</i>	'the condition of the company'
<i>zja:ra</i>	'visit'	<i>zja:r-et ʔaxi</i>	'my brother's visit'
<i>ʔəsʔ:a</i>	'story'	<i>ʔəsʔ:-etʔ haz-zalame</i>	'that fellow's story'
<i>ʔu:dʔa</i>	'room'	<i>ʔu:dʔ-etʔ əl-ʔaʔde</i>	'sitting room'
<i>wazʔi:fe</i>	'assignment'	<i>wazʔi:f-t əl-fi:zja</i>	'physics assignment'
<i>do:ħa</i>	'nausea'	<i>do:ħ-t ətʔ-tʔaj:a:ra</i>	'airsickness'

In Iraqw (Cushitic, Tanzania) the construct form occurs with a wider variety of nominal modifiers including nouns, adjectives, numerals and relative clauses. The construct form in Iraqw is signalled by a suffix which agrees with the gender of the noun to which it attaches. All construct suffixes have a high tone in Iraqw. Examples of the construct form in Iraqw are given in (128) below.

(128) Iraqw Construct Form (Mous 1993:94)

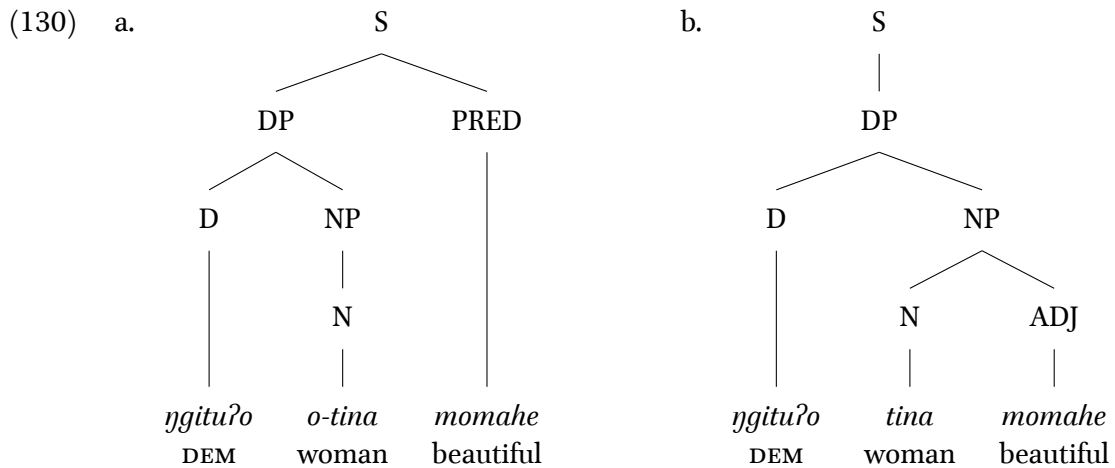
Stem		Gender	Construct	
<i>ts'axwel</i>	'trap'	MASC	<i>ts'axwel-ú daŋʷ</i>	'elephant trap'
<i>kuru</i>	'year'	MASCL	<i>kur-kú ʔisáʔ</i>	'last year'
<i>waahla</i>	'python'	FEM	<i>waahlá-r ur</i>	'a big python'
<i>ga</i>	'thing'	FEM	<i>gá-r ni hláaʔ</i>	'the thing that I want'
<i>diʔi</i>	'fat'	FEM1	<i>diʔi-tá ʔáwak</i>	'cream (<i>lit.</i> white fat)'
<i>ħar</i>	'stick'	FEM1	<i>ħar-tá baabúʔéeʔ</i>	'the stick of my father'
<i>giʔi</i>	'ghost'	NEUT	<i>giʔ-á heedáʔ</i>	'the ghost of that man'

In Tolaki (Austronesian, Sulawesi) unmodified nouns are morphologically marked, while the construct form is unmarked. This is very similar to the function of metathesis in Roma (§2.4.3). In Tolaki all two syllable nouns obligatorily occur with the prefix *o-*, except when another adjective or noun occurs within the noun phrase.

Compare the examples in (129) below. Each of these examples consists of a demonstrative, noun, and adjective. In (129a) the prefix *o-* occurs, and the following adjective is interpreted as predicative, as represented in (130a) below. In (129b) this prefix does not occur and the following adjective is interpreted as attributive, as represented in (130b) below.

(129) Tolaki construct form: (own fieldnotes)

- a. *ŋgituʔo* [_{NP} *o-tina*] *momahe*
 DEM woman beautiful
 ‘That woman is beautiful.’
- b. *ŋgituʔo* [_{NP} *tina momahe*]
 DEM woman beautiful
 ‘That beautiful woman.’



A number of other Tolaki nominal phrases are given in Table 2.13. For all such phrases the citation (unmodified) form of each element is also given. When this word is a disyllabic noun it occurs with the prefix *o-*.

Table 2.13: Tolaki Nominal Phrases (own fieldnotes)

	Noun		Mod.		Phrase	
‘dog’	<i>o-dahu</i>	+	<i>oβose</i>	‘big’	→ <i>dahu oβose</i>	‘(a) big dog’
‘table’	<i>o-meda</i>	+	<i>momea</i>	‘red’	→ <i>meda momea</i>	‘(a) red table’
‘head hair’	<i>o-βuu</i>	+	<i>mokuni</i>	‘yellow’	→ <i>βuu mokuni</i>	‘blond hair’
‘eye’	<i>o-mata</i>	+	<i>meʔeto</i>	‘black’	→ <i>mata meʔeto</i>	‘pupil’
‘tooth’	<i>o-ŋisi</i>	+	<i>o-hada</i>	‘monkey’	→ <i>ŋisi hada</i>	‘canine tooth’
‘hair’	<i>o-βulu</i>	+	<i>o-mata</i>	‘eye’	→ <i>βulu mata</i>	‘eyelashes’

The Tolaki prefix *o-* has a restricted phonological distribution, only occurring on two syllable nouns. Two examples of three syllable nouns are *bokeo* ‘crocodile’ → **o-bokeo* and *kaluku* ‘coconut’ → **o-kaluku*. This restriction extends to nouns which are greater than two syllables due to the presence of an affix. Two examples are *meda* ‘table’ + *-ŋgu* 1SG.GEN → *meda-ŋgu* ‘my table’ but **o-meda-ŋgu* and *i-* LOC + *meda* ‘table’ → *i-meda* ‘on the table’

but **o-i-meda*, **i-o-meda*. (See van den Berg (2012) for a discussion and analysis of this phonological restriction based on an earlier interpretation of the Tolaki data.)

There is cross-linguistic variation in the kinds of dependents which induce the construct form on their head. The uses of construct forms on nominal heads in the three languages discussed so far is summarised in Table 2.14. See also Creissels (2009) for a succinct overview of nominal construct forms and similar constructions in a number of languages of Africa.

Table 2.14: Use of Nominal Construct Forms

	Noun +	Noun	Adj.	Num.	REL
Syrian Arabic	✓	–	–	–	–
Tolaki	✓	✓	–	–	–
Iraqw	✓	✓	✓	✓	✓

In Chapter 6 I show that one use of the M-form in Amarasi is as a construct form which marks the presence of a modifier of the same word class as the head. Functionally, the Amarasi data is most similar to the data from Syrian Arabic in which nouns take the construct form when modified by another noun.

The construct form is a form taken by the head of a syntactic phrase to mark the presence of a dependent modifier within that phrase. Such a morphological category is not at all rare in languages of the world, and we should not be surprised that languages with morphological metathesis would use this morphological process to mark a construct form. What *is* surprising is that every language of the greater Timor region (as well as Rotuman in the Pacific) with (known) morphological metathesis uses it to mark a construct form.

The reason for this appears to be connected with the historical development of metathesis in these languages. As discussed by Blevins and Garrett (1998) and summarised in §2.5.1.1.2, metathesis in these languages originally arose only in certain phonological environments, and only affected unstressed syllables. In Amarasi, for instance, an attributive modifier bears the main phrasal stress while the head noun only bears secondary stress. This then creates a phonological environment in which the processes giving rise to metathesis of the final syllable of the head noun are most likely to occur. Such phonologically conditioned metathesis has then developed into a morphological process.

2.5.3 Forms of Synchronic Metathesis

Attested instances of morphological metathesis all involve consonant vowel metathesis, either $CV \rightarrow VC$ or $VC \rightarrow CV$. This is connected with the phonological development of these processes. There seem to be fewer natural phonological pathways by which a process of metathesis involving only consonants or only vowels could become regular in a language.

All processes of morphological metathesis can be located with respect to the stressed vowel, to the word edge, or both. In Mambae, Rotuman, Helong and Amarasi metathesis takes place after the stressed syllable. This is consistent with their historic development. It is also a fact that descriptions of metathesis in these languages should account for. A rule such as $CV \rightarrow VC / \acute{V} _$ achieves this.

In Leti and Roma metathesis is aligned to the right edge of a word. Again, descriptions of metathesis for these languages should be informed by this generalisation. A rule such as $VC \rightarrow CV / _ \#$ achieves this.

2.5.3.1 Associated Phonological Processes

Processes of morphological metathesis are typically associated with other phonological processes. In some cases such processes co-occur with metathesis, and in other cases such processes occur instead of metathesis for words of a particular phonotactic shape. Many of the individual processes associated with metathesis discussed in this chapter have parallels in Amarasi.

There are two reasons why metathesis is usually associated with other processes. Firstly, in cases such as Leti, morphological metathesis has developed through the accumulation of a number of different phonological processes (§4.6.2), with these processes still being attested alongside metathesis in certain phonotactic or phonological environments.

Secondly, in cases such as Mambae and Rotuman, it is the metathesis itself which triggers other phonological processes. These processes are a response to the new phonological shape of the stem created through metathesis, such as assimilation of newly adjacent vowels. These are the kinds of processes associated with metathesis in Amarasi.

Chapter 3

Phonology, Phonotactics and Morphophonemics

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3.1 Introduction

In this chapter I provide a detailed description of Amarasi phonology, phonotactics and morphophonemics. Amarasi has a highly constrained word structure built off a CVCVC foot in which the penultimate syllable — the stress bearing syllable — is the most privileged syllable.

My discussion progresses from the smallest units of Amarasi phonology to the largest. I describe the segments in (§3.2), the structure of the syllable (§3.3), the CVCVC foot in (§3.4), root structure (§3.5) and then the processes which occur at affix boundaries (§3.6), clitic boundaries (§3.7) and word boundaries (§3.8). A shorter, but more traditional description of Amarasi phonology is Edwards (2016a).

Definitions of the terminology I use when talking about Amarasi and other Uab Meto data are summarised in (1) below, repeated from page 11 which also contains a more complete discussion. Recall also the distinction between functors (grammatical morphemes/words) and lexical words/roots (morphemes which refer to events, states, properties and things).

- (1) Terminological definitions
 - a. Morpheme = indivisible phonetic stretch with unitary meaning
 - b. Word = minimal phonological string which can occur in isolation
 - c. Bound morpheme = morpheme which cannot occur as an independent word
 - d. Root = underlying single morpheme
 - e. Free morpheme = morpheme which is an eligible word
 - f. Affix = bound morpheme which is not a syntactic head
 - g. Clitic = bound morpheme which heads a separate syntactic phrase to the stem
 - h. Stem = a word or root to which a bound morpheme attaches
 - i. Citation Form = the usual form of a word given in word-list style elicitation

3.2 Segmental Inventory

In this section I discuss the properties and realisation of the Amarasi segmental phonemes. Amarasi has five segmental vowels: /i e a o u/ which can fill V-slots and thirteen segmental consonants: /p t k ʔ b (dʒ) (gw) f s h m n r/ which can fill C-slots.

3.2.1 Vowel Inventory

Amarasi has five phonemic vowels which can fill V-slots. All lexical roots contain at least two vowels. These five vowels are given in Table 3.1 below, with their usual phonetic realisation given in Table 3.2.

Table 3.1: Amarasi Vowels
(Broad Transcription)

	Front	Cent.	Back
High	<i>i</i>		<i>u</i>
Mid	<i>e</i>		<i>o</i>
Low	<i>a</i>		

Table 3.2: Amarasi Vowels
(Narrow Transcription)

	Front	Cent.	Back
High	<i>i</i>		<i>ɯ</i>
Mid	<i>ɛ</i>		<i>ɔ</i>
Low	<i>a</i>		

The vowel /a/ is low and slightly front. In post stress position it is usually centralised to [ɐ], in other word positions it is realised as [a], though centralised realisations are also sometimes heard in pre-stress position. Examples of this allophony are given in (2) below.

(2) /a/ → [ɐ] /'σ_

<i>nua</i>	[¹ nɯɐ]	🔊	'two'
<i>nima</i>	[¹ nimɐ]	🔊	'five'
<i>ama-f</i>	[¹ ?amɐf]	🔊	'father'
<i>kofa?</i>	[¹ kɔfɐ?]	🔊	'boat'

3.2.1.1 Mid Vowels

The mid vowels /e/ and /o/ have mid-high allophones [e] and [o] when followed by a high vowel in the same word.¹ This raising is most pronounced for /o/ before labial phonemes, and most pronounced for /e/ before /s/ and /k/. Examples are given in (3) below. In other environments the mid vowels are usually realised as [ɛ] and [ɔ] respectively.

(3) V[-HIGH,+MID,+LOW] → V[+HIGH,+MID] / _(C)V[+HIGH,-MID]

<i>a n-reru?</i>	[¹ ?an'dreɯ?]	🔊	'is tired'
<i>beti?</i>	[¹ βeti?]	🔊	'fried'
<i>ko?u</i>	[¹ kɔ?ɯ]	🔊	'big'
<i>ori-f</i>	[¹ ?oɾf]	🔊	'younger sibling'

In some words a kind of vowel harmony operates in which an initial mid vowel is raised to mid-high and a final high vowel is also lowered to mid-high. Such pronunciations are identified by my informants as specific to Koro'oto hamlet. Examples are given in (4) below. The conditions under which this vowel harmony operates are not yet fully understood, though could be partially connected with the quality of the consonants of the word.

¹ While this is the most common realisation of these phonemes in this environment, the mid allophones [ɛ] and [ɔ] are also sometimes heard before high vowels.

There is also at least one word which has a final mid-high vowel, *enus* → [ʔenos] «) 'rainbow'. In the metathesised form of this word the second vowel is high, *enus*+*e* → *euns*=*e* → [ʔeunse] «). This appears to be a case of high vowel lowering in closed syllables.²

(4) V[-HIGH,+MID,+LOW]CV[+HIGH,-MID] → V[+HIGH,+MID]CV[+HIGH,+MID]

<i>kreni</i>	[ˈkrene]	«)	'ring'
<i>besi</i>	[ˈbese]	«)	'knife'
<i>kobi</i>	[ˈkoβe]	«)	'cabbage'
<i>tainonus</i>	[tajˈnonos]	«)	'earthquake'

When a vowel initial enclitic attaches to a vowel final host, the final vowel conditions insertion of a consonant. The consonant /dʒ/ is inserted after the front vowels /i/ and /e/ and /gw/ is inserted after the back vowels /u/ and /o/. The clitic host then undergoes metathesis and the vowel which conditioned insertion of the consonant assimilates to the quality of the previous vowel. This process is discussed in full detail in §5.3 Four examples are given in (5) below.

(5) V[+MID](C)V[-HIGH] + =V → V[+MID]V[+MID](C)C=V

<i>n-fee</i>	+	<i>=e</i>	→	<i>n-feedʒ=e</i>	→	[ˈnfɛ:dʒɛ]	«)	'gives it'
<i>oe</i>	+	<i>=e</i>	→	<i>oodʒ=e</i>	→	[ʔɔ:dʒɛ]	«)	'the water'
<i>nefo</i>	+	<i>=e</i>	→	<i>neefgw=e</i>	→	[ˈnɛːfɣwɛ]	«)	'the lake'
<i>oo</i>	+	<i>=e</i>	→	<i>oogw=e</i>	→	[ʔɔ:gwɛ]	«)	'the bamboo'

When the penultimate vowel of the clitic host is a mid vowel which has been raised to mid-high before a high vowel, the mid-high allophone is usually preserved after consonant insertion and vowel assimilation. Examples are given in (6) below.

(6) V[+MID,+HIGH](C)V[+HIGH] + =V → V[+MID,+HIGH]V[+MID,+HIGH](C)C=V

<i>krei</i>	+	<i>=e</i>	→	<i>kreedʒ=e</i>	→	[ˈkre:dʒɛ]	«)	'the church/week'
<i>n-romi</i>	+	<i>=e</i>	→	<i>n-roomdʒ=e</i>	→	[ˈndrɔːmdʒɛ]	«)	'likes it'
<i>mepu</i>	+	<i>=e</i>	→	<i>meepegw=e</i>	→	[ˈmɛːpgwɛ]	«)	'the work'
<i>nopu</i>	+	<i>=e</i>	→	<i>noopgw=e</i>	→	[ˈnɔːpgwɛ]	«)	'the grave'

All these facts indicate that Koro'oto Amarasi is probably either in the process of acquiring a seven vowel system, or is in the process of losing an original seven vowel system.³

² In the case of *enus* → [ʔenos] 'rainbow', my main informant, Heronimus Bani (Roni), had independently chosen to write this word orthographically as <enous> in the Amarasi Bible translation. When I noticed this and asked him about it, he explained that he did this because the vowel "has the sound both of *o* and *u*."

³ Some varieties of Uab Meto are further along the pathway to a full seven vowel system. This is partly due to the complete assimilation after metathesis seen in these varieties (discussed in §4.2.3.2), seen for instance in Naitbelak Amfo'an in which *na-leko* 'is good' metathesises to [naˈle:k] with open-mid [ɛ] while *na-henu* 'is full' metathesises to [naˈhe:n] with close-mid [e]. See also the discussion in Steinhauer (1993; 1996a;b; 2008) who follows a seven vowel analysis of his Miamafu Uab Meto data.

3.2.1.2 High Vowels

The high front vowel /i/ has a lower allophone [ɪ], in several environments: before the fricative /f/, before a voiceless alveolar consonant followed by a high vowel, after a voiceless alveolar consonant which is preceded by a front vowel, and when preceding stress. It also tends to be slightly lower when it occurs after the alveolar fricative /s/. This rule is given with examples in (7) below.

(7) /i/ → [ɪ]

/ _f	<i>bif^hee</i>	[bɪ'fe:]	🔊	'woman'
	<i>nui^hf</i>	['nɔɪf]	🔊	'bone'
/ _{s,t}V[+HI]	<i>hitu</i>	['hɪtʊ]	🔊	'seven'
	<i>sisi</i>	['sɪsɪ]	🔊	'flesh'
/{s,t}V[+FR]_	<i>nisi^hf</i>	['nisɪf]	🔊	'tooth'
	<i>sisi</i>	['sɪsɪ]	🔊	'flesh'
/ _'σ	<i>bikase^h?</i>	[bɪ'kaseʔ]	🔊	'horse'
	<i>riʔana^h?</i>	[ɾɪ'ʔaneʔ]	🔊	'child'
/s_	<i>siʔu^hf</i>	['sɪʔɔf]	🔊	'elbow'
	<i>masik</i>	['masɪk]	🔊	'salt'

While the environments in which /i/ is realised as [ɪ] appear rather miscellaneous in nature, it does not seem possible at this stage to unify them into a more general environment such as 'in (unstressed) closed syllables'. Examples of unstressed realisations of /i/ as [ɪ] in closed syllables include /betiʔ/ → [βɛtɪʔ] 🔊 'fried' and *a|n-toit* → [ʔan^h'tɔɪt^h] 🔊 'asks'.

The high back vowel /u/ is realised as [ʊ] in all environments. Examples include *uki* → [ʔɔki] 🔊 'banana' and *uran* → [ʔɔrɛn] 🔊 'rain'.

3.2.1.3 Vowel Type Frequencies

A count of the frequency of each vowel was carried out on my current dictionary of 1,789 unique roots (including bound morphemes). This yielded a total of 3,903 vowels, the frequencies of which are given in Table 3.3 below.

Table 3.3: Vowel Frequencies

V	/i/	/e/	/a/	/o/	/u/
no.	655	690	1,234	630	694
	16.8%	17.7%	31.6%	16.1%	17.8%

As Table 3.3 shows, the vowel /a/ is nearly twice as frequent as each other vowel. The vowel /a/ is also the vowel inserted epenthetically to break up clusters of more than two consonants (§3.8.2), and it can be considered the default vowel.

3.2.1.4 Vowel Sequences

Amarasi allows a maximum of two vowels to surface adjacent to one another. Every sequence of two vowels occurs in Amarasi, with the exception of a high vowel followed by a mid vowel. Attested sequences are given in Table 3.4 below, with frequencies in my dictionary of 1,789 unique roots given in Table 3.5. All the sequences given in Table 3.4, with the exception of /ou/, have been attested in underlying U-forms. That is, only the sequence /ou/ has so far been attested exclusively in metathesised words.

Table 3.4: Amarasi Vowel Sequences

V ₁ ↓	i	e	a	o	u	←V ₂
i	<i>ii</i>		<i>ia</i>		<i>iu</i>	
e	<i>ei</i>	<i>ee</i>	<i>ea</i>	<i>eo</i>	<i>eu</i>	
a	<i>ai</i>	<i>ae</i>	<i>aa</i>	<i>ao</i>	<i>au</i>	
o	<i>oi</i>	<i>oe</i>	<i>oa</i>	<i>oo</i>	<i>ou</i>	
u	<i>ui</i>		<i>ua</i>		<i>uu</i>	

Table 3.5: Vowel Sequence Frequencies

V ₁ ↓	i	e	a	o	u	←V ₂
i	17		10		10	
e	11	28	4	24	10	
a	74	38	34	19	41	
o	16	32	5	28		
u	14		30		24	

One distinctive phonetic feature of Amarasi compared to other varieties of Uab Meto is centralisation of /a/ when followed by a high vowel. This is most common in the sequence /au/, but does also occur in the sequence /ai/. Such centralisation does not occur in sequences of /au/ or /ai/ resulting from metathesis. Examples are given in (8) below.

(8) /a/ → [ə] / _V[+HIGH]

au [ʔəʊ] 🔊 '1SG'
sekau [sɛ'kəw] 🔊 'who'

Alternately, the first element of the sequence /ai/ is often fronted to [ɛ]. These sequences are generally kept distinct from underlying sequences of /e+/i/, which are usually realised as [ej] according to the regular rule of mid vowel raising before high vowels (see rule (3) on page 82). Raising of /a/ to [ɛ] before /i/ does not occur in careful speech. The examples in (9) below were extracted from texts.

(9) /a/ → [ɛ]~[ɛ] / _i

n-murai [n̄m̄o'ɾɛj] 🔊 'begins'
mainuan [mɛj'nɔɛn] 🔊 'open(ness), freedom'

The second vowel of sequences beginning with /i/ is often fronted. This might only happen before apical consonants, seen in (10) before the voiceless apical sibilant /s/.

(10) /V/ → [V] / i_

a|n-kius [ʔan'kius] 🔊 'sees'
a|n-kias [ʔan'kiæs] 🔊 'sees' (see §3.2.1.4.1)

The mid-back vowel /o/ often dissimilates in backness and rounding from a following high vowel. This results in either a centralised rounded or unrounded vowel, as conditioned by the rounding quality of the following high vowel:

$$(11) \ /o/ \rightarrow V[\beta_{\text{BACK}}, \beta_{\text{ROUND}}] / _V[+\text{HIGH}, \alpha_{\text{BACK}}, \alpha_{\text{ROUND}}]$$

<i>a n-toit</i>	[ʔan̩t̩o̩it̩]	🔊	‘asks’
<i>a n-toup</i>	[ʔan̩t̩ʊ̯p̩]	🔊	‘receives’

3.2.1.4.1 Koro'oto Height Dissimilation In Koro'oto hamlet the second vowel of a sequence in which both vowels have the same height but different backness is often realised as /a/. This rule can apply to all sequences of two mid vowels, but only to sequences of two high vowels followed by a consonant. Examples are given in (12) below.

$$(12) \ V \left[\begin{array}{c} \alpha_{\text{HIGH}} \\ \beta_{\text{BACK}} \end{array} \right] \rightarrow /a/ / V \left[\begin{array}{c} -\alpha_{\text{HIGH}} \\ -\beta_{\text{BACK}} \end{array} \right] -$$

General Amarasi		Koro'oto	
<i>riuksaen</i>	[riok'saen]	<i>riaksaen</i>	[riak'saen] 🔊 ‘python’
<i>seo</i>	[sɛɔ]	<i>sea</i>	[sɛa] 🔊 ‘nine’
<i>oe</i>	[ʔɔɛ]	<i>oa</i>	[ʔɔɐ] 🔊 ‘water’

This vowel dissimilation is perceived as distinctly peculiar to Nekmese' and words such as *oa* ‘water’ are viewed by inhabitants of Nekmese', as well as outsiders, as emblematic of this village.⁴ The rule is highly productive and has been observed applying to the author's first name; *Owen* /'əʊwən/, which is assimilated into Indonesian as /owen/, thence into Amarasi as *Oen* → [ʔɔɛn] and thence into Koro'oto as *Oan* → [ʔɔɛn].

In some lexemes this rule also operates across an intervening glottal stop. The lexemes in my database in which this has been recorded are *kreʔo* → *kreʔa* ‘a bit’, *√moʔe* → *√moʔa* ‘do, make’ and *seʔo* → *seʔa* ‘ninth’.

3.2.1.4.2 Quantification of Vowel Sequence Length The lengths of vowels and vowel sequences where one of the vowels of the sequence was stressed were measured in polysyllabic words from four texts of a single speaker. The vowels to be measured were marked in Praat with a text-grid and the lengths extracted with a script. The measurements for vowels of words with a distinctive pause intonation as well as pronouns, which are often unstressed, were excluded from the data set.

⁴ This height dissimilation is found in other varieties of Kotos Amarasi, not only that spoken in the hamlet of Koro'oto and the village of Nekmese'. However, the full range of its distribution is currently unknown. It is not known to occur either in Ro'is Amarasi or in the speech of Amabi-Oefeto.

This yielded a total 1,249 measurements. Of these 472 tokens were of a single vowel, 314 represented a sequence of two identical vowels and 463 represented a sequence of two different vowels. The results are summarised in Table 3.6.

Table 3.6: Vowel Lengths in Amarasi

	V	V _α V _α	V _α V _β	all
average length (sec.)	0.098	0.129	0.138	0.121
number of tokens	472	314	463	1,249
standard deviation	0.034	0.05	0.061	0.055
t-test (vs. V)		p < 0.001	p < 0.001	

This table shows that a sequence of two different vowels is on average 41% longer than a single vowel, while a sequence of two identical vowels is on average 31% longer than a single vowel. These differences are statistically significant as shown by a two tailed t-test.

A sequence of two identical vowels is phonemically distinct from a single vowel, as corroborated by the t-test. However, it is not the case that every instance of a sequence of two identical vowels will always be phonetically longer than a single vowel. Other factors, such as sentence stress and intonation, can conspire to increase or decrease the phonetic length of any particular token of a vowel or vowel sequence.

Compare examples (13) and (14) from the same speaker. In example (13) the vowel sequence of the word *fee* ‘woman’ measures 0.141 seconds; above the average for a sequence of two identical vowels. However, the same vowel sequence in the same word in sentence (14) measures 0.083 seconds; below the average for a single vowel.

- (13) [ʔɛsɛs ət̪ʰ nək ʔɪn 'fɛ:0.141 ɪn mɔŋɛ]
es~es =at n-ok in fee in mone
 FRD~one =SET 3-with 3SG woman 3SG man\U
 ‘each [of them] with their wife or their husband...’ 130928-1, 2.09 ◀▶

- (14) [wə nɔɛf ɪn fɛ̃0.083 mnasi ʔarɛ anɛ'anɛ nɛβoʌn]
ahh ʔnaef =am fee mnasi? are? anah~anah na-bua=n...
 old.man and woman old\U all\U FRD~\U~child\U 3-gather=PL
 ‘the old men and woman [and] all the children gathered’ 130902-1, 3.52 ◀▶

The word *fee* is shortened in (14) as it is the first word of a modified noun phrase. Head nouns with a modifier typically take reduced secondary stress in Amarasi (§3.4.1).

3.2.1.5 Loan Vowel Nativisation

The most common non-native vowel which occurs in loan-words is the vowel /ə/. This vowel is reflected as /a/ in Amarasi as shown by Dutch *lezen* /le:sə/ > Amarasi *resa*. Instances of

Malay /ə/ are also reflected as /a/, though in many cases these could be borrowings from Kupang Malay in which proto-Malay *ə usually became /a/. One example is *parikas* ‘to examine’ < Malay *periksa* /pəˈriksa/ or Kupang Malay *pariksa*.

3.2.2 Consonant Inventory

Amarasi has eleven phonemic consonants to draw on to fill a C-slot. These consonants are shown in Table 3.7 and 3.8 below. The symbols used in my phonemic transcription are given in Table 3.7. These consonants are phonetically realised with the standard IPA values associated with the symbols given in Table 3.8, with common allophones discussed below.

Table 3.7: Amarasi Consonants
(Broad Transcription)

	Labial	Coronal	Dorsal	Glottal
Voiceless Plosives	<i>p</i>	<i>t</i>	<i>k</i>	<i>ʔ</i>
Voiced Obstruents	<i>b</i>	<i>(dʒ)</i>	<i>(gw)</i>	
Fricatives	<i>f</i>	<i>s</i>		<i>h</i>
Nasals	<i>m</i>	<i>n</i>		
Liquid		<i>r</i>		

Table 3.8: Amarasi Consonants
(Narrow Transcription)

Labial	Dental	Alveolar	Palatal	Velar	Glottal
p	t̪			k	ʔ
b/β			(dʒ/ʒ)	(gw/ɣw)	
f		s			h
m		n			
		r			

The liquid /r/ is realised as an alveolar trill [r], tap [ɾ], or occasionally in rapid speech as an alveolar approximant [ɹ]. In the speech of at least some speakers it is usually preceded by a voiceless component phrase initially, as shown in (15) below.

(15) /r/ → [hr] ~ [ɾ] /#_

ruman ['hr̥ʊmən] 🗣️ ‘empty’

ruru-f ['hr̥ʊrʊf] 🗣️ ‘lips’

rekaʔ ['hr̥ɛkəʔ] 🗣️ ‘when?’

No known Uab Meto variety has a voiced alveolar plosive phoneme /d/ in native vocabulary. [d] only occurs in native Amarasi vocabulary epenthetically between /n/ and /r/. Likewise, epenthetic [b] often occurs between /m/ and /r/. Examples are given in (16).

(16) N[APLACE] → N[APLACE]P[APLACE] /_r

a|n-rooʔ [ʔan'dr̥ʊʔ] 🗣️ ‘spews’

a|n-reruʔ [ʔan'dr̥erʊʔ] 🗣️ ‘is tired’

?muik sumririʔ [ʔmoiksumb'ririʔ] 🗣️ ‘k.o. small lime with edible skin’

The alveolar nasal /n/ assimilates to the place of a following obstruent in non-careful speech, with the exception of the labial plosives /p/ and /b/ before which such assimilation has not been observed in Amarasi.⁵ Examples are given in (17) below.

(17) /n/ → [αPLACE] / _P[αPLACE]

<i>a n-tuup</i>	[ʔan̩ ^h tʊ:p]	▶▶	'sleeps'
<i>a n-dʒair</i>	[ʔap̩ ^h dʒaer]	▶▶	'becomes'
<i>bankofaʔ</i>	[bɛŋ ^h kɔfɛʔ]	▶▶	'caterpillar'
<i>tungwuru</i>	[tʊŋ ^h gʊrʊ]	▶▶	'teacher'

The voiceless dorsal plosive /k/ is often palatalised before or after a front vowel. Two examples are given in (18) below.

(18) /k/ → [kj] / _V[+FR], V[+FR]#_

<i>uki</i>	[ʔʊkj]	▶▶	'banana'
<i>n-eik</i>	[nejkj]	▶▶	'takes'

The glottal stop /ʔ/ is sometimes realised as creaky voice on surrounding voiced segments. This is most common in rapid speech. Two examples from texts are given in (19) and (20) below.

(19) [ɛ:: ndɪɛʊk hiʔʊ ɲkɔnɔ kreʔʊ]
ehh n-reuk, hitu n-kono kreʔʊ
 3-pluck seven 3-pass little
 'a little bit after it struck seven o'clock.' 130920-1, 0.47 ▶▶

(20) [rɛ ɲsɔŋɛ nɛʊ ɣbiʔɛn hɾɔmɛ]
reʔ a|n-sounʔ=e n-eu a-bi-ta=n Roma
 REL 3-send=3SG.ACC 3-DAT NML-RL.LOC-NML=PL ɾ.
 'which [he] sent to the Romans.' 130920-1, 0.27 ▶▶

The labio-dental fricative /f/ in Amarasi is usually articulated with the lower part of the lip touching the teeth, rather than with the top/outer part of the lip, as in English.

3.2.2.1 Voiced Obstruents

The voiced obstruents /dʒ/ and /gw/ are marginal phonemes with a limited distribution. In native vocabulary they only occur as a result of vowel features spreading into empty C-slots, under the process of consonant insertion at clitic boundaries (§5.3).

In Koro'oto the voiced velar obstruent /gw/ is not followed by a labio-velar glide before the back rounded vowels /u/ and /o/. Examples are given in (21) below. With the exception of the data in (21), I transcribe the unrounded allophone of /gw/ as <g> throughout this thesis.

⁵ Assimilation of /n/ to [m] or [ŋ] before labial obstruents has been observed in other varieties of Uab Meto.

(21) /gw/ → [g] /_V[+ROUND]

<i>na-kneʔo</i>	+	=o-n	→	<i>na-kneeʔgw=o-n</i>	[nak'ne:ʔgɔn]	🔊	'twisted'
<i>na-tinu</i>	+	=o-n	→	<i>na-tiingw=o-n</i>	[na'ti:ŋgɔn]	🔊	'worries'
				<i>tungwuru</i>	[tʊŋ'gʊrʊ]	🔊	'teacher'

An alternate analysis of the same data would be to posit that the voiced velar obstruent is underlyingly unrounded, and acquires rounding before non-back/unrounded vowels, i.e. /g/ → [gw] /_V[-ROUND]. However, such a rule seems phonetically unmotivated, while the rule in (21) in which a rounded obstruent is de-rounded before rounded vowels is a phonetically natural rule of dissimilation.⁶ Nonetheless, with the exception of the examples in (21) above, I transcribe the unrounded allophone of /gw/ as <g> throughout this thesis.

Apart from instances arising from consonant insertion, the voiced obstruents /dʒ/ and /gw/ also occur in loan words. Examples include *andʒair* 'become' ← Malay *jadi* and *tunguru* 'teacher' ← Malay *tuan* + *guru*. In some loans /dʒ/ is adapted as /r/ and /g/ as /k/ (§3.2.2.3).

The voiced obstruents are realised as stops [b dʒ gw], fricatives [β ʒ ɣw], or approximants [β̥ j ɥw]. In many environments the alternation is a case of free variation, however, in certain environments either the stop or the continuant (fricative and approximant) allophones are more common. A count was made of the realisations of every voiced obstruent in three texts for my main informant, Roni. The results are summarised in Table 3.9 below.

Table 3.9: Frequency of Stop and Continuant Realisations (Roni)

	V_†	N_	C_	#_
stop: [b dʒ gw]	23	12	9	7
cont. [β ʒ ɣw]	61	0	23	5
stop%	27%	100%	28%	58%

† V_ is post-vocalic; both V_C and V_V, N_ is following a homorganic nasal

Table 3.9 shows that, for Roni, continuant allophones are dominant after both vowels and consonants, while they are completely lacking after homorganic nasals. Only phrase initially are stop allophones slightly more common, though this could be an artefact of the tiny data sample in this environment.

Finally, some speakers appear to prefer one allophone over the other. While Roni used continuant allophones of /b/ in 67/108 instances (62%) in the count made for Table 3.9, only a single continuant allophone of /b/ was recorded in texts for my second main informant Oma out of 29 instances.

⁶ In the variety of Kotos Amarasi spoken in the hamlet of Fo'asa' the voiced velar obstruent is never rounded, and for this variety of Amarasi I posit the phoneme /g/ rather than /gw/. Fo'asa' /g/ also occurs in a wider range of environments than Koro'oto /gw/. In Fo'asa' Kotos Amarasi /g/ is inserted at clitic boundaries after vowel final stems. See §5.5.2 for more details.

Examples of both realisations of the bilabial obstruent /b/ taken from Roni’s speech are given in (22)–(25) below. In (22) and (23) the bilabial obstruent /b/ is pronounced as a plosive [b]. In (22) the plosive occurs between two vowels and in (23) it occurs after a homorganic nasal. (Primary sentence stress is marked by an acute accent and secondary sentence stress by a grave accent.)

- (22) [hɛj mi**b**áreβ]
hai mi-barab
 1PX 1PX/2PL-prepare
 ‘We prepared,’ 130902-1, 4.23 ◀▶
- (23) [háj m̀òk əmbi rɛ ɛææ kósuʔ]
hai m-ok a|m-bi reʔ ahh kosuʔ
 1PX 1PX/2-with 1PX/2-RL.LOC REL dance.kind'
 ‘We went along and we joined the *kosuʔ* (k.o. dance)’ 130902-1, 2.59 ◀▶

Examples of the bilabial obstruent /b/ realised as a fricative [β] are given in (24) and (25) below. In (24) it occurs between two vowels and in (25) it occurs before another consonant. Example (25) also shows a both an affricate and fricative realisation of /dʒ/.

- (24) [hɛ m̀ànse nmaɣ**β**ɛ t̪é]
heʔ maans=e n-maeb=e =te
 hey sun\M=3DET 3-afternoon\M=3SG.ACC =SET
 ‘(said:) hey, when it’s the afternoon’ 130928-1, 1.41 ◀▶
- (25) [kɛstʃɛ nrà**β**ʒɛ t̪ nak maso mínt̪a]
kaasɟ=e n-raabɟ=e =t n-ak “maso minta”
 foreign=3DET 3-speak.foreign=3SG.ACC =SET 3-say enter ask
 ‘In a foreign language they call it “enter to ask”’ 130902-1, 0.35 ◀▶

3.2.2.2 Consonant Frequencies

A count of the frequency of each consonant was carried out on my current dictionary of 1,789 unique roots (including bound morphemes). This yielded a total of 4,517 consonants, the frequencies of which are given in Table 3.10 in order of frequency

Table 3.10: Consonant Frequencies

C	/n/	/ʔ/	/k/	/t/	/r/	/s/	/b/	/m/	/p/	/f/	/h/	/dʒ/	/gw/
no.	731	729	527	508	448	443	295	277	233	181	133	10	2
	16%	16%	12%	11%	10%	10%	7%	6%	5%	4%	3%	0.2%	0.04%

As can be seen from Table 3.10, the voiced obstruents /dʒ/ and /gw/ are extremely infrequent in my corpus. This provides additional evidence for their marginal status within

the phoneme inventory. This table also shows that the glottal stop /ʔ/ which was not consistently transcribed in some earlier descriptions of Uab Meto, such as Middelkoop (1939; 1950; 1972), is the second most common consonant phoneme.

3.2.2.3 Loan Consonant Naturalisation

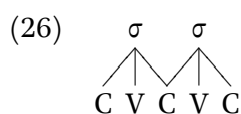
The naturalisation of non-native consonants in Amarasi is summarised in Table 3.11. The phonemes /dʒ/ and /g/ in loanwords are either adapted into Amarasi as /r/ or /k/ respectively or they undergo no change. Concerning the phoneme /dʒ/ (for which more examples are available), some words, such as ‘become’ shown in Table 3.11, have variants reflecting both /r/ and /dʒ/, while other words such as *baru* < Malay *baju* ‘shirt’ (ultimately from Persian) and *dʒeket* < Malay *jeket* < English *jacket* have only one form. That these phonemes are sometimes naturalised in Amarasi is additional evidence that they are marginal phonemes.

Table 3.11: Naturalisation of Foreign Consonants in Amarasi

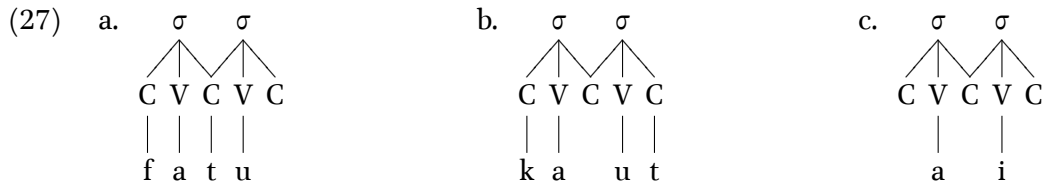
	source	Amarasi	Donor	Meaning
/w/ → /b/	<i>kawin</i>	<i>kabin</i>	via Malay	‘wedding’
/ŋ/ → /n/	<i>sidang</i>	<i>siran</i>	via Malay	‘meeting’
/d/ → /r/	<i>duit</i>	<i>roit</i>	Dutch	‘money’
/l/ → /r/	<i>lezen</i>	<i>resa</i>	Dutch	‘read’
/dʒ/ → /r/ → /dʒ/	<i>jadi</i>	<i>dʒari</i>	via Malay	‘become’
		<i>rari</i>		
/g/ → /k/ → /gw/	<i>igreja</i>	<i>krei</i>	Portuguese	‘church’
		<i>tuan guru</i>	<i>tuyguru</i>	via Malay
/tʃ/ → /s/	<i>percaya</i>	<i>pirsai</i>	via Malay	‘believe’

3.3 The CVC Syllable

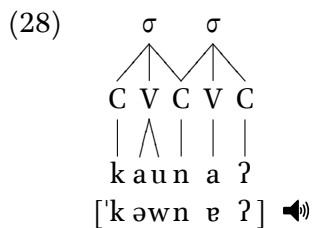
The Amarasi syllable consists of an onset C-slot, a nucleus V-slot and a coda C-slot, thus $\sigma \rightarrow$ CVC. The medial C-slot of the foot is ambisyllabic (Clements and Keyser 1983:36, Durand 1990:217ff); it is both the coda of the first syllable and the onset of the second syllable. Evidence for this syllable structure comes from (§3.4.2), as well as metathesis before vowel initial enclitics (Chapter 5). The syllabification of the CVCVC foot (§3.4) is shown in (26) below.



This syllable structure is identical for all feet regardless of the contents of each of the C-slots and V-slots. Thus, each segmental vowel of a word is the nucleus of a unique syllable. The syllabification of *fatu* ‘stone’, *kaut* ‘papaya’ and *ai* ‘fire’ is shown in (27) below. Extensive evidence for empty C-slots is given in §4.5.1.3.



The only case in which a sequence of two vowels is the nucleus of a single phonemic syllable is words with the surface structure (C)VVCV(C)#, such as *kauna?* ‘snake; creature’. In this case, the first two vowels are assigned to single V-slot and thus by extrapolation form the nucleus of the syllable to which that V-slot belongs. This is discussed in more detail in §3.5.1.1 below. The syllabification of *kauna?* ‘snake; creature’ is shown in (28) below.



While each V-slot is phonemically the nucleus of its own syllable (with the exception of surface (C)VVCV(C) words), there are some situations in which a vowel sequence can optionally coalesce into a single phonetic syllable (§3.2.1.4). This (optional) phonetic coalescence does not in any-way affect the underlying phonemic structures. Two vowels which have coalesced into a single phonetic syllable remain the peak of two phonemic syllables for the purposes of stress assignment, reduplication, metathesis and all other morphophonemic processes of the language.

Firstly, in normal speech a sequence of two identical vowels usually coalesces into a single phonetic syllable with a single intensity peak at the beginning of the vowel sequence. Examples are given in (29) below.

(29) /N_αV_α/ → [V:]

<i>a n-sii</i>	[ʔan'si:]	🔊	‘sings’
<i>nee</i>	[nɛ:]	🔊	‘six’
<i>haa</i>	[ha:]	🔊	‘four’
<i>oo</i>	[ʔɔ:]	🔊	‘bamboo’
<i>tuu-f</i>	[tʊf]	🔊	‘knee’

Another situation in which two vowels often (though not always) coalesce into a single phonetic syllable with only a single intensity peak at the beginning of the vowel sequence is when the second vowel is higher than the first. When this is the case the second vowel can be realised as an off-glide. Examples are given in (30) below.

(30) /VV/ → [VY]

<i>a n-toup</i>	[ʔan̩'təwp]	🔊	'receives'
<i>n-eik</i>	[nejki]	🔊	'takes'
<i>tei</i>	[t̩ej]	🔊	'faeces'
<i>fauk</i>	[fəwk]	🔊	'how many'

This coalescence is entirely optional, and many instances of a vowel followed by a higher vowel do not coalesce into a single phonetic syllable. The underlying structure of two phonemic syllables can be realised transparently as two phonetic syllables. Examples are given in (31) below.

(31) /VV/ → [V.V]

<i>tai-f</i>	['t̩a.if]	🔊	'belly'
<i>snaen</i>	['sna.ɛn]	🔊	'sand'
<i>ansao-f</i>	[ʔan'sa.ɔf]	🔊	'solar plexus'
<i>tei</i>	['t̩e.i]	🔊	'faeces'

Phonetic coalescence rarely occurs when both vowels of a sequence are of equal height, or when the first vowel is higher than the second. Examples are given in (32) below.

(32) /VV/ → [V.V]

<i>oe kmii</i>	[ʔɔ.ɛk'mi:]	🔊	'urine'
<i>noah</i>	['nɔ.ɐh]	🔊	'coconut'
<i>fua-f</i>	['fɔ.ɐf]	🔊	'fruit'
<i>ia</i>	[ʔi.a]	🔊	'here'
<i>mneas</i>	['m̩nɛ.as]	🔊	'hulled rice'

Importantly for any analysis of metathesis in Amarasi, vowel sequences created through metathesis *do not* obligatorily coalesce. This means that an account of Amarasi metathesis in which metathesis is driven by the need for stressed syllables to be heavy, (as has been proposed for Kwara'ae — see §2.2.2) cannot account for all the data.

Examples of vowel sequences created through metathesis in which phonetic coalescence has not occurred are given in (33) below. Additionally, in each example in (33) the second vowel is higher than the first; the kind of vowel sequence which most commonly coalesces.

(33) $V_1CV_2\# \rightarrow V_1V_2C\# \rightarrow [V.VC]$

\sqrt{toti}	<i>a n-toit</i>	[ʔan'to.i.t̩]	◀▶	'asks'
\sqrt{mani}	<i>a n-main</i>	[ʔan'ma.in]	◀▶	'laughs'
\sqrt{hake}	<i>a n-haek</i>	[ʔan'ha.ɛki]	◀▶	'stands'
\sqrt{fanu}	<i>faun</i>	[fa.ɔn]	◀▶	'eight'
\sqrt{tenu}	<i>teun</i>	[tɛ.ɔn]	◀▶	'three'

Coalescence of two vowels into a single phonetic syllable is more frequent in rapid speech and when the vowel sequence does not bear primary stress. Thus, in a particular word-list, the word *hau* 'tree, wood' occurs in isolation as [ʔha.ɔ] ◀▶, without the second vowel being realised as an off-glide. However, in the same word-list when the same word occurs in the compound *hau noʔo* 'tree leaf' it is realised as [haw'noʔo] ◀▶, with the second vowel desyllabified. Again, such desyllabification is *not* obligatory and vowel sequences which do not have primary stress also often surface with two phonetic syllables. One example is *oemninuʔ* 'water (for) drinking' → [ʔo.ɛm'ninɔʔ] ◀▶.

3.4 The CVCVC Foot

One of the most important elements of word structure in Amarasi is the foot. All lexical words in Amarasi contain at least one foot. The structure of the Amarasi foot is given in (34) below.

(34) Ft. → CVCVC

In (34) 'V' represents a V-slot which is obligatorily filled in by one of the segmental vowels (§3.2.1). The letter 'C' represents a C-slot which is optionally filled by one of the segmental consonants (§3.2.2). Stress falls on the penultimate V-slot of the foot (§3.4.1).

Under my analysis, C-slots can be empty. This means that a word such as *muʔit* 'animal' has the same underlying structure as *fatu* 'stone', *kaut* 'papaya' or *ai* 'fire'. In all cases these words map onto the same CVCVC foot structure. Thus, *fatu* 'stone', *kaut* 'papaya' and *ai* 'fire' have empty C-slots. The underlying structure of these three words is given in (35) below.

(35) a. C V C V C b. C V C V C c. C V C V C

f	a	t	u	k	a	u	t	a	i		

Under certain conditions there are phonetic traces of actual consonants in these empty C-slots. There are at least six morphological and/or phonological processes under which phonetic traces of these empty C-slots can be identified. These conditions are discussed in §4.5.1.3. In addition to these language internal rules, in other varieties of Uab Meto there are examples of actual consonants surfacing in environments for which I posit empty C-slots in Amarasi. This comparative data is also discussed in §4.5.1.3.

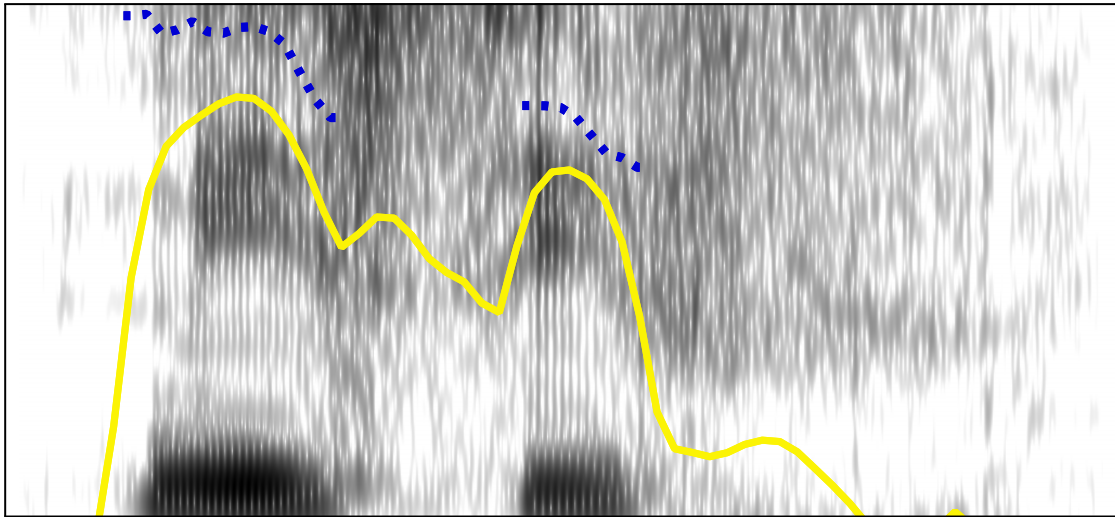
3.4.1 Stress

3.4.1.1 Word Stress

Word stress in Amarasi falls on the penultimate syllable of the foot. Usually this means the penultimate segmental vowel is stressed. The three main correlates of stress in Amarasi are duration, pitch and intensity. A stressed vowel is typically realised with higher pitch, increased intensity and is longer when compared to unstressed vowels.

A simple example can be seen in the word *nisi-f* → ['nisif] 🗣️ 'tooth'. The spectrogram for one repetition of this word in a word-list is given in Figure 3.1. Intensity is shown by the solid yellow line and pitch by the dotted blue lines.

Figure 3.1: Spectrogram of *nisi-f* → ['nisif] 'tooth'



Visually, it is quite clear from Figure 3.1 that the initial vowel has higher pitch as well as increased intensity and duration when compared to the second vowel. The measurements for length, intensity and duration for the initial stressed vowel and final unstressed vowel in this recording are given in Table 3.12. These figures can be considered broadly representative of the pattern observed for all feet.

Table 3.12: Length, Pitch and Intensity of Vowels in *nisi-f* → ['nisif] 'tooth'

	V ₁	V ₂
length (sec)	0.095	0.07
peak intensity (dB)	80	75
peak pitch (Hz)	207	186

Words with the surface structure (C)VVCV(C), such as *kauna?* 'snake; creature', are the

only words in which the penultimate segmental vowel is not stressed. The initial vowel sequence of such words usually coalesces into a phonetic diphthong, with the higher vowel being realised as an off-glide. The whole phonetic diphthong is then the locus of stress placement. Examples are given in (36) below.

(36) (C)VVCV(C) → '(C)VVCV(C)

<i>kauna?</i>	[<i>kəwne?</i>]	☞	'snake; creature'
<i>aika?</i>	[<i>'ʔajka?</i>]	☞	'thorn'
<i>nautus</i>	[<i>'nəwtʊs</i>]	☞	'beetle'
<i>naunu?</i>	[<i>'nəwnu?</i>]	☞	'breadfruit'
<i>uaba-?</i>	[<i>'ʔwəbe?</i>]	☞	'speech, language'

3.4.1.2 Phrasal and Sentence Stress

Within the noun phrase, it is the final nominal which bears primary stress on its penultimate syllable. Examples are given in (37) which shows a number of attributive nominal phrases.

(37) Stress for Nominal + Nominal:

<i>aam baba-?</i>	→	[<i>ʔam'baba?</i>]	☞	'father' + 'in-law'
<i>ain baba-?</i>	→	[<i>ʔæjn'babə?</i>]	☞	'mother' + 'in-law'
<i>hau no?o</i>	→	[<i>haw'nɔ?ɔ</i>]	☞	'tree' + 'leaf'
<i>mais oni</i>	→	[<i>majs'ʔoni</i>]	☞	'salt' + 'sugar' (= 'crystalline sugar')
<i>ʔnaak funu-f</i>	→	[<i>ʔnak'fɔnɔf</i>]	☞	'head' + 'hair'
<i>atoin munif</i>	→	[<i>ʔatəjn'mɔnɪf</i>]	☞	'man' + 'young'
<i>oe mninu?</i>	→	[<i>ʔɔəm'nɪnɔ?</i>]	☞	'water' + 'drinking'
<i>raan meto?</i>	→	[<i>hɾan'metɔ?</i>]	☞	'road' + 'dry'
<i>umi mnasi?</i>	→	[<i>ʔɔmɪm'nasi?</i>]	☞	'house' + 'old'

Enclitics are extra-metrical. When an enclitic is attached to a noun phrase, stress is assigned to (the penultimate vowel of) the final nominal. Examples of nouns with an enclitic are given in (38). A clitic host followed by an enclitic constitutes a single phonological word.

(38) Stress for Noun + Enclitic:

<i>knaa?</i>	+	<i>=e</i>	→	<i>knaa?e</i>	→	[<i>'kna:ʔɛ</i>]	☞	'the bean'
<i>oo</i>	+	<i>=e</i>	→	<i>oogw=e</i>	→	[<i>'ʔɔ:gwɛ</i>]	☞	'the bamboo'
<i>oe</i>	+	<i>=e</i>	→	<i>oodɕ=e</i>	→	[<i>'ʔɔ:dɕɛ</i>]	☞	'the water'
<i>krei</i>	+	<i>=e</i>	→	<i>kreedɕ=e</i>	→	[<i>'kre:dɕɛ</i>]	☞	'the church/week'

In a simple declarative sentence — defined here as a clause/unit containing an inflected verb or other predicator — stress usually falls on the penultimate vowel of the final word. Two examples are given in (39) and (40) below. Sentence/clausal stress is marked with an acute accent.

- (39) [haj mnaɛbnɛ t̪ ɔː sɛɾ maʔfɛnɛʔ]
hai m-naebn=e =t ro seor maʔfenaʔ.
 hai m-naben=e =te ro sero maʔfenaʔ
 1PX 1PX/2-feel\M=3SG.ACC =SET real enough heavy
 ‘We felt (as though) it was really difficult enough.’ 130920-1, 1.10 ◀

- (40) [nɛː haj mɾɛsɛ mɛktɔnt̪ɔ̃jɛʔ]
na, hai m-resa m-mak-tun~tuinaʔ
 well 1PX 1PX/2-read\U 1PX/2-RECP-INTNS~follow
 ‘Well, we each read one after the other.’ 130920-1, 1.13 ◀

Sentence/phrasal enclitics (§3.7.3) are also extra-metrical and thus not usually counted for the purposes of stress assignment. Two examples of sentences with final enclitics are given in (41) and (42) below.

- (41) [haj ka mɾɛsa nmɛːsdzɛh fa]
hai ka= m-resa n-meestɔ̃=ah =fa.
 hai ka= m-resa n-mese=ah =fa
 1PX NEG= 1PX/2-read\U 3-alone\M=just =NEG
 ‘We didn’t read by ourselves.’ 130920-1, 1.23 ◀

- (42) [ndɪɛok fánu t̪ɛː]
n-reuk fanu =te, ...
 n-reku fanu =te ...
 3-pluck\M eight\U =SET
 ‘When it struck eight o’clock, ...’ 130920-1, 0.51 ◀

While the usual pattern is for sentence stress to fall on the (penultimate vowel of) the final word, other patterns can be found depending on the discourse structures within which the sentence is embedded. Two examples in which stress falls on a word other than the final word are given in (43b) below.

- (43) a. [haj ʔimɛ mnáɔ miʔkɔ kɔɛn]
hai ima m-nao mi-ʔko kuan,
 1PX 1PX/2PL\come\U 1PX/2-go 1PX/2PL-ABL village
 ‘We left the village, ...’ 130920-1, 0.40 ◀
- b. [ʔɛːs nɛɛn mɛsɛʔ k̪ikɔ]
es nean mese-ʔ kiku.
 es neno mese-ʔ kiku
 one day\M one-ORD early.morning
 ‘It was (on) Monday morning.’

3.4.2 Reduplication



Reduplication provides support for identifying both the CVCVC foot and CVC syllable as distinct domains of Amarasi word structure. Amarasi has two kinds of reduplication: full

reduplication and partial reduplication. In full reduplication the entire word (including any affixes) is simply copied. Examples include *reko* ‘good’ → *reko~reko* ‘properly’, *nenó* ‘day’ → *nenó~nenó* ‘every day’, and *na-baar* ‘3-forever’ → *nabaar~nabaar* ‘forever and ever’.

In partial reduplication the initial (and stressed) syllable of the final foot is copied and prefixed to this final foot. For roots which consist of a single foot, this means the reduplicant is simply placed to the left of the stem. Examples are given in (44) below.

(44) Partial Reduplication:

<i>nenuk</i>	→	<i>nen~nenuk</i>	‘(go for a) walk’
<i>baʔuk</i>	→	<i>baʔ~baʔuk</i>	‘many’
<i>mate</i>	→	<i>mat~mate</i>	‘die’
<i>nenuk</i>	→	<i>nen~nenuk</i>	‘(go for a) walk’
<i>reko</i>	→	<i>rek~reko</i>	‘good’
<i>koʔu</i>	→	<i>koʔ~koʔu</i>	‘big’
<i>nao</i>	→	<i>na~nao</i>	‘go’
<i>okeʔ</i>	→	<i>ok~okeʔ</i>	‘all’
<i>anaʔ</i>	→	<i>an~anaʔ</i>	‘small’

In the case of phonemically vowel initial roots which begin with a predictable glottal stop (§4.5.1.3.5), this epenthetic glottal stop is the onset of both the reduplicant and following foot. Two examples are *ok~okeʔ* ‘all’ → [ʔokʔʔokʔ]  and *an~anaʔ* ‘small’ → [ʔanʔaneʔ] .

When the medial C-slot of the foot is empty, the final C-slot of the reduplicant is filled by the final consonant of the foot. Examples are given in (45) below.

(45) Partial Reduplication with Empty Medial C-slots:

<i>fauk</i>	→	<i>fak~fauk</i>	‘several’
<i>buaʔ</i>	→	<i>buʔ~buaʔ</i>	‘together’
<i>na-tuin</i>	→	<i>na-tun~tuin</i>	‘follows; because of’
<i>kais</i>	→	<i>kas~kais</i>	‘don’t, PROHIBITIVE’
<i>na-ʔuab</i>	→	<i>na-ʔub~ʔuab</i>	‘speaks’

Suffixes or enclitics attached to a stem do not appear in the reduplicant in partial reduplication. Two examples include *n-poi=n* ‘3-exit=PL’ → *n-po~poi=n* and *na-breó=n* ‘3-grope.around=PL’ → *na-bre~reo=n*. There are two CCVVC# roots in my corpus in which the final consonant does not appear in the reduplicant. These roots are *ʔnaef* ‘old man’ → *ʔna~naef* and *mfaun* ‘many’ → *mfa~faun*. In both these instances the final consonant is probably a result of frozen morphology.⁷

The evidence that reduplication provides for identifying the foot as a distinct unit of phonological structure in Amarasi comes from the behaviour of reduplication when it applies

⁷ The final consonant of *mfaun* ‘many’ could be the plural enclitic =*n* (§5.6). For *ʔnaef* ‘old man’, the final consonant could be the genitive suffix *-f*. Other Uab Meto varieties have the cognate form *a|ʔnaek* ‘big’, and Amarasi itself has a verbal form *na-ʔnae* ‘grow’.

to a root which is larger than a single foot. In this situation, the CVC reduplicant is placed after the pre-foot material and prefixed to the foot, thus occurring as a kind of infix. Examples are given in (46) below.

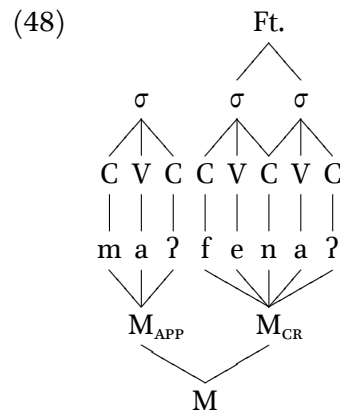
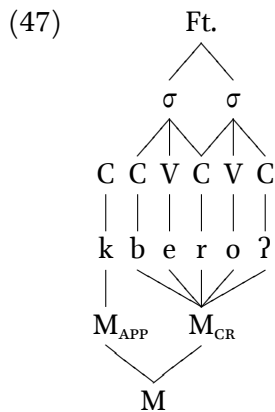
(46) Partial Reduplication with Pre-foot Material:

<i>ʔnenuʔ</i>	→	<i>ʔnen~nenuʔ</i>	‘turn’
<i>kberoʔ</i>	→	<i>kber~beroʔ</i>	‘move’
<i>msena</i>	→	<i>msen~sena</i>	‘full, satiated’
<i>thoe</i>	→	<i>tho~hoe</i>	‘inundate, bless’
<i>ʔroo</i>	→	<i>ʔro~roo</i>	‘far, distant’
<i>maʔfenaʔ</i>	→	<i>maʔfen~fenaʔ</i>	‘heavy’
<i>taikobi</i>	→	<i>taikob~kobi</i>	‘fall down’
<i>paumakaʔ</i>	→	<i>paumak~makaʔ</i>	‘near’

3.4.2.1 Analysis and Morpheme Structure

The structure of reduplication with roots which are larger than a single foot provides evidence that the pre-foot material of such roots is not fully integrated into the morphological structure of the root and is an adjunct or appendix to the foot proper which contains the core structure of the morpheme.

The proposed structures of the roots *kberoʔ* ‘move’ and *maʔfenaʔ* ‘heavy’ under this analysis are given below in (47) and (48) respectively. In these autosegmental diagrams ‘M’ stands for *morpheme* which in turn contains M_{CR} the *core morpheme* and M_{APP} a *morpheme appendix*. The phonological structure of these words, showing C-slots, V-slots, syllables and feet are given above the segmental tier. The unit targeted by partial reduplication is the the foot which contains the core morpheme.

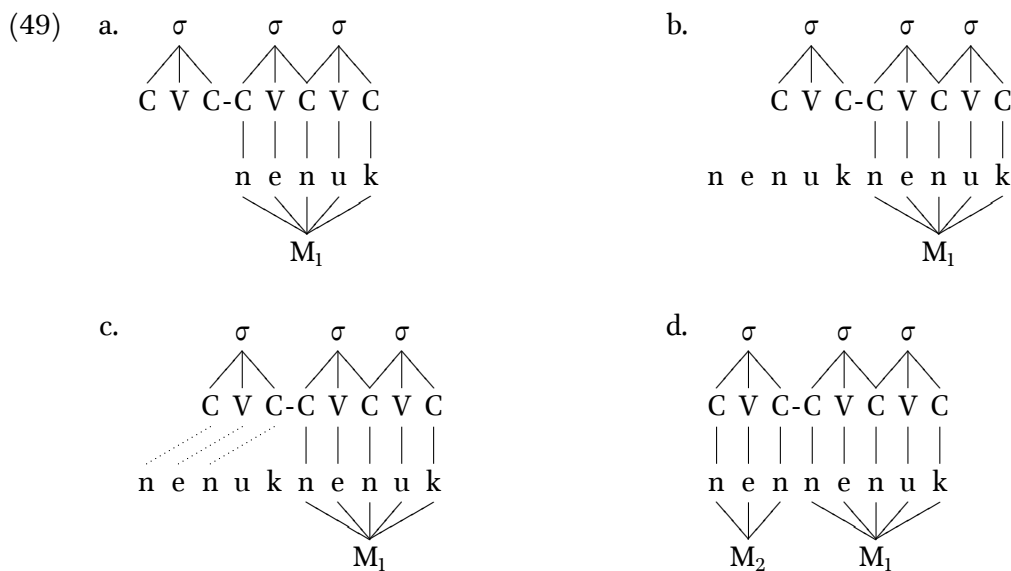


Amarasi morphemes thus do not have a flat structure. Instead, different phonological domains within the morpheme, such as the foot, have different statuses and can be targeted

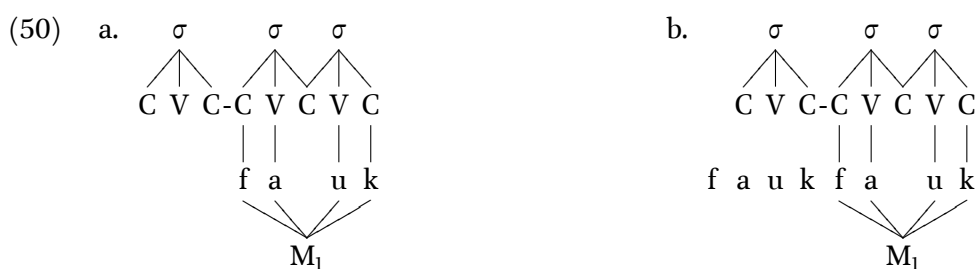
by different morphological processes. There is also evidence (discussed in §3.5.6) that the final consonant of the foot is also not as well integrated into the morphological structure of the root and forms a kind of appendix to it.

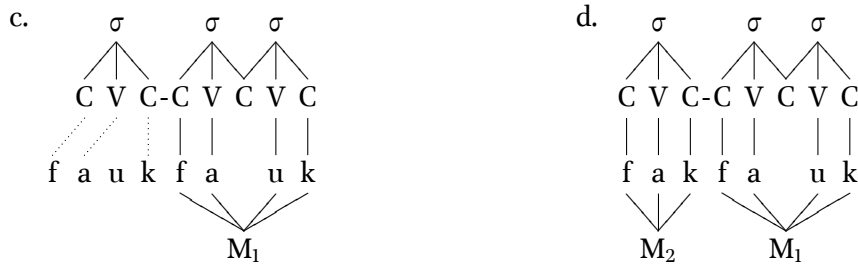
Amarasi reduplication can be analysed following the classic analysis of reduplication of Marantz (1982). Under this analysis, partial reduplication in Amarasi consists of the CVC syllable prefixed to the foot. The segments of the foot are then copied and assigned from left to right to this affix, with any unlinked segments being deleted.

This is illustrated for *nenuk* ‘go for a walk’ → *nenuk-nenuk* in (49) below. In (49a) the reduplicant is attached to the foot, which in this case has the same structure as the morpheme. The reduplicant consists of a single syllable with unspecified C-slots and V-slots. The segments of the foot are then copied in (49b) and linked from left to right in (49c). Finally, the unlinked segments are deleted giving the structure in (49d). Example (49d) also shows that the reduplicant is a morpheme independent of the stem to which it is attached.

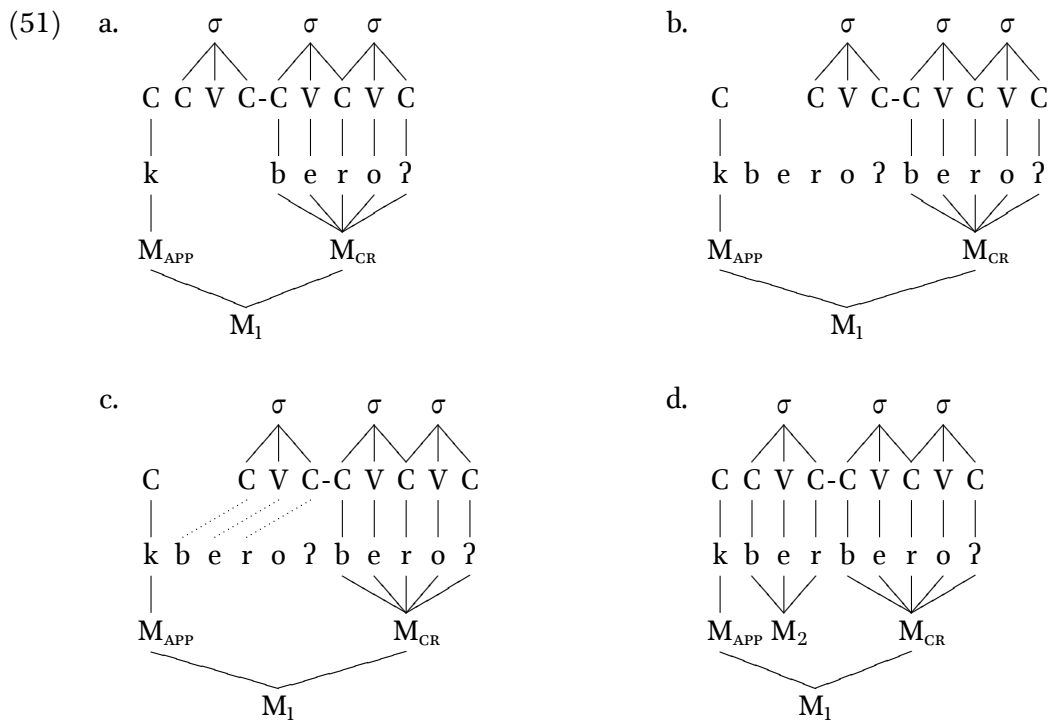


Exactly the same process applies to derive *fak-fauk* from *fauk* ‘several’, as illustrated in (50) below. The only difference in this case is that there is no consonant occupying the medial C-slot. As a result the final consonant of the foot is copied and linked to the final C-slot of the reduplicant prefix, as shown in (50c).





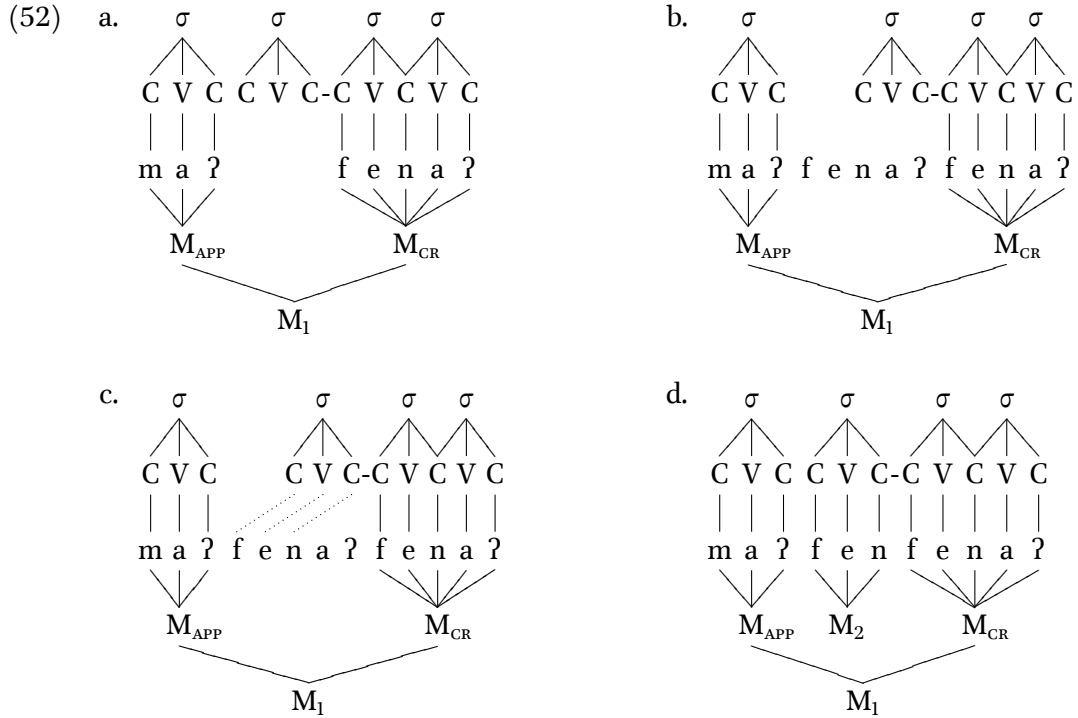
Instances such as *kbero?* ‘move’ → *kber~bero?*, show that we must specify that the reduplicant is prefixed to foot (and/or core morpheme) rather than the entire stem. The formation of *kbero?* → *kber~bero?* is shown in (51) below. In (51a) the reduplicant has been attached to the foot. It thus occurs after the morpheme appendix and before the core morpheme. The segments of the foot are then copied and associated from left to right in (51b) and (51c), giving the final structure in (51d).



While the morpheme appendix (M_{APP}) and core morpheme (M_{CR}) in (51d) are components of the root morpheme (M₁), the reduplicant is an independent morpheme even though it occurs within the first morpheme.

Similarly, examples such as *ma?fena?* ‘heavy’ → *ma?fen~fena?* and *taikobi* ‘fall down’ → *taikob~kobi* in which the reduplicant is also a copy of the penultimate syllable of the final foot and occurring as a prefix to that foot, show that it probably best not to analyse examples such as *kbero?* ‘move’ → *kber~bero?* simply as a result of reduplication of the entire penultimate

syllable (including consonant cluster) with simplification of an illicit CCC cluster. The formation of *ma?fena?* ‘heavy’ → *ma?fen-fena?* is shown in (52) below.



That the reduplicant in partial reduplication occurs between the foot and any pre-foot material provides evidence that the foot constitutes a distinct domain of Amarasi word structure. It also provides evidence that Amarasi roots can have internal morphological structure. That the reduplicant consists of CVC provides support for analysing the Amarasi syllable as having this structure. It also provides some support for analysing the medial C-slot of the foot as ambisyllabic. Additional evidence for the medial C-slot of the foot being ambisyllabic comes from metathesis before vowel initial enclitics as discussed in Chapter 5.

3.5 Root Structure

Amarasi roots have a highly constrained phonotactic structure. Lexical roots are minimally composed of the CVCVC foot (§3.4), with no lexical roots in my corpus containing only one vowel. However, functors are not necessarily composed of a foot, with 52 out of 93 functors in my corpus containing only one vowel.

A lexical root in Amarasi is minimally composed of the CVCVC foot.⁸ This foot can

⁸ There are only two roots in my entire corpus which have two syllables and a non-CVCVC foot. These two words are both loans. The conjunction *maski* ‘even though’ < Portuguese *mas que* and the verb *siksak* ‘helter-skelter’ < English *zig-zag*.

optionally be preceded by another foot, a CVC syllable (σ) or a single consonant. This root structure is given in (53) below.

$$(53) \text{ Lexical Root} \rightarrow \left\{ \begin{array}{c} \emptyset \\ C \\ \sigma \\ \text{Ft.} \end{array} \right\} \text{ Ft.}$$

In my current corpus, 64% (1,085/1,696) of lexical roots are a single foot, 20% (337) consist of a single foot preceded by an additional consonant, 10% (164) consist of a foot preceded by a syllable and 6% (95) consist of two feet. Fifteen words have an exceptional structure.

As discussed in §3.4.2.1 above, reduplication provides evidence that the pre-foot material in roots larger than a single foot is less well integrated into the morphological structure of the root and forms an appendix to the final foot. In many cases this may be partly due to the pre-foot material being an original prefix and/or independent word.

3.5.1 Roots with One Foot (Root \rightarrow Ft.)

Roots consisting of a single foot are the most common kind of root in my corpus with 64% (1,085/1,696) of all roots containing a single foot.

Table 3.13: Roots with a Single Foot

Structure	Root	Phonetic		gloss	no.	%
CVCV_	<i>fatu</i>	[ˈfaʈu]	▶▶	‘rock’	464	43%
CVCVC	<i>manas</i>	[ˈmanəs]	▶▶	‘sun’	293	27%
CV_V_	<i>hau</i>	[ˈhaʊ]	▶▶	‘wood, tree’	122	11%
CV_VC	<i>puah</i>	[ˈpuəh]	▶▶	‘betel nut’	64	6%
VCV	<i>asu</i>	[ˈʔasʊ]	▶▶	‘dog’	57	5%
_VCVC	<i>anin</i>	[ˈʔanin]	▶▶	‘wind’	49	5%
_V_V_	<i>ai</i>	[ˈʔai]	▶▶	‘fire’	8	1%
_V_VC	<i>uat</i>	[ˈʔuət]	▶▶	‘veins’	5	0.5%

Given that C-slots may be empty in Amarasi (§4.5.1.3), a root with a single foot may surface maximally as CVCVC, with all C-slots filled, and minimally as _V_V_, with all C-slots empty. Word initial empty C-slots are automatically filled by a phonetic glottal stop. An example of every attested structure for words with a single foot is given in Table 3.13, where the underscore represents an empty C-slot.

3.5.1.1 Surface VVCV(C)# Words

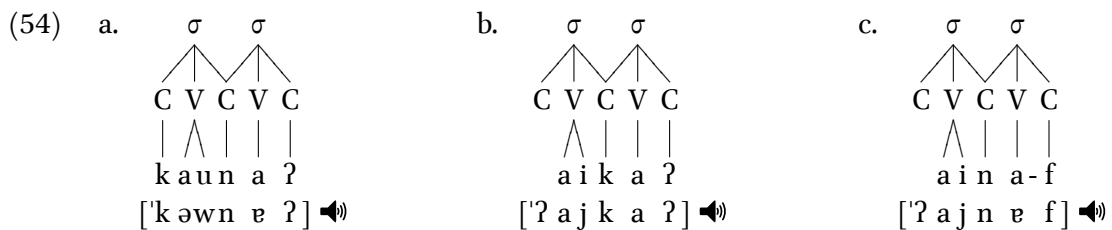
In addition to the structures shown in Table 3.13, there are also 23 words with the structure #(C)VVCV(C)# in my dictionary. I analyse such words as consisting of a single foot. These words are given in 3.14 below. The M-form of these words is formed by deleting the final vowel and, when present, final consonant (§4.2.5).

Table 3.14: Amarasi Surface VVCV(C)# Words[†]

Amarasi	Gloss	VV	Amarasi	Gloss	VV
<i>aika?</i>	'thorn'	<i>ai</i>	<i>n-auban</i>	'crowds'	<i>au</i>
<i>n-aikas</i>	'praises'	<i>ai</i>	<i>aunu</i>	'spear'	<i>au</i>
<i>aina-f</i>	'mother'	<i>ai</i>	<i>kauna?</i>	'snake; creature'	<i>au</i>
<i>n-aini</i>	'mourns'	<i>ai</i>	<i>n-?aubar</i>	'unify'	<i>au</i>
<i>n-aiti</i>	'picks up'	<i>ai</i>	<i>mautu</i>	'allow'	<i>au</i>
<i>baiti?</i>	'should'	<i>ai</i>	<i>naunu?</i>	'breadfruit'	<i>au</i>
<i>na-kaina?</i>	'forbids'	<i>ai</i>	<i>nautus</i>	'beetle'	<i>au</i>
<i>na-maika?</i>	'remains'	<i>ai</i>	<i>na-maunu</i>	'is crazy'	<i>au</i>
<i>na-saitan</i>	'leaves'	<i>ai</i>	<i>n-eiti</i>	'travels'	<i>ei</i>
<i>n-aena</i>	'runs'	<i>ae</i>	<i>na-roitan</i>	'prepares'	<i>oi</i>
<i>taeka?</i>	'puddle'	<i>ae</i>	<i>uaba-?</i>	'speech'	<i>ua</i>
<i>na-kaaka</i>	'howls'	<i>aa</i>			

[†] For all Amarasi words so far attested with this shape, the final vowel is either identical to the penultimate vowel or it is the vowel /a/.

Under this analysis the first two vowel segments of such words are assigned to a single V-slot, thus forming a kind of phonetic diphthong. The proposed structures of *kauna?* 'snake; creature', *aika?* 'thorn' and *aina-f* 'mother' are given in (54) below.



There are four observations which support this analysis. Firstly, as discussed in §3.4.1 (page 97), stress falls on the penultimate segmental vowel of a word in Amarasi. For (C)VVCV(C) words, however, stress falls on the antepenultimate segmental vowel. This otherwise aberrant stress pattern can be explained by positing that stress is assigned to the penultimate V-slot of the foot, rather than being assigned to any specific segmental vowel.

Secondly, in almost all cases the initial vowel sequence of a (C)VVCV(C) word forms a phonetic diphthong and the second vowel is realised as a glide. The three examples in (54)

illustrate this fact; *kauna?* ‘snake; creature’ → [‘kəwneʔ] and *aika?* ‘thorn’ → [‘ʔajkaʔ], and *aina-f* ‘mother’ → [‘ʔajnef].

The only word in which a phonetic diphthong is not always found is *uaba?* ‘speech, to speak’. There are seven instances of the U-form of this word in my corpus (with a verbal agreement prefix in six instances). In five instances we find a phonetic diphthong; i.e. [‘ʔwəbeʔ] and in two cases we find two full vowels word initially; i.e. [‘ʔu.əbeʔ]. An example of the latter pronunciation is given in (55) below. However, even in such instances stress falls on the antepenultimate segmental vowel.

- (55) [ʔan‘paɛk sm ʔu.əbeʔ]
a|n-paek sin uaba-ʔ
 3-use 3PL speech-U
 ‘... using their language’ 130920-1, 4.18 ◀

Thirdly, when we examine *which* vowel sequences occupy the initial V-slot in such words, we find a preference for the VV sequence to be /ai/ (9/23) or /au/ (8/23), with 17/23 words having either of these sequences; 74%. Such sequences represent the most common kinds of diphthongs in languages of the world (Lindblom 1986:36, Miret 1998:40). There are also two instances of /ae/ and one each of /aa/, /oi/, /ei/ and /ua/.

Fourthly, if surface (C)VVCV(C)# words did in fact consist of a syllable and a foot, they would be the only words whose final foot was not preceded by a consonant, either a phonemic consonant (§3.2.2) or a predictable glottal stop (§4.5.1.3.5). For these reasons I analyse the initial vowel sequence in surface (C)VVCV(C)# as being assigned to a single V-slot.

In Ro’is Amarasi there is a regular process whereby a word which ends in $V_{\alpha}CV_{\beta}C\#$ with both C-slots filled in Kotos Amarasi, is reflected as $V_{\alpha}V_{\beta}CV_{\beta}C$, where the initial vowels both fill a single V-slot and the penultimate vowel is a copy of the final vowel. Examples are given in Table 3.15 below.

Table 3.15: Ro’is Amarasi Stressed V-slot Diphthongisation

Kotos	Ro’is	gloss	Kotos	Ro’is	gloss
<i>anet</i>	<i>aenet</i>	‘needle’	<i>esuk</i>	<i>eusuk</i>	‘mortar’
<i>n-matek</i>	<i>n-maetek</i>	‘numb’	<i>tenuk</i>	<i>teunuk</i>	‘umbrella, shade-cloth’
<i>masik</i>	<i>maisik</i>	‘salt’	<i>n-kiʔun</i>	<i>n-kiuʔun</i>	‘shake your head’
<i>n-manis</i>	<i>n-mainis</i>	‘laughs at s.o.’	<i>aruk</i>	<i>auruk</i>	‘small cloth satchel’
<i>hunik</i>	<i>huinik</i>	‘turmeric’	<i>kbatus</i>	<i>kbautus</i>	‘edible sea snail’
<i>munif</i>	<i>muinif</i>	‘young’	<i>manus</i>	<i>maunus</i>	‘betel vine’

This process does not operate in my Ro’is Amarasi data when the final consonant is the glottal stop /ʔ/ or when the vowel occupying final vowel is lower than the penultimate vowel. Examples include Kotos *ʔmuki?*, Ro’is *ʔmuri?* ‘lime (fruit)’ and Kotos/Ro’is *mnasi?*

‘aged’. Likewise, when both vowels are mid vowels this process does not occur. One example is Kotos/Ro’is *ʔtoʔef* ‘mountain’.

3.5.2 Roots with a Consonant Cluster (Root → C|Ft.)

Roots which consist of a single foot preceded by an extra consonant are the second most common type of root in my corpus, with 20% (337) of lexical roots having such a shape.

Such roots are maximally C|CVCVC and minimally C|CV_V_ where the pipe ‘|’ indicates the foot edge. There are no Kotos Amarasi roots in my corpus which both begin with a consonant cluster and have an initial sequence of two vowels assigned to a single V-slot; i.e. with the shape CCVVCVC. Examples of each possible shape are given in Table 3.16.

Table 3.16: Words with a Single Foot and an Extra Consonant

Structure	Root	Phonetic		gloss	no.	%
C CVCVC	<i>kbateʔ</i>	[ˈkβat̪ɛʔ]	◀	‘k.o. edible grub’	160	47%
C CVCV_	<i>bkaʔu</i>	[ˈbˈkaʔu]	◀	‘fruit bat’	118	35%
C CV_V_	<i>ʔsao</i>	[ˈʔsao]	◀	‘viper’	32	9%
C CV_VC	<i>snaen</i>	[ˈsnaen]	◀	‘sand’	27	8%

This Table shows that there are more C|CVCVC roots than there are C|CVCV_ roots. This is unexpected given that among roots which contain only a single foot there are about one and a half CVCV_ roots for every CVCVC root (see Table 3.13 on page 104).

The reason for the larger number of C|CVCVC roots appears to be due to the fact that Amarasi has two circumfixes of the shape *ʔ...-ʔ*. These include a nominaliser (§3.6.2.4) and a verbal intensive.

A productive use of the nominalising circumfix can be seen in the derivation of *√toko* ‘sit’ → *ʔ-toko-ʔ* ‘chair’. However, in addition to such productive uses, we also find roots such as *ʔmukiʔ* ‘lime’ < Proto-Malayo-Polynesian **muntay* ‘lime (fruit)’ which have not been attested without this putative circumfix. There are 40 nouns in my corpus which have a possible fossil of this circumfix. See §3.6.2.4 for more discussion.

In addition there are 23 verbs which have not (yet) been attested without the putative intensive circumfix *ʔ...-ʔ*. Productive uses of this circumfix include *n-sosa* ‘buy’ → *na-ʔ-sosa-ʔ* ‘sell, betray’ and *n-pasa* ‘slap’ → *na-ʔ-pasa-ʔ* ‘clap’. Roots containing a putative fossil of this intensive circumfix include *na-ʔsekeʔ* ‘force, put pressure on s.o.’ and *na-ʔrobaʔ* ‘remove’.

3.5.2.1 Root Initial Consonant Clusters

The root initial consonant clusters that have been so far attested in my corpus are given in Table 3.17 below. Consonants are sorted by place of articulation.

Table 3.17: Kotos Amarasi Root Initial Consonant Clusters[†]

C ₁ ↓	p	b	m	f	t	n	r	s	k	ʔ	h	←C ₂
p						pn	pr	ps				
b					bt	bn	br	bs	bk		bh	
m				mf	mt	mn	mr	ms				
f						fn	fr					
t	tp	tb		tf		tn	tr			tʔ	th	
n								ns				
r												
s	sp	sb	sm	sf	st	sn	sr		sk			
k	kp	kb	km	kf	kt	kn	kr	ks			kh	
ʔ	ʔp	ʔb	ʔm	ʔf	ʔt	ʔn	ʔr	ʔs	ʔk		ʔh	
h												

[†] The cluster /bdʒ/ occurs in Ro'is Amarasi in the word *bdaʒae* 'cow' (Kotos *bidaʒae*). The cluster /fk/ occurs in Tais Nonof Amarasi in the word *fkuu* 'star' (Kotos: *kfiuu*).

It is difficult to state general restrictions on the appearance of root initial consonant clusters for which exceptions cannot be found. Despite this, the following preferences can be said to loosely hold.

Firstly, clusters of two identical consonants are disallowed root initially (but are allowed word initially in polymorphemic words.) Secondly, homorganic clusters are disfavoured root initially. In particular, sequences of two labial consonants are not found, with the exception of the cluster /mf/.⁹ Thirdly, most Amarasi root initial clusters involve either a sonority plateau or sonority rise on the sonority hierarchy; liquid > nasal > fricative > plosive (see Blevins (1995:210f) for an overview of the sonority sequencing principle and sonority hierarchy), though, again, exceptions occur.

Apart from these three general restrictions, other restrictions involve specific sets of consonants. The glottal stop almost never occurs as the second member of a cluster,¹⁰ while the glottal fricative /h/ and the alveolar liquid /r/ do not occur as the first member of any consonant cluster. The frequency of each attested root initial cluster is given in Table 3.18.

This table shows that clusters in which the glottal stop is the first consonant outnumber any other cluster nearly three to one. This observation might indicate that the putative glottal stop initial clusters are better analysed as a separate series of glottalised or pre-glottalised phonemes. Under this analysis, sequences such as /ʔb/ would be analysed as /bʔ/ or /ʔb/. Comparable phonemes *are* regionally attested. Examples include Dhao, Hawu and some of

⁹ This cluster occurs only in the word *mfaun* 'many'.

¹⁰ The sole exception is the root *na-tʔopab* 'spill' which is connected with *n-ʔopaʔ* 'pour'. The initial /t/ in *na-tʔopab* 'spill' is probably a reflex of Proto-Malayo-Polynesian *taR- 'spontaneous or accidental action', though it is currently unclear how productive this prefix may be in Amarasi.

Table 3.18: Kotos Amarasi Root Initial Consonant Cluster Frequencies

C ₁ ↓	p	b	m	f	t	n	r	s	k	ʔ	h	←C ₂
p						2	2	2				6
b					1	4	8	1	1		1	16
m				1	4	19	1	2				27
f						4	1					5
t	1	1		2		8	3			1	2	18
n								1				1
r												
s	6	4	3	1	3	10	7		15			49
k	3	10	6	3	5	17	27	2			3	76
ʔ	15	27	4	8	20	14	12	18	26		5	149
h												
tot.	25	42	13	15	33	78	61	26	42	1	11	347

the Rote languages in which voiced implosives occur.¹¹

There are at least four facts which support the consonant cluster analysis in Amarasi. Firstly, in phrases and sentences the initial glottal stop is usually distinctly heard prior to the consonant in question. One example is the word *ʔbaʔa-f* ‘roots’ in the phrase *hau ʔbaʔa-f* ‘tree roots’ → [həwʔbaʔef] ◀.

Secondly, words which begin with /ʔC/ behave like other words which begin with a consonant cluster in usually requiring epenthetic /a/ after consonant final roots (§3.8.2). If /ʔC/ initial roots began with a single phoneme, we would not expect epenthesis.

Thirdly, when either the first person singular agreement prefix *ʔ-* (§3.6.1.1) or the nominalising circumfix *ʔ...-ʔ* (§3.6.2.4) attaches to a stem, any resulting polymorphemic /ʔC/ cluster is pronounced in the same way as the equivalent root initial cluster.

Finally, while native speakers are, in general, inconsistent in writing the glottal stop in any word position, upon receiving training they choose to write words such as *ʔbaʔa-f* ‘roots’ as <*ba'af*> without any prompting. They do not write such clusters *<*b'a'af*>. (In languages of the region such as Dhao which *do* contain unitary glottalised phonemes, these phonemes are usually written with a straight apostrophe after the consonant; i.e. /b/ → <*b'*>, /d/ → <*d'*>)

3.5.3 Roots with a Foot and Syllable (Root → σ|Ft.)

Roots which consist of foot preceded by a syllable comprise 10% (164/1,696) of my current corpus. Given that sequences of three vowels do not occur in Amarasi (§3.2.1.4), such

¹¹ Implosives contrast with plain voiced plosives in Dhao and Hawu (Grimes 2010), while in some of the Rote languages implosives are non-contrastive allophones of voiced plosives (Tamelan 2007).

roots are maximally CVC|CVCVC and minimally $_V_|CV_V_$. Examples of a range of roots containing a foot and syllable are given in Table 3.19 below.

Table 3.19: Words with a Foot and Syllable[†]

Structure	Root	Phonetic	gloss	no.	%
(C)V $_ $ CVCV(C)	<i>mahataʔ</i>	[mɛ'hɛtɛʔ]	☞ 'itchy'	54	32%
(C)VC CVCV(C)	<i>bankofaʔ</i>	[bɛŋ'kɔfɛʔ]	☞ 'caterpillar'	51	31%
(C)V $_ $ CV $_V$ (C)	<i>sekau</i>	[sɛ'kəw]	☞ 'who'	35	21%
(C)VC CV $_V$ (C)	<i>karpeo</i>	[kar'pɛɔ]	☞ 'onion'	24	14%

[†] I have also collected three roots composed of a syllable + foot which begin with a consonant cluster: *ʔbakʔuru* 'Indian Mulberry', *ʔbo-boe* 'heron, stork' and *ʔbak-bakan* 'monitor lizard'. The last two are instances of frozen reduplication. (An initial consonant cluster after reduplication is expected from a putative CCV initial root, see §3.4.2)

Seventeen (10%) roots consisting of a CVC syllable and a foot involve frozen reduplication; instances in which the initial syllable can be analysed as a reduplicant of the following foot, with this foot being unattested by itself. Examples include *kir-kiri* 'cricket', *ik-iki* 'cockroach' and *mun-munu* 'a kind of flowering tree which can be used as a substitute for areca nut'. CVC reduplication as a productive process is discussed in §3.4.2

3.5.4 Roots with Two Feet

Roots composed of two feet represent the longest attested root size in Kotos Amarasi. Such words constitute 5% (95/1,696) of my current corpus.

Table 3.20: Words with Two Feet[†]

Structure	Phonemic	Phonetic	gloss	no.	%
(C)VV CVCV(C)	<i>paumakaʔ</i>	[pɛw'makɛʔ]	☞ 'near'	38	38%
(C)VVC CVCV(C)	<i>meisʔokan</i>	[mɛjs'ʔɔkɛn]	☞ 'dark(ness)'	19	19%
(C)VVC CV $_V$ (C)	<i>riuksaen</i>	[riɔk'saɛn]	☞ 'python'	11	11%
(C)VCVC CVCV(C)	<i>ataʔraʔe</i>	[ʔatɔʔ'raʔɛ]	☞ 'praying mantis'	14	14%
(C)VCVC CV $_V$ (C)	<i>paratrao</i>	[parat'raɔ]	☞ 'kingfisher'	5	5%
(C)VV CV $_V$ (C)	<i>naiɟzeer</i>	[naj'dʒɛ:r]	☞ 'ginger'	4	4%

[†] In addition to the structures given in this Table, I have collected four words which consist of two feet and begin with a consonant cluster: *ksaamuun* 'Asian Glossy Starling' *ʔbeebnisaʔ* 'centipede', *ʔhoesaif* 'ditch' and *ʔkauboe* 'whip'. There are an additional three words which contain four vowels with an exceptional structure. These are *istarika* 'to iron' < Malay *istrika* < Dutch *strijken*, *ʔantareek* 'reverse' < Kupang Malay *antarék* and *bos-bosʔoo* Ro'is Amarasi for 'antlion'.

When we examine words which contain two feet, we find that the medial C-slot of the initial foot, is usually unfilled, surfacing as (C)VV(C). This is attested in 73% (74/95) instances

in my corpus.¹² Furthermore, the only examples in my corpus of words with two feet in which an initial surface CVCV foot is *not* followed by a consonant cluster, are examples of frozen full reduplication: *bute-bute* ‘aimlessly’ and *noki-noki* ‘eventually’.

With these considerations in mind (and observing the constraint against sequences of three vowels) the maximal structure of words with two feet is either (C)VV(C)|CV(C)V(C) or (C)VCVC|CV(C)V(C). Examples are given in Table 3.20.

The constraints which apply to the initial foot in words with two feet are explained by the observation that this initial foot has a structure which corresponds to a word in the M-form (Chapter 4), that is, the form taken by nouns with a following attributive modifier (see particularly Table 6.6 on page 243). Indeed, in most cases a root with two feet appears to be a historic nominal phrase. This fact partly explains why the pre-foot material is less well integrated into the morphological structure of the root, as discussed in §3.4.2.1.

In some instances one element of the historic phrase is still attested in Amarasi as an independent root. Three probable examples include *saan?oo* ‘stick insect’, from currently unattested **sana* with *oo* ‘bamboo’,¹³ *faifso?* ‘kind of plant fed to pigs’, from *fafi* ‘pig’ with currently unattested **soso?*, and *enosneer* ‘window’, from *eno?* ‘door’ with currently unattested **sneer*. However, in many cases neither of the putative compound elements are currently attested elsewhere in Amarasi. Two examples are *suufnene?* ‘tree snake’ and *meis?okan* ‘dark(ness)’. The elements of such compounds currently unattested could simply be so be due to the non-exhaustive nature of my Uab Meto data at this stage.¹⁴

3.5.4.1 Root Medial Clusters

There are restrictions on which two consonants can occur across a foot boundary. The comments in this section cover both clusters which occur within roots composed of a foot preceded by a syllable (§3.5.3), and clusters which occur across the foot boundary in roots composed of two feet (§3.5.4).

Logically it is possible to assign the first consonant of a root medial cluster to the pre-foot material or the final foot. Thus, the first consonant of the cluster in a root such as *kabresu* ‘bit (for livestock)’, could either be part of the onset to the following foot, i.e. *ka.bresu*, or coda to the material before the foot, i.e. *kab.resu*. In many cases the correct break up is ambiguous.

However, there are two situations in which the first consonant can be confidently assigned to the pre-foot material. Firstly, when the root represents an instance of frozen

¹² For words which have only a single foot (§3.5.1), the medial C-slot of a foot is usually filled surfacing as VCV(C)#. This is attested in 82% (886/1,085) of roots with a single foot in my corpus.

¹³ Charles Grimes (p.c. July 2016) points out that initial **sana* could be connected with Proto-Malayo-Polynesian **sana* ‘bifurcation, fork of a branch’ Blust and Trussel (ongoing).

¹⁴ It is not unlikely that these ‘unattested’ forms are found as independent words in other Uab Meto varieties, and/or in related languages of the region.

reduplication, it is sensible to assign the first consonant to the reduplicant. Examples include *mir.miri* ‘k.o. tree’ and *rafu?.rafu?* ‘aimlessly’.

Secondly, when the first consonant is never attested initially in any root initial cluster, or when the second consonant is not attested second in any root initial cluster, it is sensible to identify the first consonant as the coda of the pre-foot material. Examples include *kar.peo* ‘garlic’ and *mas.ʔeki* ‘slippery’.

Once frozen reduplication is excluded, the only consonants which must unambiguously be assigned to the pre-foot material are the coronals /r/, /n/ and /s/. This restriction holds across both roots composed of a syllable and foot, such as *√tor.nata* ‘carry with hands’, and roots composed of two feet, such as *√biin.tobo* ‘lies on one’s stomach’. In addition, clusters of two identical consonants and clusters of two labial consonants do not occur root medially.

3.5.5 Single Syllable Roots

Roots which are smaller than a foot and contain only a single syllable are all functors in my corpus. Examples includes the relativiser *re?*, the clitic negators *ka=* and *=fa* as well as the conjunction *mes* ‘but’. Of these monosyllabic roots, nearly a half (18/42) are clitics.

3.5.6 Root Final Consonants

All consonants have been attested in root final position with the exception of the marginal phonemes /dʒ/ and /gw/. Table 3.21 below gives the frequency of consonants in root final position compared to their frequency in other positions, arranged by frequency in final position. This count was made on my current dictionary of 1,789 unique roots. After suffixes were excluded this yielded 780 roots which ended in a consonant (44%).

Table 3.21: Frequency of Root Final Consonants

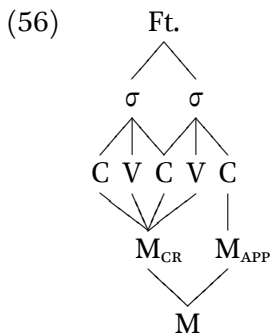
C	/ʔ/	/n/	/t/	/s/	/k/	/r/	/f/	/h/	/m/	/b/	/p/	/dʒ/	/gw/
_#	331	125	83	69	50	40	29	13	11	9	5	0	0
	43%	16%	11%	9%	7%	5%	4%	2%	2%	1%	1%	0%	0%
else.	393	604	423	373	476	407	151	120	265	285	228	10	2
	11%	16%	11%	10%	13%	11%	4%	3%	7%	8%	6%	0.3%	0.1%

While all consonants (except /dʒ/ and /gw/) are attested root finally, there is a statistical skewing of which consonants do so, with the glottal stop constituting 43% of root final consonants compared to 11% of consonant phonemes in other root positions.

The labial stops /p/, /b/ and /m/ do not occur finally in any roots with more than two syllables. This apparent restriction may be a result of the rarity of roots of this size combined

with the scarcity of the labial consonants root finally. There is a verbal suffix /-b/ 'TR' and a nominal suffix /-m/ '1PX/2GEN' which freely attach to roots of more than two vowels.

There is evidence that final consonants in Amarasi do not have the same status as other elements of the foot. Instead, root final consonants are not fully integrated into the morphological structure of the root and in certain environments are treated like a suffix. Their status is similar to that of the pre-foot material in roots larger than a single foot, described in §3.4.2.1. The morphological structure of the CVCVC foot is given in (56) below, in which the final consonant is labelled 'M_{APP}', a morpheme appendix.¹⁵



There are at least four pieces of synchronic which support analysing the final consonant of the foot as less well integrated into the morphological structure of the root. Firstly, root final consonants are replaced when a genitive suffix is added to a root (§3.6.3.1).

Secondly, root final consonants are subject to deletion in the formation of M-forms, while other consonants are not (§4.2.2, §4.2.4). In particular, before a consonant cluster the only realisation of the M-form is deletion of any final consonant (§4.3).

Thirdly, when metathesis occurs before a vowel initial enclitic, root final consonants cease being the coda of the clitic host and become the onset of the enclitic (§5.2). That final consonants can move from one morpheme to another is evidence that they are not fully integrated into the morphological structure of the root.

Finally, there is the statistical skewing in which the glottal stop constitutes 43% of all root final consonants, but only 11% of consonants in other positions. The glottal stop can be analysed as the default consonant in Amarasi (§4.5.1.3.5) and many final glottal stops may have arisen due to the preference for all C-slots to be filled in Amarasi. Such glottal stops would have originally been epenthetic.

¹⁵ Final consonants appear to be more well integrated into the morphological structure of the root than pre-foot material. Nonetheless, both are labelled M_{APP} for simplicity in this thesis.

3.5.7 Phonotactic Nativisation of Loan Words

Amarasi roots conform to a strict set of structures based on the CVCVC foot. Loanwords with alternate structures are usually changed to conform to this structure.

One common disallowed shape in loans is words ending in CCV#. Amarasi employs one of two strategies to conform such words to the CVCVC foot template. The most common strategy is to metathesise $C_1C_2V\#$ to $C_1VC_2\#$. Examples are shown in Table 3.22 below.

Table 3.22: Loanword Metathesis

Root	Source	Donor	Meaning
<i>fesat</i>	<i>festa</i>	Portuguese	'party'
<i>parikas</i>	<i>periksa</i>	via Malay	'examine'
<i>prenat</i>	<i>prenta</i>	Kupang Malay	'govern(ment)'
<i>ranas</i>	<i>dansen</i>	via Malay	'dance'
<i>ramup</i>	<i>lampu</i>	via Malay	'lights'
<i>tanar</i>	<i>tanda</i>	Malay	'sign'
<i>tenar</i>	<i>tenda</i>	Portuguese	'tent'

This metathesis is *not* a result of loanwords being interpreted as metathesised forms and thus being given U-forms according to the synchronic process of metathesis which is the focus of this thesis.¹⁶ If this were the case we would find unmetathesised forms such as **rampu* 'lamp' rather than attested *ramup* with M-form *raump*.

The second strategy for resolving instances of final CCV# in loanwords is to duplicate the final vowel. Examples include *saksii* 'witness' ultimately from Sanskrit *śākṣī*, and *kantoor* < Malay *kantor* 'office', though *kantoor* 'office' may have come directly from Dutch *kantoor*.

Finally, there are a handful of loanwords with a final /a/ which have been naturalised in Amarasi by deleting this final vowel and doubling the penultimate vowel; the same way in which VCa# words metathesise in Amarasi (§4.2.3.2). Nonetheless, these words are all synchronically consonant final roots. Examples include *ruus* < Malay *rusa* 'deer', *panriit* 'preacher, minister' ultimately from Sanskrit *paṇḍita* and Ro'is Amarasi *kanreer* 'chair' < Portuguese *cadeira*.

3.6 Morpheme Boundaries

Amarasi has a rich set of prefixes and suffixes. Given the highly constrained structure of the Amarasi root, the combination of morphemes obeys certain constraints in order to achieve a word structure built on the CVCVC foot. Suffixes consisting of a single consonant usually

¹⁶ One possible instance of a loanword being interpreted as a metathesised form is *fesat* 'party' which may have been 'unmetathesised' from Dutch *feest* [fe:st] 'feast, festival' rather than Portuguese *festa* 'party'.

replace any root final consonant, and/or have allomorphs with an initial vowel. I discuss prefixes §3.6.1, circumfixes §3.6.2 and suffixes §3.6.3.

3.6.1 Prefixes

3.6.1.1 Verbal Agreement Prefixes

Amarasi has two sets of verbal agreement prefixes: vocalic prefixes, given in Table 3.23, and consonantal prefixes, given in Table 3.24. The consonantal prefixes consist of the initial consonant of the vocalic prefixes, bearing in mind that the 1SG vocalic prefix *u-* begins with a predictable glottal stop (§4.5.1.3.5).

Table 3.23: Vocalic Agreement Prefixes

	SG	PL
1	<i>u</i> [†]	<i>mi-</i>
1,2		<i>ta-</i>
2	<i>mu-</i>	<i>mi-</i>
3	<i>na-</i>	<i>na-</i>
0		<i>ta-</i>

[†] In Ro's 1SG is *ku-*

Table 3.24: Consonantal Agreement Prefixes

	SG	PL
1	<i>ʔ</i> [†]	<i>m-</i>
1,2		<i>t-</i>
2	<i>m-</i>	<i>m-</i>
3	<i>n-</i>	<i>n-</i>
0		<i>t-</i>

[†] In Ro's 1SG is *k* / *_V* and *ʔ* / *_C*

Which prefix set a verb takes is partially determined by the phonotactic shape of the verbal root, partially determined by the semantics of the verb and partially lexically determined. Which prefix set is taken by a verb root according to the structure of its root is summarised in Table 3.25 below.

Table 3.25: Verbal Agreement Prefix Sets According to Root Shape

Root Shape		Prefix Set
{σ/Ft.} Ft.	syllable or foot + foot	consonantal
#V	vowel initial	consonantal
#CC	cluster initial	vocalic
#C	consonant initial single foot	vocalic 26%, consonantal 74%
#C (loans)	consonant initial single foot	consonantal

This table shows that consonantal prefixes are taken by roots which are larger than a foot, vowel initial roots and all loans consisting of a single foot. Roots which begin with a consonant cluster take the vocalic set. Roots which begin with a consonant and consist of a single foot take either set, with the choice mostly being lexically specified (though, see

below). In my corpus I have collected 127 consonant initial verbal roots consisting of a single foot which take the vocalic prefix set and 355 which take the consonantal set. Loanwords which consist of single foot always take the consonantal prefixes.

There are also a number of verbal roots which can take both sets of prefixes with a difference in valency. Such roots take the consonantal prefixes when intransitive and vocalic prefixes when transitive. One such root is \sqrt{tama} ‘enter’ which is intransitive when it takes a consonantal prefix, thus *in n-taam* ‘s/he enters’, and transitive when it takes a vocalic prefix, thus *in na-taam=e* ‘s/he makes him/her enter’.

Most such roots also take a transitive suffix *-ʔ* or *-b* (§3.6.3.3). Examples include \sqrt{fani} ‘return’ → *in n-fain* ‘s/he goes back’ → *in na-fain-ʔ=e* ‘s/he returns it’ and \sqrt{nao} → *in n-nao* ‘s/he goes’ → *in na-nao-b=e* ‘s/he makes him/her go’. See §3.6.3 below for more discussion of these transitive suffixes.

Any combination of a consonantal prefix followed by another consonant is an allowable stem initial consonant cluster, even if it would violate the restrictions against root initial consonant clusters given in §3.5.2.1. The only exception is a combination of *ʔ-* before a root which begins with */ʔ/*. Such instances always surface phonetically as a single glottal stop [ʔ] rather than geminate [ʔ:].

The complete paradigms of seven verbs which take consonantal prefixes are given in Table 3.26 as an illustration of polymorphemic initial consonant clusters. Most of the consonant clusters seen in each cell in Table 3.26 are unattested root initially. Vowel final verbs are cited in the M-form according to the usual practice of native speakers (see §7.1.1).

Table 3.26: Consonant Clusters Created through Prefixation

	‘touch’	‘massage’	‘do’	‘write’	‘dig’	‘pray’	‘become’
1SG	<i>ʔ-pooh</i>	<i>ʔ-biib</i>	<i>ʔ-moeʔ</i>	<i>ʔ-tui</i>	<i>ʔ-hain</i>	<i>ʔ-ʔonen[†]</i>	<i>ʔ-ɕair</i>
2SG	<i>m-pooh</i>	<i>m-biib</i>	<i>m-moeʔ</i>	<i>m-tui</i>	<i>m-hain</i>	<i>m-ʔonen</i>	<i>m-ɕair</i>
3SG	<i>n-pooh</i>	<i>n-biib</i>	<i>n-moeʔ</i>	<i>n-tui</i>	<i>n-hain</i>	<i>n-ʔonen</i>	<i>n-ɕair</i>
1IN	<i>t-pooh</i>	<i>t-biib</i>	<i>t-moeʔ</i>	<i>t-tui</i>	<i>t-hain</i>	<i>t-ʔonen</i>	<i>t-ɕair</i>
1EX	<i>m-pooh</i>	<i>m-biib</i>	<i>m-moeʔ</i>	<i>m-tui</i>	<i>m-hain</i>	<i>m-ʔonen</i>	<i>m-ɕair</i>
2PL	<i>m-pooh</i>	<i>m-biib</i>	<i>m-moeʔ</i>	<i>m-tui</i>	<i>m-hain</i>	<i>m-ʔonen</i>	<i>m-ɕair</i>
3PL	<i>n-poho=n</i>	<i>n-biba=n</i>	<i>n-moʔe=n</i>	<i>n-tui=n</i>	<i>n-hani=n</i>	<i>n-ʔoenn=ein</i>	<i>n-ɕari=n</i>

[†] The two underlying glottal stops phonetically coalesce on the surface, i.e. [ʔʔnen], as discussed above.

There are also two verbs in Amarasi which have irregular inflections. Firstly, there is the verb for ‘come’ which has partially suppletive forms. The conjugation of ‘come’ is given in Table 3.27. Secondly, there is the verb for ‘eat (soft food)’, which appears to be the only vowel initial root in my corpus which takes the vocalic prefixes.

Table 3.27: Conjugation of \sqrt{Vma} ‘come’

	SG	PL
1	<i>uum</i> [†]	<i>im</i>
1,2		<i>teem</i>
2	<i>uum</i>	<i>im</i>
3	<i>neem</i>	<i>nema=n</i>

[†] Ro’is has 1SG *kuum*.

 Table 3.28: Conjugation of \sqrt{Vaha} ‘eat’

	SG	PL
1	<i>uah</i>	<i>miah</i>
1,2		<i>taah</i>
2	<i>muah</i>	<i>miah</i>
3	<i>naah</i>	<i>naha=n</i>

3.6.1.2 Reciprocal Prefix

The reciprocal prefix is *ma-*. The addition of the reciprocal prefix to a verb makes it longer than a single foot, thus all verbs with this prefix take the consonantal agreement prefixes. Examples of verbs with *ma-* extracted from my corpus are given in (57) below, in which forms usually also occur with the plural enclitic *=ein/=n* (§5.6).

(57) Reciprocal *ma-*

‘hit’	\sqrt{bana}	+ <i>ma-</i>	→	<i>n-ma-bana=n</i>	‘hit one another’
‘hold’	$\sqrt{na?a}$	+ <i>ma-</i>	→	<i>n-ma-na?a=n</i>	‘hold on to one another’
‘glare’	$\sqrt{smeru?}$	+ <i>ma-</i>	→	<i>n-ma-smeur?=ein</i>	‘glare at one another’
‘shake hands’	\sqrt{tabe}	+ <i>ma-</i>	→	<i>n-ma-tabe=n</i>	‘shake hands with e.o.’
‘think’	\sqrt{tenab}	+ <i>ma-</i>	→	<i>n-ma-tenab</i>	‘think one by one’
‘quarrel’	\sqrt{toe}	+ <i>ma-</i>	→	<i>n-ma-toe=n</i>	‘quarrel with each o.’

This prefix has the allomorph *mak-* before some, but not all, roots which begin with /t/. I have so far collected six /t/ initial roots which take the allomorph *mak-*. These six roots are given in (58) below.

(58) Reciprocal *mak-*

‘ask’	\sqrt{tana}	+ <i>mak-</i>	→	<i>n-mak-tana=n</i>	‘ask one another’
‘meet’	\sqrt{tefa}	+ <i>mak-</i>	→	<i>n-mak-tefa=n</i>	‘meet one another’
‘angry’	$\sqrt{to?o}$	+ <i>mak-</i>	→	<i>n-mak-to?o=n</i>	‘be angry at one another’
‘inform, tell’	\sqrt{tono}	+ <i>mak-</i>	→	<i>n-mak-tono=n</i>	‘inform one another’
‘follow’	\sqrt{tuin}	+ <i>mak-</i>	→	<i>n-mak-tuin=ein</i>	‘consecutively’

3.6.2 Circumfixes

3.6.2.1 Stative *m-...-?*

The stative circumfix *m-...-?* does not appear to be very productive in Amarasí, though the prefixal element *m-* co-occurs regularly with the nominalising circumfix *a-...-t* (§3.6.2.3) and property circumfix *ma-...-?* (§3.6.2.2) when these circumfixes attach to vowel initial stems. Stative *m-* attaches to verbal roots and derives stative verbs flagging that the syntactic subject

is in the macro-role of Undergoer rather than Actor. Examples of stative verbs derived with this affix are given in (59) below.

(59) Stative Verbs with *m-*

‘finish’	\sqrt{sopu}	+	<i>m-</i>	→	<i>na-m-sopu</i>	‘is finished’
‘loose’	\sqrt{neku}	+	<i>m-</i>	→	<i>na-m-neku</i>	‘is lost’
‘stand upright’	\sqrt{tetu}	+	<i>m-</i>	→	<i>na-m-tetu</i>	‘is standing upright’
‘set, place’	\sqrt{teke}	+	<i>m-</i>	→	<i>na-m-teke</i>	‘is set/placed’

This circumfix is clearly related to the property circumfix *ma-...-ʔ* (§3.6.2.2) and the prefixal elements of both are reflexes of Proto-Malayo-Polynesian **ma-* ‘stative verb prefix’ (Blust 2003:473).

When vowel initial roots occur with this prefix, the stem takes the third person form (beginning with *n-/na-*). Examples are given in (60) below. Not all these forms clearly have a stative meaning. This is additional evidence that this prefix is no longer productive.

(60) Statives with *m-n-*

‘praise’ (verb)	\sqrt{aikas}	+	<i>m-</i>	→	<i>m-n-aikas</i>	‘praise’ (nominal)
‘eat’	\sqrt{aha}	+	<i>m-</i>	→	<i>na-m-na-ha</i>	‘hungry’
‘drink’	\sqrt{inu}	+	<i>m-</i>	→	<i>na-m-n-inu-ʔ</i>	‘drinking, drinkable’
‘see’	\sqrt{ita}	+	<i>m-</i>	→	<i>m-n-ita-ʔ</i>	‘seen, visible’

The final glottal stops in *na-m-n-inu-ʔ* ‘drinking, drinkable’ and *m-n-ita-ʔ* ‘seen, visible’, provide evidence that the stative affix is a circumfix *m-...-ʔ* rather than simply a prefix *m-*. The failure of this glottal stop to appear on other forms in (59) and (60) can be ascribed to them either being consonant final (i.e. *aikas* ‘praise’) or because they are verbs. Final consonants of nominals are regularly deleted when they are the base for verbal derivation (§6.2.1).

The eight forms given in (59) and (60) are the only forms in my corpus which clearly have related roots without the stative circumfix attached. There are also 22 property nominals in my corpus which begin with /m/ for which there is no corresponding synchronic form without this initial /m/. Many, though not all, of these property nominals also end with /ʔ/. Some examples are *mfaun* ‘many’ *mnanuʔ* ‘long’, *mnee* ‘calm’ and *mtasaʔ* ‘cooked’.

3.6.2.2 Property *ma-...-ʔ*

Amarasi *ma-...-ʔ* attaches to verbal and nominal roots to form property nouns. For nominal roots, the new word typically describes particular characterisation by the presence of the root noun, while for verbs it typically describes the resulting state of the verb. The final glottal stop of this circumfix appears to replace any root final consonants. When the stem to which this circumfix attaches ends in a vowel sequence, the final glottal stop occurs as an infix between these two vowels. Examples of *ma-...-ʔ* are given in (61) below.

(61) The Property Circumfix *ma...-ʔ*

'rock, stone'	<i>fatu</i>	+	<i>ma...-ʔ</i>	→	<i>ma-fatu-ʔ</i>	'rocky, stony'
'hair'	<i>funu-f</i>	+	<i>ma...-ʔ</i>	→	<i>ma-funu-ʔ</i>	'hairy'
'betel nut'	<i>puah</i>	+	<i>ma...-ʔ</i>	→	<i>ma-pua-ʔ</i>	'exchanging betel nut' ¹⁷
'wing'	<i>niniʔ</i>	+	<i>ma...-ʔ</i>	→	<i>ma-nini-ʔ</i>	'winged'
'key'	<i>retuʔ</i>	+	<i>ma...-ʔ</i>	→	<i>ma-retu-ʔ</i>	'locked'
'hear'	<i>√nena</i>	+	<i>ma...-ʔ</i>	→	<i>ma-nena-ʔ</i>	'heard'
'call, name'	<i>√teka</i>	+	<i>ma...-ʔ</i>	→	<i>ma-teka-ʔ</i>	'famous, well known'
'receive'	<i>√topu</i>	+	<i>ma...-ʔ</i>	→	<i>ma-topu-ʔ</i>	'received'
'write'	<i>√tui</i>	+	<i>ma...-ʔ</i>	→	<i>ma-tu(ʔ)i</i>	'written'
'be aware'	<i>√keo</i>	+	<i>ma...-ʔ</i>	→	<i>ma-ke(ʔ)o</i>	'aware'

When *ma...-ʔ* attaches to a vowel initial root, the stem consists of the stative prefix *m-* (§3.6.2.1) attached to the third person form of the verb. However, there is only one clear example in corpus: *√ita* 'see' → *ma-m-n-ita-ʔ* 'visible'.

There are also 24 property nominals in my corpus which begin with /ma/ but which have no corresponding root without initial /ma/. Many, but not all, of these forms also end in /ʔ/. There are also a number of property nominals with initial /ma/ which *do* have a corresponding root, but either the property nominal or root has undergone semantic shift such that the semantic link between the two is no longer regular. One such example is the nominal *maputuʔ* 'hot' which is connected with *putuʔ* 'charcoal'. Examples of /ma/ initial property nominals which are not known to be synchronically derived from a corresponding root are given in (62).

(62) Frozen Property Prefix:

<i>mahataʔ</i>	'itchy'	<i>mainikin</i>	'cold'
<i>maʔsenoʔ</i>	'spicy'	<i>maʔfenaʔ</i>	'heavy'
<i>makoe</i>	'diligent'	<i>masʔekiʔ</i>	'slippery'

Of such /ma/ initial nominals there are ten which have a corresponding semantically related causative verb in which the initial /ma/ is replaced by /ha/ (a reflex of the Proto-Malayo-Polynesian causative prefix *pa-). These ten words are given in Table 3.29 on the next page. Some of the resulting verbs also take the transitive suffix *-b* (§3.6.3.3).

This alternation is no longer productive and for most property nominals which begin with /ma/, a corresponding causative verb can be derived through addition of the transitive suffix *-b* (§3.6.3.3). Two examples are *makoe* 'diligent' → *n-makoe-b* 'makes s.o. diligent' and *mainukiʔ* 'young' → *n-mainuki-b* 'makes s.o. young'. In addition to the ten words given in Table 3.29, the adjective *maʔmuʔi* 'poor' corresponds to the verb *n-haʔmuʔi* 'causes suffering/difficulty', which while formally similar is not semantically related.¹⁸

¹⁷ The form *ma-pua-ʔ* 'exchanging betel nut' may be a reciprocal (§3.6.1.2), though this would not explain the final glottal stop.

¹⁸ The putative (historic) root of both these forms is *√muʔi* 'have, own'. This root is probably also the source

Table 3.29: Property Nominals with Corresponding *ha-* Initial Causatives[†]

Nominal		Causative Verb	
<i>maiʔnisi</i>	‘repugnated by’	<i>n-haiʔnisi</i>	‘repugnates’
<i>maiʔnura</i>	‘feeble’	<i>n-hainura</i>	‘enfeebles’
<i>mainikin</i>	‘cold’	<i>n-hainiki</i>	‘cools down (tr.)’
<i>mainuan</i>	‘open’	<i>n-hainua-b</i>	‘makes open’
<i>maʔekiʔ</i>	‘fine, smooth’	<i>n-haʔeki</i>	‘smoothes’
<i>maʔfenaʔ</i>	‘heavy’	<i>n-haʔfena-b</i>	‘weighs down’
<i>maʔkafaʔ</i>	‘light’	<i>n-haʔkafa</i>	‘lightens’
<i>maʔtaniʔ</i>	‘excessive, earnest’	<i>n-haʔtani</i>	‘strengthen, motivate’
<i>maputuʔ</i>	‘hot’	<i>n-haputu</i>	‘heats up (tr.)’
<i>marine</i>	‘happy’	<i>n-harine-b</i>	‘makes happy’

[†] When verbs are derived from nominals, any root final consonant is deleted. This is a regular process in Amarasi and is described in more detail in §6.2.1.

3.6.2.3 Nominalising *a-...-t*

The nominalising circumfix *a-...-t* (with the Ro'is Amarasi form *ka-...-t*) has the allomorph *a-...-s* on stems which contain a /t/. This circumfix typically derives nouns referring to people who carry out or who are characterised by the event/state encoded by the verb root. When the root to which it attaches ends in a consonant, the suffixal part of this circumfix does not surface. Examples are given in (63) below.

(63) Nominalising Circumfix *a-...-t*

‘work’	\sqrt{mepu}	+	<i>a-...-t</i>	→	<i>a-mepu-t</i>	‘worker’
‘read’	\sqrt{resa}	+	<i>a-...-t</i>	→	<i>a-resa-t</i>	‘reader’
‘stand’	\sqrt{hake}	+	<i>a-...-t</i>	→	<i>a-hake-t</i>	‘one who stands’
‘invite’	\sqrt{skau}	+	<i>a-...-t</i>	→	<i>a-skau-t</i>	‘inviter’
‘pray’	$\sqrt{ʔonen}$	+	<i>a-...-t</i>	→	<i>a-ʔonen</i>	‘one who prays’
‘agape, random’	$\sqrt{tafiʔ}$	+	<i>a-...-t</i>	→	<i>a-tafiʔ</i>	‘one who is agape/ does things randomly’
‘die’	\sqrt{mate}	+	<i>a-...-s</i>	→	<i>a-mate-s</i>	‘dead one’
‘parallel’	\sqrt{tnoe}	+	<i>a-...-s</i>	→	<i>a-tnoe-s</i>	‘one(s) sitting opposite’

One root in which the final consonant is apparently replaced by the suffixal element of *a-...-t* is *munif* ‘young’ → *a-muni-t* ‘youngest one’. This is probably due to the final /f/ of *munif* ‘young’ being a fossilised suffix, in this case the OGEN suffix *-f*.

of Amarasi *muʔit* ‘animal’, which would be a regular nominalisation of $\sqrt{muʔi}$ (§3.6.3.4). The word *muʔit* refers to animals which are domesticated, or have the potential to be domesticated. The possession of livestock is a sign of wealth in Timor and provides a highly plausible semantic pathway between $\sqrt{muʔi}$ ‘have’ and *muʔit* ‘(domestic) animal’. However, the existence of the Helong words *hmukit* ‘(domestic) animal’ and Dhao *mukit* ‘animal’ may caution against establishing Amarasi *muʔit* ‘animal’ as being historically derived from $\sqrt{muʔi}$ ‘have, own’, though speakers *do* report the connection as a folk etymology.

When a vowel initial root is nominalised with *a...-t*, the stem consists of the stative prefix *m-* (§3.6.2.1) attached to the third person form of the verb. Examples are given in (64) below.

(64) Nominalising Circumfix *a...-t* (Vowel Initial Roots)

'run'	\sqrt{aena}	+	<i>a...-t</i>	→	<i>a-m-n-aena-t</i>	'runner'
'eat'	\sqrt{aha}	+	<i>a...-t</i>	→	<i>a-m-na-ha-t</i>	'eater (of soft food)'
'look for'	\sqrt{ami}	+	<i>a...-t</i>	→	<i>a-m-n-ami-t</i>	'one who searches'
'eat'	\sqrt{eku}	+	<i>a...-t</i>	→	<i>a-m-n-eku-t</i>	'eater (of hard food)'
'come'	\sqrt{Vma}	+	<i>a...-t</i>	→	<i>a-m-nema-t</i>	'guest, one who comes, origin'

3.6.2.4 Nominalising $\text{ʔ}...\text{ʔ}$

The circumfix $\text{ʔ}...\text{ʔ}$ typically derives nouns which refer to physical objects, often tools, from verbs. When this circumfix attaches to a surface CVCV root, the initial element occurs as a prefix and the second element as a suffix. Examples are given in (65) below.

(65) Nominalising Circumfix $\text{ʔ}...\text{ʔ}$

'grate'	\sqrt{fona}	+	$\text{ʔ}...\text{ʔ}$	→	ʔ-fona-ʔ	'grater'
'bind'	\sqrt{futu}	+	$\text{ʔ}...\text{ʔ}$	→	ʔ-futu-ʔ	'cloth band'
'sit'	\sqrt{toko}	+	$\text{ʔ}...\text{ʔ}$	→	ʔ-toko-ʔ	'chair'
'sweep'	\sqrt{sapu}	+	$\text{ʔ}...\text{ʔ}$	→	ʔ-sapu-ʔ	'broom'

When this circumfix occurs on a root with a final vowel sequence, the second glottal stop occurs between these two vowels as an infix. Examples are given in (66) below. (The behaviour of this circumfix when it attaches to a surface CVCVC or CVVC root is currently unknown due to my non-exhaustive data.¹⁹)

(66) Nominalising Circum-/Infix $\text{ʔ}...\langle\text{ʔ}\rangle$

'cover'	\sqrt{neo}	+	$\text{ʔ}...\text{ʔ}$	→	$\text{ʔ-ne}\langle\text{ʔ}\rangle\text{o}$	'umbrella'
'pound'	\sqrt{pau}	+	$\text{ʔ}...\text{ʔ}$	→	$\text{ʔ-pa}\langle\text{ʔ}\rangle\text{u}$	'mortar and pestle'
'exit'	\sqrt{poi}	+	$\text{ʔ}...\text{ʔ}$	→	$\text{ʔ-po}\langle\text{ʔ}\rangle\text{i}$	'exit (noun)'
'sing'	\sqrt{sii}	+	$\text{ʔ}...\text{ʔ}$	→	$\text{ʔ-si}\langle\text{ʔ}\rangle\text{i}$	'song'
'write'	\sqrt{tui}	+	$\text{ʔ}...\text{ʔ}$	→	$\text{ʔ-tu}\langle\text{ʔ}\rangle\text{i}$	'pen, pencil'

In addition to productive uses, there are 80 roots in my corpus which appear to have a fossil of this circumfix attached. Of these roots, all except thirteen refer to physical entities which are of a size or shape such that they could be held in one hand, such as tools, containers or fruit. Examples of roots which appear to have a fossil of $\text{ʔ}...\text{ʔ}$ are given in (67) below.

¹⁹ Comparison with the property circumfix *ma...-ʔ* (§3.6.2.2) indicates that the suffixal element of this nominaliser would probably replace a final consonant of such roots.

(67) Roots with Putative Fossil of the Nominalising Circumfix ʔ...ʔ

<i>ʔfaneʔ</i>	'hammer', 'bowl'	<i>ʔmukiʔ</i>	'lime (fruit)'
<i>ʔfiʔu</i>	'sling'	<i>ʔnisaʔ</i>	'gewang palm seed'
<i>ʔkaroʔ</i>	'sack'	<i>ʔsoʔo</i>	'rice planting tool'

3.6.3 Suffixes

Kotos Amarasi does not allow word final consonant clusters. Thus, the addition of consonantal suffixes to consonant final roots is not straightforward. Such clusters are avoided through deletion of the root final consonant, using an allomorph of the suffix which contains a vowel, or by not using the suffix.

3.6.3.1 Genitive Suffixes

The genitive suffixes are given in Table 3.30 below. These suffixes only occur on nouns which are in a part-whole relationship with the 'possessor'. Such nouns in turn occur almost obligatorily with a genitive suffix. Examples of each of these suffixes on a number of nouns are given in Table 3.31. The use of the genitive suffixes is discussed in more detail in §6.4.2.

Table 3.30: Amarasi Genitive Suffixes

	SG	PL
1	<i>-k</i>	<i>-m</i>
1,2		<i>-k[†]</i>
2	<i>-m</i>	<i>-m</i>
3	<i>-n</i>	<i>-k[†]</i>
0		<i>-f</i>

[†] In Ro'is the 1PI and 3PL forms are *-r*.

Table 3.31: Body Parts with Genitive Suffixes (Grimes et al. 2012:7)

	'hand, arm'	'body'	'spirit'	'eye'	'foot, leg'	'ear'	'face'	
0	<i>ʔnima-f</i>	<i>ao-f</i>	<i>smana-f</i>	<i>mata-f</i>	<i>hae-f</i>	<i>ruki-f</i>	<i>huma-f</i>	
1SG	<i>au</i>	<i>ʔnima-k</i>	<i>ao-k</i>	<i>smana-k</i>	<i>mata-k</i>	<i>hae-k</i>	<i>ruki-k</i>	<i>huma-k</i>
2SG	<i>ho</i>	<i>ʔnima-m</i>	<i>ao-m</i>	<i>smana-m</i>	<i>mata-m</i>	<i>hae-m</i>	<i>ruki-m</i>	<i>huma-m</i>
3SG	<i>in</i>	<i>ʔnima-n</i>	<i>ao-n</i>	<i>smana-n</i>	<i>mata-n</i>	<i>hae-n</i>	<i>ruki-n</i>	<i>huma-n</i>
1IN	<i>hit</i>	<i>ʔnima-k</i>	<i>ao-k</i>	<i>smana-k</i>	<i>mata-k</i>	<i>hae-k</i>	<i>ruki-k</i>	<i>huma-k</i>
1EX	<i>hai</i>	<i>ʔnima-m</i>	<i>ao-m</i>	<i>smana-m</i>	<i>mata-m</i>	<i>hae-m</i>	<i>ruki-m</i>	<i>huma-m</i>
2PL	<i>hi</i>	<i>ʔnima-m</i>	<i>ao-m</i>	<i>smana-m</i>	<i>mata-m</i>	<i>hae-m</i>	<i>ruki-m</i>	<i>huma-m</i>
3PL	<i>sin</i>	<i>ʔnima-k</i>	<i>ao-k</i>	<i>smana-k</i>	<i>mata-k</i>	<i>hae-k</i>	<i>ruki-k</i>	<i>huma-k</i>

The ‘0 person’ suffix *-f* occurs when the possessor is irrelevant to the discourse, or it is not in a part-whole relationship, or its association is not in focus. This includes the citation form, amputation, or when the part is being talked about in generic terms (Grimes et al. 2012). On kin terms the suffix *-f* has a different function, discussed in §3.6.3.2 below.

Most of the roots with such suffixes are roots which obligatorily occur with such a suffix. Thus, it is somewhat unclear how the genitive suffixes interact with consonant final roots. However, there are a small number of glottal stop final roots which have been attested both with and without a genitive suffix. Additionally, there are a number of nominalisations with *a...-t* (§3.6.2.3) which can occur with a genitive suffix. When a genitive suffix occurs on such a form, the root final consonant is deleted. Examples are given in (68) below.

(68) Final Consonant Replacement after Genitive Suffix

<i>enoʔ</i>	+	<i>-n</i>	→	<i>in eno-n</i>	‘its door’
<i>retaʔ</i>	+	<i>-n</i>	→	<i>in reta-n</i>	‘his/her story’
<i>humaʔ</i>	+	<i>-k</i>	→	<i>au huma-k</i>	‘my face’
<i>ʔnakaʔ</i>	+	<i>-k</i>	→	<i>au ʔnaka-k</i>	‘my head’
<i>a-m-nema-t</i>	+	<i>-n</i>	→	<i>in a-m-nema-n</i>	‘his/her coming, arrival, origins’
<i>a-reko-t</i>	+	<i>-n</i>	→	<i>in a-reko-n</i>	‘his/her goodness’

I have collected less than a dozen words which contain a vowel medial glottal stop when no genitive suffix is attached, and contain a vowel sequence when a genitive suffix is attached. These words are given in (69) below with both unsuffixed and suffixed forms.²⁰ When the words in (69) have known Proto-Malayo-Polynesian reflexes, this medial glottal stop is not an inheritance from any reconstructed consonant. (See §4.5.1.3.8 for more details.) This data could be plausibly analysed synchronically as either glottal stop insertion or deletion.

(69) $VʔV \leftrightarrow VV-C_{GEN}$

<i>taʔe</i>	+	<i>-f</i>	↔	<i>tae-f</i>	‘a branch’
<i>haʔe</i>	+	<i>-m</i>	↔	<i>ho hae-m</i>	‘your leg’
<i>noʔo</i>	+	<i>-k</i>	↔	<i>sin noo-k</i>	‘their leaves’
<i>uʔu</i>	+	<i>-n</i>	↔	<i>in uu-n</i>	‘its source’
<i>baʔe</i>	+	<i>-f</i>	↔	<i>bae-f</i>	‘same sex male cross cousin’
<i>beʔi</i>	+	<i>-f</i>	↔	<i>bei-f</i>	‘grandmother’
<i>naʔo</i>	+	<i>-f</i>	↔	<i>nao-f</i>	‘woman’s brother’
<i>koʔu</i>	+	<i>-f</i>	↔	<i>aam kou-f</i>	‘father’s older brother’ (<i>lit.</i> ‘big father’)
<i>feʔu</i>	+	<i>-f</i>	↔	<i>moen feu-f</i>	‘son-in-law’ (<i>lit.</i> ‘new male’)

While the medial glottal stop of *koʔu* ‘big’ is deleted in the phrases *aam kou-f* ‘father’s elder brother’ and *ain kou-f* ‘mother’s elder sister’, in the phrase *keo koʔu-f* ‘Achille’s tendon’ (from *keo-* ‘vein’ + *koʔu*) it is retained.

²⁰ In addition to the forms given in (69) there are two Ro’is Amarasi terms which are also known to exhibit such medial glottal stop deletion. These are *tuuhaʔo* → *tuuhao-f* ‘same sex sibling’ and *maʔo* → *aam mao-f* ‘father’s younger brother’ or *ain mao-f* ‘mother’s younger sister’.

With the exception of the words given in (69), other words with a medial glottal stop retain this glottal stop when a genitive suffix occurs. Two examples are *naʔi-* + *-f* → *naʔi-f* ‘grandfather’ and *ʔbaʔa-* + *-f* → *ʔbaʔa-f* ‘roots’.

3.6.3.2 Kin Genitive Suffixes

Kin relations take a different set of genitive suffixes to other nouns. In ‘normal’ Amarasi, kin relations take the suffix *-f* when unpossessed or the possessor is 3SG, and *-ʔ* when the possessor is non-3SG. There is variation between *-f* and *-ʔ* for 3PL possessors.

In the village of Koro'oto (where most of my data was gathered) the suffix *-f* is used on all possessed kin relations, with the glottal stop mainly occurring in vocatives.

Table 3.32: Amarasi Kin Genitive Suffixes

	SG	PL
1	<i>-ʔ</i>	<i>-ʔ</i>
1,2		<i>-ʔ</i>
2	<i>-ʔ</i>	<i>-ʔ</i>
3	<i>-f</i>	<i>-f/-ʔ</i>
0		<i>-f</i>

Table 3.33: Amarasi (Koro'oto) Kin Genitive Suffixes

	SG	PL
1	<i>-f</i>	<i>-f</i>
1,2		<i>-f</i>
2	<i>-f</i>	<i>-f</i>
3	<i>-f</i>	<i>-f</i>
0		<i>-f</i>

Table 3.34: Amarasi Kin Terms with Genitive Suffixes

Amarasi	Gloss	meaning
<i>naʔi-f</i>	PF	‘grandfather’ (somewhat archaic)
<i>baʔi-f</i>	PF	‘grandfather’ (cf. Kupang Malay <i>baʔi</i>)
<i>bei-f</i>	PM	‘grandmother’
<i>ama-f</i>	F	‘father, father’s brother’
<i>aina-f</i>	M	‘mother, mother’s sister’
<i>baba-f</i>	MB/FZ	‘parent’s opposite sex sibling’
<i>tata-f</i>	eSi	‘same sex elder sibling’
<i>ori-f</i>	ySi	‘same sex younger sibling’
<i>nao-f</i>	fB	‘woman’s brother’
<i>feto-f</i>	mZ	‘man’s sister’
<i>moen feu-f</i>	DH	‘daughter’s husband’, opposite sex sibling’s son’
<i>nane-f</i>	SW	‘son’s wife, opposite sex siblings daughter’
<i>bae-f</i>	WB/ZH/ MBD/FZS	1) ‘same sex cross-cousin, same sex sibling of spouse, opposite sex sibling’s spouse’, 2) ‘mate, friend’
<i>upu-f</i>	CC	‘grandchild’
<i>uup kaʔu-f</i>	CCC	‘great grandchild’
<i>sufaʔ kaʔu-f</i>	PPP	‘ancestor, forefather’

The (Kotos) Amarasi kin terms which take genitive suffixes are given in Table 3.34. Noun phrases in which one of these kin terms is the head noun also take genitive suffixes, thus for instance, *ama-f* ‘father’ + *koʔu* ‘big’ → *aam kou-f* ‘father’s older brother’. Not all words which are semantically kin terms take kin genitive suffixes. Three examples are *anah* ‘child’, *mone* ‘husband’ and *fee* ‘wife’. The word *usi-f* ‘lord, king’ sometimes take the kin genitive suffixes and sometimes takes the general genitive suffixes.

Examples of the ‘normal’ kin suffixes are given in (70) and (71) below. Most such examples I have encountered occur in the Amarasi Bible translation. Examples of the Koro’oto general kin suffix *-f* are given in (72) and (73) below.

- (70) *au baba-ʔ na-mena =m et uam mena*
 1SG FZ/MB-1/2KIN.GEN 3-sick =and 1PFV.LOC house sick
 ‘My aunt was sick and in the hospital.’ 130825-6, 17.22 🔊
- (71) *in n-toup na-tuin in ama-f naan a|n-baʔan n-ain,*
 3SG 3-receive 3-because 3SG father-3SG/0KIN.GEN 2DEM 3-promise 3-before
 ‘He receives (it) because his father had promised (it) before,’ Galatians 3:18
- (72) *au feto-f nee memaŋ in n-sadar.*
 1SG mZ-KIN.GEN 3DEM indeed 3SG 3-aware
 ‘My sister there was aware.’ 130825-6, 3.43 🔊
- (73) *ho feat-f=i bi sekau?*
 2SG mZ-KIN.GEN=ii Ms. who
 ‘Who’s your sister?/What’s your sisters name?’ 130825-6, 2.06 🔊

3.6.3.3 Transitive Suffixes

Amarasi has two productive transitive suffixes, *-ʔ* and *-b*. Of these the suffix *-b* is highly productive, while *-ʔ* is less productive. Examples of *-b* are given in (74) below, and examples of *-ʔ* in (75). Neither of these suffixes is attested attached to consonant final roots/stems.

- (74) The Transitive Suffix *-b*

‘ascends’	<i>n-sae</i>	+	<i>-b</i>	→	<i>na-sae-b</i>	‘raises sth.’
‘sits’	<i>n-took</i>	+	<i>-b</i>	→	<i>na-toko-b</i>	‘makes sit’
‘name’	<i>kana-f</i>	+	<i>-b</i>	→	<i>na-kana-b</i>	‘names s.o.’
‘remembers’	<i>na-mnau</i>	+	<i>-b</i>	→	<i>na-mnau-b</i>	‘reminds s.o.’
‘stops’	<i>na-snaas</i>	+	<i>-b</i>	→	<i>na-snasa-b</i>	‘stops s.o.’
‘goes’	<i>n-nao</i>	+	<i>-b</i>	→	<i>na-nao-b</i>	‘makes s.o. go’

(75) Transitive Suffix *-ʔ*

'good'	<i>reko</i>	+	<i>-ʔ</i>	→	<i>na-reko-ʔ</i>	'fixes'
'stands'	<i>n-haek</i>	+	<i>-ʔ</i>	→	<i>na-haek-ʔ</i>	'establishes'
'returns'	<i>n-fain</i>	+	<i>-ʔ</i>	→	<i>na-fain-ʔ</i>	'returns to s.o., repeats sth.'

I have also collected two intransitive verbs which have a transitive counterpart which ends in a final /s/. These are *na-mtau* 'scared' with *na-mtaus* 'scared of' and *n-mani* 'laugh' with *n-manis* 'laugh at'.²¹

In the case of *na-mtaus* 'scared of' the final consonant may be a retention of the original final *t of Proto-Malayo-Polynesian *takut, with application of the rule realising suffixal *-t* as *-s* after roots which contain a /t/ (§3.6.3.4). However, such an explanation does not seem likely for *n-manis* 'laugh at' as the final *p reconstructed for *malip appears to be well supported (Blust and Trussel ongoing).

 3.6.3.4 Nominalising *-t*

The suffix *-t* is a nominaliser which derives nouns from verbs. The nouns derived refer to the activity of the verb or the results of this activity. The suffix *-t* has the allomorph *-s* after stems which contain a /t/, and is almost certainly related to the suffixal element of the nominalising circumfix *a-...-t* (§3.6.2.3). This suffix has not yet been clearly attested on consonant final roots. Examples of *-t* and its allomorph *-s* are given in (76) below.²²

 (76) Nominalising suffix *-t*

'speak poetically'	$\sqrt{ʔaʔa}$	+	<i>-t</i>	→	<i>ʔaʔa-t</i>	'poetic speech'
'do, make'	$\sqrt{moʔe}$	+	<i>-t</i>	→	<i>moʔe-t</i>	'deed, act'
'live'	\sqrt{moni}	+	<i>-t</i>	→	<i>moni-t</i>	'life'
'believe'	\sqrt{pirsai}	+	<i>-t</i>	→	<i>pirsai-t</i>	'belief, religion'
'speak foreign language'	\sqrt{rabi}	+	<i>-t</i>	→	<i>rabi-t</i>	'foreign language'
'sing'	\sqrt{sii}	+	<i>-t</i>	→	<i>sii-t</i>	'song'
'die'	\sqrt{mate}	+	<i>-s</i>	→	<i>mate-s</i>	'death'
'stand upright'	\sqrt{tetu}	+	<i>-s</i>	→	<i>tetu-s</i>	'blessing'
'ask'	\sqrt{toti}	+	<i>-s</i>	→	<i>toti-s</i>	'request'
'marry'	\sqrt{matsao}	+	<i>-s</i>	→	<i>matsao-s</i>	'marriage'

²¹ Somewhat unusually, transitive *n-manis* 'laugh at' does not take vocalic prefixes. (§3.6.1.1).

²² The word pair *n-mena* 'sick' and *menas* 'sickness' appear to represent a root which irregularly takes the allomorph *-s* despite the fact that this stem does not contain any /t/. However, a comparison with cognate forms in related languages, such as Tetun *moras* 'to be sick, to be in poor health' (Morris 1984:143), reveals that the Amarasi root is actually the consonant final nominal \sqrt{menas} 'sickness', from which the verb *n-mena* 'sick' is derived via the regular process of root final consonant deletion (§6.2.1).

3.6.3.5 People Group Suffix -s

The suffix *-s* forms nouns referring to people groups. After CVC# final stems this suffix replaces the final consonant, while after VVC# final stems this suffix has the allomorph *-as*. The result of these morphophonemic changes means that the final foot of the derived people group noun can be assigned to the CVCVC foot structure (§3.4), with examples such as *Naet-as* ‘person from *Naet*’ having the initial vowel sequence assigned to a single V-slot (§3.5.1.1). Examples of *-s* are given in (77) below.

(77) People Group Suffix *-s*

‘Savu (island)’	<i>Sapu</i>	+	<i>-s</i>	→	<i>Sapu-s</i>	‘person from Savu’
‘Rote (island)’	<i>Rote</i>	+	<i>-s</i>	→	<i>Rote-s</i>	‘person from Rote’
‘Koro’oto’	<i>Koor?oto</i>	+	<i>-s</i>	→	<i>Koor?oto-s</i>	‘person from Koro’oto’
‘Belu’	<i>Beru</i>	+	<i>-s</i>	→	<i>Beru-s</i>	‘person from Belu’
‘Kupang’	<i>Kopan</i>	+	<i>-s</i>	→	<i>Kopa-s</i>	‘person from Kupang’
‘Helong’	<i>?Hero?</i>	+	<i>-s</i>	→	<i>?Hero-s</i>	‘Helong person’
‘Buraen’	<i>Buraen</i>	+	<i>-as</i>	→	<i>Buraen-as</i>	‘person from Buraen’
‘Naet’	<i>Naet</i>	+	<i>-as</i>	→	<i>Naet-as</i>	‘person from Naet’
‘east’	<i>neon sae-t</i>	+	<i>-as</i>	→	<i>neon sae-t-as</i>	‘Easterner’ ²³

3.6.3.6 The Suffix *-a?*

VVC# final verbs appear to have two forms, one ending in VVC and one ending in VVCa?#. The forms ending in /a?/ do not occur before enclitics, but other than this environment both forms appear to be in free variation with one another with no difference in meaning currently apparent. Examples are given in (78) below.

(78) VVC# ~ VVCa?# Alternation

<i>na-baen</i>	~	<i>na-baena?</i>	‘pays’
<i>na-kain</i>	~	<i>na-kaina?</i>	‘rebukes’
<i>na-?uab</i>	~	<i>na-?uaba?</i>	‘speaks’
<i>na-maik</i>	~	<i>na-maika?</i>	‘stay, remain behind’
<i>na-tuin</i>	~	<i>na-tuina?</i>	‘follows’

This also includes stems which are VVC# final due to the addition of a consonantal suffix to a VV# final root. Examples are given in (79) below with the transitive suffix *-b*.

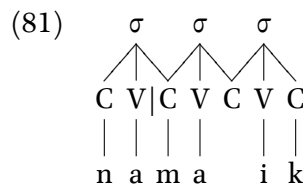
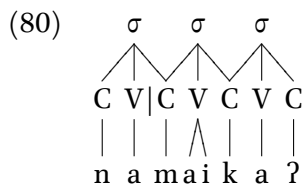
(79) VV-C# ~ VV-Ca?# Alternation

\sqrt{hae}	+	<i>-b</i>	→	<i>na-hae-b</i>	~	<i>na-hae-ba?</i>	‘tires s.o. out’
\sqrt{mnau}	+	<i>-b</i>	→	<i>na-mnau-b</i>	~	<i>na-mnau-ba?</i>	‘reminds’
\sqrt{sae}	+	<i>-b</i>	→	<i>na-sae-b</i>	~	<i>na-sae-ba?</i>	‘raises, picks up’
\sqrt{tea}	+	<i>-b</i>	→	<i>na-tea-b</i>	~	<i>na-tea-ba?</i>	‘makes s.o. arrive’

²³ The form *neon sae-t-as* ‘easterner’ specifically refers to someone from the north-eastern Uab Meto speaking areas; Oecusse (Baikeno), Miamafu, Insana and Beboki.

The reason for this alternation is currently unknown. One hypothesis I considered was that this alternation was comparable to the alternation between U-forms and M-forms. However, the forms ending in /aʔ/ occur in many environments where a U-form would be completely unexpected, such as in simple declarative sentences (Chapter 7).

One possibility is that final /aʔ/ occurs in order to provide such forms a complete foot with no empty medial C-slots. As discussed in §3.5.1.1, words which surface as VVCVC#, are best analysed as being assigned a CVCVC foot with the initial two vowels being assigned to a single V-slot, as illustrated for *na-maikaʔ* ‘stay, remain behind’ in (80) below. Forms without a final /aʔ/ on the other hand would have an empty medial C-slot, as illustrated in (81) below.



If it is the case that the suffix /aʔ/ occurs to provide words with a complete foot with only filled C-slots, then the segmental material of /aʔ/ is what we would expect. The vowel /a/ can be analysed as the default vowel in Amarasi (§3.2.1.3, §3.8.2) and /ʔ/ can be analysed as the default consonant (§4.5.1.3.5). In §4.5.1.3 I provide extensive evidence for the existence of empty C-slots in Amarasi, including several processes which may have (historically) occurred to avoid empty C-slots. Suffixation of /aʔ/ may also be one such process.

3.7 Clitic Boundaries

There are four main groups of enclitics which are associated with various morphophonemic processes or have different allomorphs in different phonological environments: vowel initial enclitics (§3.7.1), the plural enclitic =*ein*/=*n* (§5.6), certain sentence enclitics with the shape CV (§3.7.3) and the negative enclitic =*fa*/=*f* (§3.7.4).

3.7.1 Vowel Initial Enclitics

When a vowel initial enclitic is attached to a vowel final stem, insertion of /dʒ/ or /gw/ occurs at the enclitic boundary. The consonant /dʒ/ is inserted after the front vowels /i/ and /e/ and /gw/ is inserted after the back vowels /u/ and /o/. The final consonant and vowel of the stem metathesise, and the final vowel then assimilates to the quality of the previous vowel. Examples are given in (82) below, with the enclitic =*e* 3DET. This process is described in full in Chapter 5, particularly §5.3 and §4.2.3.

(82) $V_{\alpha}CV_{\beta}+=V \rightarrow V_{\alpha}V_{\alpha}CC_{\beta}=V$

<i>kbiti</i>	+	=e	→	<i>kbiitɕ=e</i>	‘the scorpion’
<i>kreni</i>	+	=e	→	<i>kreentɕ=e</i>	‘the ring’
<i>fafi</i>	+	=e	→	<i>faafɕ=e</i>	‘the pig’
<i>oni</i>	+	=e	→	<i>oondɕ=e</i>	‘the bee; the sugar’
<i>uki</i>	+	=e	→	<i>uukɕ=e</i>	‘the banana’
<i>kepe</i>	+	=e	→	<i>keepɕ=e</i>	‘the tick (parasite)’
<i>bare</i>	+	=e	→	<i>baardɕ=e</i>	‘the stuff’
<i>nope</i>	+	=e	→	<i>noopɕ=e</i>	‘the cloud’
<i>biku</i>	+	=e	→	<i>biikgw=e</i>	‘the curse’
<i>tefu</i>	+	=e	→	<i>teefgw=e</i>	‘the sugar-cane’
<i>fatu</i>	+	=e	→	<i>faatgw=e</i>	‘the stone’
<i>nopu</i>	+	=e	→	<i>noopgw=e</i>	‘the grave’
<i>hutu</i>	+	=e	→	<i>huutgw=e</i>	‘louse’
<i>nefo</i>	+	=e	→	<i>neefgw=e</i>	‘the lake’
<i>knafo</i>	+	=e	→	<i>knaafgw=e</i>	‘the mouse’
<i>koro</i>	+	=e	→	<i>koorgw=e</i>	‘the bird’

3.7.2 Plural Enclitic

The plural enclitic has two main allomorphs, =*ein* after consonant final stems and =*n* after vowel final stems. Examples of each are given in (83) and (84) below. The form of this enclitic and its enclitic host is discussed in full detail in §5.6.

 (83) {PL} → =*ein* /C#_

<i>anah</i>	→	<i>aanh=ein</i>	‘children’
<i>kaes mutiʔ</i>	→	<i>kaes mutiʔ=ein</i>	‘Europeans’
<i>enoʔ</i>	→	<i>eonʔ=ein</i>	‘doors’
<i>tua-f</i>	→	<i>tua-f=ein</i>	‘people’
<i>kuan</i>	→	<i>kuan=ein</i>	‘villages’
<i>n-ʔonen</i>	→	<i>n-ʔoenn=ein</i>	‘(they) pray’
<i>na-tuin</i>	→	<i>na-tuin=ein</i>	‘(they) follow’

 (84) {PL} → =*n* /CV#_

<i>kase</i>	→	<i>kase=n</i>	‘foreigners’
<i>hutu</i>	→	<i>hutu=n</i>	‘head-lice’
<i>kbiti</i>	→	<i>kbiti=n</i>	‘scorpions’
<i>n-moʔe</i>	→	<i>n-moʔe=n</i>	‘(they) do/make’
<i>na-tona</i>	→	<i>na-tona=n</i>	‘(they) tell’
<i>n-eki</i>	→	<i>n-eki=n</i>	‘(they) bring’
<i>na-hana</i>	→	<i>na-hana=n</i>	‘(they) cook’

3.7.3 CV Enclitics

There are three CV enclitics in Amarasi which have alternate forms which begin with an initial /a/. These enclitics are *=(a)ma* ‘and’ *=(a)te* ‘SET’ and *=(a)ha* ‘just’.

When these enclitics are attach to a vowel final stem, they take their consonant initial forms. An example of each is given in (85)–(87) below. (Primary phrasal stress is indicated with an acute accent and secondary stress with a grave accent.)

- (85) [ndɪɛok fáno t̪ɛ:]
n-reuk fanu =te, ...
 n-reku fanu =te ...
 3-pluck eight =SET
 ‘When it struck eight o’clock, ...’ 130920-1, 0.51 🔊
- (86) [ɣm naɔ nβi t̪ɔfɛ naɛ:f nək ɣm βáɛfɪnɛ maː]
in n-nao n-bi Tofa? na-teef n-ok in bae-f=ein=e =ma
 in n-nao n-bi Tofa? na-tefa n-oka in baʔe-f=ein=e =ma
 3SG 3-nao 3-RL.LOC T. 3-meet 3-with 3SG mate-KIN.GEN=PL=3DET =and
 ‘He went to Tofa’, met with his mates and,’ 130920-1, 2.18 🔊
- (87) [ɣatβíkʊ ha =sin]
a|t-biku =ha =sin.
 IPI-curse =only =3PL
 ‘You just curse them.’ 120923-1, 7.47 🔊

After a consonant these clitics have forms which begin with /a/; *=ate*, *=ama* and *=aha*.²⁴ These forms with an initial /a/ have some parallels to epenthesis of /a/ before consonant clusters (§3.8.2). An example of each is given in (88)–(90) below.

- (88) a. [t̪aβsoʔ t̪ɔmfəfəwn atɛ ɣɛsɔs ɪ ɪa]
Ta-bsoo? ta-mfa-faun =ate es~es re? ia,
 ta-bsoʔo ta-mfa-faun =te es~es re? ia
 IPI-dance IPI-INTNS~many =SET FRD~one REL IDEM
 ‘When we all dance together like this,’ 130902-1, 3.15 🔊
- b. [n̪t̪ɛkɛ t̪ nək kósʊʔ]
n-teek?e =t n-ak: “kosu?”
 n-teka?e =te n-ak kosu'
 3-call=3SG.ACC =SET 3-say dance.kind
 ‘it’s called *kosu*.’

²⁴ Some native speakers transcribe form *=ama* as a double conjunction: <am ma>. While this may be a good orthographic solution, there are two reasons that this is probably not an appropriate analysis of the data. Firstly, the medial consonant /m/ in *=ama* is rarely (if ever) geminate [m:]. Secondly, analogy with the behaviour of *=te* → *=ate* and *=ha* → *=aha* suggests a single analysis is possible for all three enclitics.

- (89) [tʃoma kə.nə nò.t̪ ná:ʔzɛn **ěme**]
cuma karna n-out naaʔɕ=en =ama,
cuma karna n-otu naʔi=en =ma
 only because 3-burn PF=INCEP =and
 ‘Only because they burnt the grandfather and,’ 120715-4, 7.29 ◀
- (90) [mfɛj máne ha ɔn rɪ ia t̪ɛ ʔɔn **ěha** rɪ ia t̪ɛ]
m-fei m-ana =ha on reʔ ia =te, on =aha reʔ ia =te
m-fei m-ana =ha on reʔ ia =te, on =ha reʔ ia =te
 1PX/2-open 1PX/2-RES =only like IDEM =SET IRR.LOC =only REL IDEM =SET
 ‘(Don’t) open it just like this, just like this’ 130905-1, 0.14 ◀
- The final vowel of the clitics =te ‘SET’ and =ma ‘and’ is often deleted, including when these clitics take vowel initial forms. Examples are given in (91)–(94) below. This gives a total of four realisations of each of these enclitics: =te, =t, =ate and =at for the scene setting enclitic and =ma, =m, =ama and =am for ‘and’. The frequencies of each of these forms in my corpus are given in Table 3.35 on the next page
- (91) [pɛr ʔakréj || kré:zɛs **ăt̪** ɛs]
per a|krei. kreedɕ=es =at, es.
per krei krei=es =te es
 per week week\M=one =SET one
 ‘Per week. One (every) week.’ 120923-1, 12.40 ◀
- (92) [ma:: nɔpɔ m̪nawni **t̪** ɔn rɛ mɛɛ]
ma, nopu mnaunʔ=i =t on reʔ mee
ma nopu mnanuʔ=i =te on reʔ mee
 and grave\U depth\M=1DET =SET like where
 ‘and, how deep the grave should be’ 130928-1, 1.02 ◀
- (93) [naníyə **m** naʔɕ:zɛ mə npeɔʔrɕɛ mə
na-niugw=e =m na-taɕɕ=e =ma n-paroorɕ=e =ma
na-niu=e =ma na-tai=e =ma n-pairori=e =ma
 3-bathe=3SG.ACC =and 3-clothe=3SG.ACC =and 3-prepare\M=3SG.ACC =and
 rekɔrɛkɔ]
reko~reko
 reko~reko
 FRD~good\U
 ‘They bathed him and clothed him and prepared him properly.’ 130902-1, 4.00 ◀
- (94) [neken **ʔem** naʔsɔ:sʔm ɛnbi:: ʔɔɛʔsao]
neki=n =am na-ʔsoosʔ=ein a|n-bi Oeʔsao
neki=n =ma na-ʔsosaʔ=ein n-bi Oeʔsao
 take\U=PL =and 3-sell=PL 3-RL.LOC O.
 ‘(they) take them and sell them in Oe’sao.’ 120715-1, 1.14 ◀

Table 3.35: Frequency of the Forms of Sentence Enclitics

'and'	= <i>ma</i>	= <i>m</i>	= <i>ama</i>	= <i>am</i>	total
no.	377	199	24	39	639
SET	= <i>te</i>	= <i>t</i>	= <i>ate</i>	= <i>at</i>	
no.	411	238	56	40	745

In certain set phrases deletion of the final vowel of =*ma* 'and' has become lexicalised, and the full form is no longer allowed. One example of obligatory final vowel loss in =*ma* 'and' is in the formation of numerals greater than ten. A selection of such numerals is given in (95) below to illustrate. While the full form is ungrammatical in such examples, speakers still recognise the form =*m*/=am as an allomorph of =*ma*.

(95) Complex Numerals with Obligatory =*m*/=am:

- a. [bɔʔ nɔv m meseʔ]
boʔ nua =m meseʔ
 ten two =and one
 'twenty-one' (21) 🗣️
- b. [bɔʔ fanɔ m teon]
boʔ fanu =m teun
 ten eight =and three
 'eighty-three' (83) 🗣️
- c. [naʦɔn seɔ m bɔʔ ɛs ɛm ha:]
natun seo =m boʔ =es =am haa
 hundred nine =and ten =one =and four
 'nine hundred and fourteen' (914) 🗣️
- d. [nifɔn nime m naʦɔn hitɔ m bɔʔ ne: m faʊn]
nifun nima =m natun hitu =m boʔ nee =m faun
 thousand five =and hundred seven =and ten six and eight
 'five thousand seven hundred and sixty-eight' (5,768) 🗣️

3.7.4 The Negative Enclitic

Negation in Amarasi is usually expressed by a combination of a proclitic *ka=* and enclitic =*fa* surrounding the negated element. Two examples are given in (96) and (97) below.

- (96) *au ka= am-naah bubur =kau =fa!*
 ISG NEG= NML-eat\M porridge =ISG.ACC =NEG
 'I don't eat porridge!' (*lit.* 'I'm not a porridge eater!') 130825-6, 17.02 🗣️
- (97) *u-ʔmaatɕ=e =m ka= na-sai =fa.*
 ISG-kill=3SG.ACC =and NEG= 3-flow =NEG
 'I turned it (the tap) off and it didn't flow.' 130825-8, 1.38 🗣️

According to the prescriptive norms of speakers, both the proclitic and enclitic must be present, and speakers will correct learners who fail to use both. However, in actual practice native speakers themselves will occasionally leave off the enclitic element.²⁵

The negative enclitic has two main forms, *=fa* and *=f*, with the consonantal form optionally occurring phrase finally after vowels. The forms and environments of the negator *=fa* are summarised in Table 3.36.

Table 3.36: Forms of the Enclitic Negator *=fa*

Environment	Form
phrase final after V_	<i>=fa</i> ~ <i>=f</i>
phrase medial after V_	<i>=fa</i>
phrase final after C_	<i>=fa</i>
phrase medial after C_	<i>=fa</i>

The enclitic part of the negator always takes the form *=fa* when the previous word ends in a consonant. Two examples are given in (98) and (99) below.

- (98) *au bait he u-tenab he ka= ?-fain uum =fa.*
 ISG actual IRR ISG-think IRR NEG= ISG-back come =NEG
 'I'd actually thought that I wouldn't come back.' 130907-3, 2.14 🔊
- (99) *ka= na-keo=n =fa.*
 NEG= 3-aware=PL =NEG
 'They weren't aware of it.' 120715-4, 1.48 🔊

When the enclitic negator occurs phrase finally and after a vowel, it optionally has the form *=f*. Examples are given in (100) and (101) below, which can be compared with those in (96) and (97) above, in which the enclitic takes the form *=fa* in the same environment.

- (100) *ha= n-heek =kau =f.*
 NEG= 3-catch =1SG.ACC =NEG
 'I didn't get caught!' 130825-7, 1.32 🔊
- (101) *hee au ka= ?-sao =f.*
 hey ISG NEG= ISG-marry
 'Hey, I'm not married.' 130825-6, 11.47 🔊

The choice between *=fa* and *=f* phrase finally after a vowel is currently not fully understood. Factors such as speech speed and rhythm may play a role. The use of the reduced form *=f* mainly occurs after unmetathesised verbs and pronominal enclitics in my corpus. The full form *=fa* has not been attested after unmetathesised verbs in my corpus.

²⁵ Initial data from Naitbelak Amfo'an suggests that in this variety of Uab Meto the enclitic is never present.

There is also a poorly attested form *=af* which can occur after consonant final words. I have only one unambiguous attestation of this form in my corpus, occurring after the form *batuur* ‘true’ a nativised loan of Malay *betul* [bətul] ‘true’. given in (102) below.

- (102) *au, au u-krei, au ʔ-kisasi =t ka= batuur =af.*
 ISG ISG ISG-church ISG ISG-service =SET NEG= true =NEG
 ‘I, I went to church, I went to services, it’s not true’ 130825-6, 2.50 🔊

3.8 Word Boundaries

There are three phenomena sensitive to a word boundary in Amarasí: glottal stop insertion (§4.5.1.3.5), epenthesis (§3.8.2) and consonant coalescence (§3.8.3).

3.8.1 Glottal Stop Insertion

All vowel initial words have a phonetic glottal stop inserted word initially. Examples are given in (103) below.

- (103) /V/ → [ʔV] /#_
- | | | | |
|-------------|---------|---|-----------------|
| <i>ikaʔ</i> | [ʔikəʔ] | 🔊 | ‘fish’ |
| <i>ekam</i> | [ʔɛkəm] | 🔊 | ‘wild pandanus’ |
| <i>ate</i> | [ʔɛtɛ] | 🔊 | ‘servant’ |
| <i>oo</i> | [ʔɔ:] | 🔊 | ‘bamboo’ |
| <i>uki</i> | [ʔukʲi] | 🔊 | ‘banana’ |

There is a contrast between roots whose initial C-slot is specified as containing a glottal stop, and roots whose initial C-slot is simply empty, and automatically filled. This contrast is apparent when morphology is added to roots. When a vowel initial root occurs with a prefix, no glottal stop occurs. Examples are given in (104) below in which the third person prefix *n-* occurs attached to vowel initial roots.

- (104) *n-* before Vowel Initial Roots:
- | | | | | | |
|------------------|---|---------------|----------|---|------------|
| <i>n- + akan</i> | → | <i>n-akan</i> | [ˈnakən] | 🔊 | ‘grumbles’ |
| <i>n- + ain</i> | → | <i>n-ain</i> | [najn] | 🔊 | ‘before’ |
| <i>n- + oon</i> | → | <i>n-oon</i> | [nɔ:n] | 🔊 | ‘harvests’ |
| <i>n- + oʔen</i> | → | <i>n-oʔen</i> | [ˈnɔʔɛn] | 🔊 | ‘calls’ |
| <i>n- + euk</i> | → | <i>n-euk</i> | [ˈnɛʊk] | 🔊 | ‘eats’ |

However, when a glottal stop initial root occurs with a prefix, a glottal stop occurs between the prefix and root as expected. Examples are given in (105) below in which the third person agreement prefix *n-* occurs attached to a range of glottal stop initial roots.

(105) *n-* before Glottal Stop Initial Roots:

<i>n-</i> + <i>ʔator</i>	→	<i>n-ʔator</i>	[<i>'nʔaʔɔɾ</i>]	☞	'arranges'
<i>n-</i> + <i>ʔain</i>	→	<i>n-ʔain</i>	[<i>nʔajn</i>]	☞	'heads towards'
<i>n-</i> + <i>ʔoban</i>	→	<i>n-ʔoban</i>	[<i>'nʔɔbɛn</i>]	☞	'roots around (with snout)'
<i>n-</i> + <i>ʔonen</i>	→	<i>n-ʔonen</i>	[<i>'nʔɔnɛn</i>]	☞	'prays'
<i>n-</i> + <i>ʔeer</i>	→	<i>n-ʔeer</i>	[<i>'nʔɛ:r</i>]	☞	'looks intently'

Despite this contrast there are a number of roots which have not been attested with any prefixes. It is unclear whether such roots begin with a phonemic or phonetic glottal stop. Two examples are *oo* 'bamboo' → [*ʔɔ:*] ☞ (from Proto-Malayo-Polynesian *qauR) and *asu* 'dog' → [*'ʔasu*] ☞ (from Proto-Malayo-Polynesian *asu). Native speakers intuitively write such words without any indication of an initial consonant.

Although the insertion of glottal stop before vowel initial words is synchronically predictable in Amarasi, in many cases this glottal stop is a result of a change *k > ʔ / _V, which occurred in all known varieties of Uab Meto except Ro'is Amarasi. These instances of Ro'is /k/ are not insertions, but retentions from pre-UM forms, most of which are not known to trace back to any known Proto-Malayo-Polynesian form.²⁶ Examples are given in Table 3.37.

Table 3.37: Ro'is Amarasi *k* > ʔ / _V in other Uab Meto Varieties

Ro'is		Kotos			
<i>na-kapuʔ</i>	>	<i>na-ʔapuʔ</i>	→	[<i>na'ʔapʊʔ</i>]	☞ 'pregnant'
<i>maskeriʔ</i>	>	<i>masʔekiʔ</i>	→	[<i>mas'ʔekiʔ</i>]	☞ 'slippery'
<i>n-koet</i>	>	<i>n-ʔoet</i>	→	[<i>n'ʔɔɛt</i>]	☞ 'cut'
<i>n-keer</i>	>	<i>n-ʔeek</i>	→	[<i>n'ʔɛ:k</i>]	☞ 'to close'
<i>kari</i>	>	<i>aki</i>	→	[<i>'ʔaki</i>]	☞ 'whetstone'
<i>kansao-f</i>	>	<i>ansao-f</i>	→	[<i>'ʔan'saɔf</i>]	☞ 'heart'
<i>ketuʔ</i>	>	<i>etuʔ</i>	→	[<i>'ʔɛʔʊʔ</i>]	☞ 'bedbug'
<i>kir-kiri</i>	>	<i>ik-iki</i>	→	[<i>'ʔik'ʔiki</i>]	☞ 'cockroach'
<i>kabas</i>	>	<i>abas</i> [†]	→	[<i>'ʔaβɛs</i>]	☞ 'cotton'
<i>kunus</i>	>	<i>unus</i>	→	[<i>'ʔʊnʊs</i>]	☞ 'chili'

[†] Ultimately from Sanskrit *kārpāsa*, also the source of Malay *kapas* 'cotton'.

There are also words in which the initial phonetic glottal stop does not trace from earlier *k. Examples are given in Table 3.38 below in which phonemically vowel initial Amarasi words are given alongside their reconstructed vowel initial Proto-Malayo-Polynesian etyma.

²⁶ In forms inherited from Proto-Malayo-Polynesian *k > h in most instances word initially in both Ro'is Amarasi and other varieties of Uab Meto. One example is *kutu > *hutu* 'head-louse'. See Edwards (2016b) for a complete discussion.

Table 3.38: Proto-Malayo-Polynesian *Ø > [ʔ] /#_ in Amarasi

PMP	Ro'is	Kotos			
*ama	> <i>amaʔ</i>	<i>ama-f</i>	→	[ʔamef]	☞ 'father'
*anak	> <i>anaʔ</i>	<i>anaʔ</i>	→	[ʔaneʔ]	☞ 'small'
*asu	> <i>asu</i>	<i>asu</i>	→	[ʔasʊ]	☞ 'dog'
*ikuR	> <i>iku-n</i>	<i>iku-f</i>	→	[ʔikʊf]	☞ 'tail'
*ina	> <i>inaʔ</i>	<i>aina-f</i>	→	[ʔajnef]	☞ 'mother'
*uRat	>	<i>uat</i>	→	[ʔʊeʔ]	☞ 'veins'

3.8.2 Epenthesis

When a consonant final word occurs before a consonant cluster, epenthesis of the vowel /a/ usually occurs to break up the cluster. Thus, for instance, when any of the CC initial words *krei* 'church', *skoor* 'school' or *ʔtoʔef* 'mountain' occur after a vowel final word, epenthesis does not occur, as illustrated in (106) below which shows each of these words after vowel final *n-bi* '3-RL.LOC' and *na-ʔko* '3-ABL'

(106) No Epenthesis after V Final Stems:

<i>n-bi krei</i>	→	[n̩bi'krei]	☞	'at church'
<i>na-ʔko krei</i>	→	[naʔkʊ'krej]	☞	'from church'
<i>n-bi skoor</i>	→	[n̩bi'skɔ:r]	☞	'at school'
<i>na-ʔko skoor</i>	→	[naʔkʊ'skɔ:r]	☞	'from school'
<i>n-bi ʔtoʔef</i>	→	[n̩bi'ʔtʊʔef]	☞	'at a mountain'
<i>na-ʔko ʔtoʔef</i>	→	[naʔkʊ'ʔtʊʔef]	☞	'from a mountain'

When the same words occur after a word which ends in a consonant, epenthesis of /a/ occurs between the two words. Examples after *et* 'IPFV.LOC' and *on* 'IRR.LOC' are shown in (107) below. Throughout this thesis epenthetic /a/ is separated from the following stem by the bar '|':

(107) Epenthesis after C Final Stems:

<i>et a krei</i>	→	[ʔeʔa'krej]	☞	'at church'
<i>on a krei</i>	→	[ʔɔna'krei]	☞	'to church'
<i>et a skoor</i>	→	[ʔeʔa'skɔ:r]	☞	'at school'
<i>on a skoor</i>	→	[ʔɔna'skɔ:r]	☞	'to school'
<i>et a ʔtoʔef</i>	→	[ʔeʔa'ʔtʊʔef]	☞	'at a mountain'
<i>on a ʔtoʔef</i>	→	[ʔɔna'ʔtʊʔef]	☞	'to a mountain'

Epenthesis also occurs before polymorphemic consonant clusters. Contrast example (108) below, in which epenthesis occurs between *kais* 'don't' and *n-bi* '3-RL.LOC', with example (109) in which epenthesis does not occur between *n-fani* '3-return' and *n-bi* '3-RL.LOC'.

- (108) [kɛjs ɛnbi majnɔɛn ʔia kɛjs ɛnbi majnɔɛn ʔia]
kais a|n-bi mainuan ia kais a|n-bi mainuan ia
kais n-bi mainuan ia kais n-bi mainuan ia
 PROH 3-RL.LOC openness IDEM PROH 3-RL.LOC openness IDEM
 ‘Don’t go outside here, don’t go outside here.’ 130905-1, 0.29 🔊
- (109) [tɛ:knɔ̃ nfanĩ nβĩ menɔɛn]
tekn=e n-fani n-bi mainuan
tekn=e n-fani n-bi mainuan
 mark\̄M=3DET 3-return\̄U 3-RL.LOC openness
 ‘The signature goes back on the outside (of the paper).’ 130905-1, 1.00 🔊

Epenthesis also occasionally occurs phrase initially before certain clusters. One example is the word for ‘fruit-bat’ *bkaʔu*. When this word is elicited, speakers vary as to whether they give the citation form as *bkaʔu* without an initial vowel, or *a|bkaʔu* with epenthesis. Epenthesis phrase initially is uncommon among Koro'oto speakers.

An alternate analysis of the same data would be to analyse the epenthetic vowel as underlying and to posit vowel deletion in certain environments. This analysis has difficulty accounting for all the data, as there are a number of words in my corpus with /a/ followed by two consonants which always surface with the initial vowel.

Three examples words are *ansao-f* ‘heart, solar plexus’, *atpupu* ‘wasp’ and *amtetu* ‘peak’. These words must surface with the initial /a/ and when native speakers are presented with putative utterances such as **au nsao-k* ‘my heart’ they respond with blank stares.

Steinhauer (1993:139f) analyses the epenthetic vowel in his Miamafu Uab Meto data as belonging to the consonant final word.²⁷ There are three reasons why this analysis does not work for Amarasi, and I instead analyse the epenthetic vowel as belonging to the word which begins with a consonant cluster:

- i. Epenthesis optionally occurs phrase initially; i.e. *bkaʔu* ~ *a|bkaʔu* ‘fruit-bat’
- ii. Epenthesis never occurs after CC# final words created through metathesis. Instead, consonant deletion occurs (§4.2.2); i.e. *muʔit* ‘animal’ + *koʔu* → *muiʔ koʔu* ***muit|a koʔu*.
- iii. When working with written material, a range of different native speakers rarely write epenthetic *a* at the end of the preceding word, and almost always write it at the beginning of the CC initial word.

²⁷ This may be partly due to the fact that many of the examples in Steinhauer (1993) involve pronouns, i.e. *hita ʔfulaʔ* ‘our (incl.) flower’, in which case the final vowel *is* part of the pronoun. In Amarasi pronouns (historically) have/had U-forms ending in a vowel and form(ed) their M-form by deletion of this vowel. Thus, **kita* → **hita* → *hiti* → *hit*. See §4.2.5.1 for discussion of the U-forms of pronouns.

3.8.2.1 Frequency of Epenthesis

Amarasi does not usually permit sequences of three consonants across word boundaries and such clusters are, in general, avoided by epenthesis. The number of instances of epenthesis between C#_#CC was counted in my corpus of 182.49 minutes (three hours and two minutes) of recorded texts. The results are summarised in Table 3.39, which includes the loan phonemes /l/ and /ŋ/

Table 3.39: Frequency of Epenthesis[†]

C#	p	h	b	r	l	s	f	t	k	m	n	ŋ	?	Obs.	N.
C##CC	0	0	0	0	0	2	1	10	7	9	37	1	118	20	47
C##a-CC	0	0	7	5	4	69	21	25	16	13	53	4	28	147	70
ep. %	–	–	100	100	100	97	95	71	69	59	59	80	19	88	60

[†] The top row shows the word final consonant, the second row the number of instances in which that word final consonant occurs before a consonant cluster without epenthesis and the third row the number of times epenthesis occurs between that consonant and a following cluster.

This table shows that epenthesis is strongly preferred when the final consonant is an ‘obstruent’ (defined here loosely as any of /b r l s f t k/) with epenthesis occurring before a consonants cluster and after an obstruent in 89% of instances. Epenthesis is slightly preferred when the final consonant is a nasal, with epenthesis taking place 60% of the time before a consonant cluster following a nasal. Epenthesis is uncommon between a glottal stop and following consonant cluster, with 28/118 (19%) attestations.

3.8.3 Consonant Coalescence

When one of the consonant final pronouns *in* ‘3SG’, *sin* ‘3PL’ or *hit* ‘1PI’ occurs before a corresponding consonantal agreement prefix *n-* ‘3SG/PL’ or *t-* ‘1PI’ which is in turn attached to a consonant initial stem, the final consonant of the pronoun and the agreement prefix usually coalesce.

In this situation the underlying initial sequence of two identical consonants is degeminated, giving /nnC/ → [nC] and /ttC/ → [t̥C]. This process is summarised in (110a) with an example of each given in (110b)

- (110) a. /*(s)in/* + /*n-C/* → /*(s)in nC/* → [(*s)in*C]
 /*hit/* + /*t-C/* → /*hit tC/* → [*hit̥*C]
- b. *in* + *n-muʔi* → *in nmuiʔ* → [ʔm̥m̥ʔiʔ] ◀ ‘3SG 3-have’
 hit + *t-mese* → *hit tmese* → [*hit̥*ʔm̥ʔeʔe] ◀ ‘1PI 1PI-alone’

3.9 Orthography and Transcription

The practical orthography currently used by native speakers to write Amarasi is given in Table 3.40. This orthography uses the same Roman letters as the Indonesian orthography and assigns them the same phonemic value. The letters <*c d l q v w x y z*> only occur in foreign loanwords and names.

Table 3.40: Amarasi Practical Orthography

Letter	<i>a</i>	<i>b</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	'	<i>m</i>	<i>n</i>	<i>ng</i>	<i>o</i>	<i>p</i>	<i>r</i>	<i>s</i>	<i>t</i>	<i>u</i>
Phone	a	b	e	f	g	h	i	dʒ	k	ʔ	m	n	[ŋ]	o	p	r	s	t	u

The digraph <*ng*> is only used for morpheme internal assimilations of /n/ → [ŋ]. Clitics are written with a space between them and the clitic host and voiced obstruents which appear after consonant insertion are written with the clitic rather than with the host. Word final clusters of identical consonants (created via metathesis) are not written, and while speakers agree that word final clusters of a consonant followed by a glottal stop should be written, in practice they do so somewhat inconsistently.

There are also a number of (mostly minor) non-phonemic orthographic practices in place to facilitate morpheme and word recognition for readers. Such practices (among others) include writing certain consonants deleted word finally after metathesis and not writing the vowel assimilation which occurs after consonant insertion.

Because the primary audience of this thesis is linguists rather than native speakers of Amarasi, I do not use this orthography and instead transcribe words phonemically with their standard IPA symbols. I depart from this phonemic transcription in two instances.

Firstly, as discussed in §3.2.2.1, the unrounded allophone [g] of the phoneme /gw/ is transcribed <*g*>. Secondly, when the phonetic sequence [ŋg] occurs morpheme internally, I transcribe it <*ŋg*> to avoid confusion with the (non-native) consonant [ŋ].²⁸ Both these deviations from the strictly phonemic transcription can be seen in the word for ‘teacher’, which according to my phonemic analysis has the form /tungwuru/, but is transcribed as *tunguru*.

²⁸ Morpheme internal /nk/ → [ŋk] is transcribed <*nk*>; i.e. /bankofaʔ/ → *bankofaʔ* ‘caterpillar’.

Chapter 4

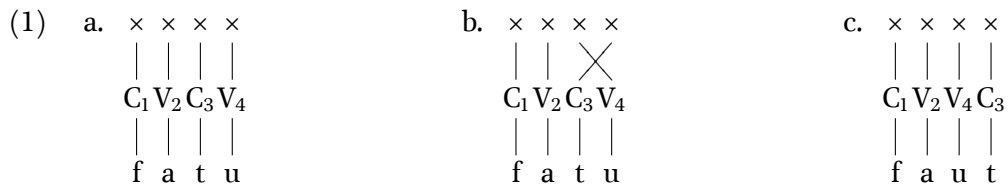
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4.1 Introduction

In this chapter I describe the structures of metathesis in Amarasi. At its most simple metathesis involves the reversal of the final consonant-vowel sequence of a word. One example is the word ‘stone’ which has the unmetathesised form *fatu* and the metathesised form *faut*. This example shows the pattern $C_1V_2C_3V_4 \rightarrow C_1V_2V_4C_3$ illustrated in (1) below.



Metathesis is most straightforward with words that instantiate all and only CVCV. However, as discussed in §3.5, words with other shapes also occur in Amarasi. Depending on the phonotactic structure of the word to which it applies, as well as the phonotactic environment in which it occurs, metathesis is associated with a bewildering array of additional phonological processes including: vowel deletion, consonant deletion, consonant insertion and two kinds of vowel assimilation. Some of these different processes are shown for roots of different shapes in Table 4.1 below.

Table 4.1: Phonological Processes Associated with Metathesis in Amarasí

shape	U-form	M-form	CV→VC	C#→∅	/a/ → V ₁	V→[αHIGH]	V#→∅	
VCV#	<i>fatu</i>	→ <i>faut</i>	✓					'stone'
VCVC#	<i>mu?it</i>	→ <i>mui?</i>	✓	✓				'animal'
VCa#	<i>nuka</i>	→ <i>nuuk</i>	✓		✓			'grief'
VCV#	<i>ume</i>	→ <i>uim</i>	✓			✓		'house'
VVCV#	<i>aunu</i>	→ <i>aun</i>					✓	'spear'
VVCVC#	<i>nautus</i>	→ <i>naut</i>		✓			✓	'beetle'

From the examples given in Table 4.1 above, it is clear that many of the forms before and after the arrow do not differ only in the order of the final CV sequence. For this reason, I refer to forms paradigmatically equivalent to *fatu* 'stone' as the 'U-form' and forms paradigmatically equivalent to *faut* as the 'M-form'.

By positing an obligatory CVCVC foot in which C-slots can be empty, all the phonological processes in the formation of the M-form arise from a single rule of metathesis, an associated morphemically conditioned rule, and the general phonotactic constraints of Amarasí.

Furthermore, for some word shapes it is possible to identify three formally distinct M-forms which occur in different environments. Firstly, there is the basic M-form which is the form taken by nouns when modified by another nominal and which is also the default form of vowel final verbs. Examples include *fatu* → *faut* 'stone' and *mu?it* → *mui?* 'animal'. Basic M-forms are indicated with the gloss '\M'. Their structure is discussed in §4.2.

Secondly, there is an M-form which is taken by nominals when they are modified by a word which begins with a consonant cluster. One example is *mu?it* → *mu?i* 'animal'. These M-forms are indicated with the gloss '\Ṁ. Their structure is discussed in §4.3.

Finally, there is an M-form which is taken by all words when they occur before vowel initial enclitics. Examples include *fatu* → *faatgw* 'stone' *mu?it* → *mui?t* 'animal'. M-forms before enclitics are indicated with the gloss '\M̄. Their structure is discussed in §4.4 and a full analysis of these forms in Chapter 5. The distribution of each of these three M-forms is summarised in Table 4.2 below.

Table 4.2: M-forms of *mu?it* 'animal' and *fatu* 'stone'

U-form	M-forms	gloss	environments	
<i>mu?it</i>	→ <i>mui?</i>	\M	(C)V initial nominal modifiers,	§4.2
<i>fatu</i>	<i>faut</i>		default verbal form	
	→ <i>mu?i</i>	\Ṁ	CC initial modifiers	§4.3
	<i>fatu</i>			
	→ <i>mui?t</i>	\M̄	vowel initial enclitics	§4.4
	<i>faatgw</i>			

While each of these forms occurs in a different phonological environment, this does not mean that the use of each form is necessarily triggered by these environments. Instead, which form is used can be triggered by syntactic or discourse factors.

An analogy is the English verbal third person singular agreement suffix *-s*. This suffix has three forms /əz/, /z/ and /s/, each of which is used in a distinct phonological environment. When the English 3SG agreement suffix occurs, it has different forms as determined by its phonological environment. However, it is not these phonological environments which determine whether this suffix occurs or not; instead, morphosyntactic factors determine this. Similarly, while the M-form in Amarasi has three forms which are used in distinct phonological environments, it is not these environments which determine whether a word occurs in the M-form. Instead, morphosyntactic factors determine this.

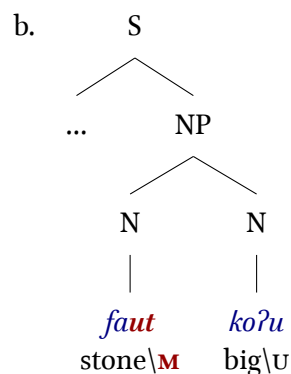
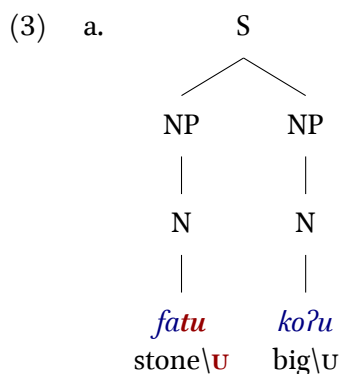
4.2 Basic M-form (\M)

In this section I describe the structure of the basic M-form. This is the form taken by nouns when modified by another nominal and is the default form for vowel final verbs. The functions of M-forms are described in full detail in Chapter 6 and Chapter 7.

Within the noun phrase M-forms are a construct form (§2.5.2.1) used when an attributive modifier occurs within the noun phrase. Compare the phrases in (2) and (3) below. Each phrase consists of the noun *fatu* ~ *faut* ‘stone’ followed by the modifier *koʔu* ‘big, great’. In (2a) and (3a) *fatu* ‘stone’ is in the U-form and the modifier has a predicative reading. In (2b) and (3b) *faut* ‘stone’ is in the M-form, and the modifier has an attributive meaning.

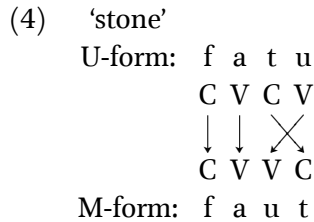
- (2) a. [_{NP} *fatu*] [_{NP} *koʔu*]
stone big
‘Stones are big.’

- b. [_{NP} *faut koʔu*]
stone big
‘(a) big stone’



4.2.1 Metathesis

When a word ends in $V_1CV_2\#$, the M-form is formed by metathesis (reversal, changing places) of the final consonant-vowel sequence. The surface relationship between the segments of *fatu* → *faut* ‘stone’ is given in (4) below, with more examples given in (5).



(5) ... $V_1CV_2\#$ → ... $V_1V_2C\#$

U-form	M-form		U-form	M-form			
<i>fni</i>	→	<i>fin</i>	‘seed’	<i>nen</i>	→	<i>neon</i>	‘day; sky’
<i>besi</i>	→	<i>beis</i>	‘knife’	<i>knafo</i>	→	<i>knaof</i>	‘mouse’
<i>fafi</i>	→	<i>faif</i>	‘pig’	<i>koro</i>	→	<i>koor</i>	‘bird’
<i>oni</i>	→	<i>oin</i>	‘bee’	<i>?fi?u</i>	→	<i>?fiu?</i>	‘sling’
<i>uki</i>	→	<i>uik</i>	‘banana’	<i>tefu</i>	→	<i>teuf</i>	‘sugar-cane’
<i>rene</i>	→	<i>reen</i>	‘field’	<i>fatu</i>	→	<i>faut</i>	‘stone’
<i>bare</i>	→	<i>baer</i>	‘place’	<i>nopu</i>	→	<i>noup</i>	‘hole, grave’
<i>nope</i>	→	<i>noep</i>	‘cloud’	<i>hutu</i>	→	<i>huut</i>	‘head-louse’
<i>knaba</i>	→	<i>knaab</i>	‘spider’				

Such metathesis applies to all $VCV\#$ final words, with the exception of words in which the final vowel is /a/ (§4.2.3.2) or when the penultimate vowel is high and the final vowel is mid (§4.2.3.1). Such words undergo metathesis followed by vowel assimilation.

Only the final foot undergoes metathesis for words longer than one foot. Examples include *usapi* → *usaip* ‘kusum tree’, *kutru?u* → *kutruu?* ‘owl’ and *ata?ra?e* → *ata?rae?* ‘praying mantis’. Given a structure such as $(ata?)_{\text{Ft.1}}(ra?e)_{\text{Ft.2}}$ for the U-form of ‘praying mantis’, the second foot is the domain of metathesis yielding the M-form $(ata?)_{\text{Ft.1}}(rae?)_{\text{Ft.2}}$.

4.2.1.1 Koro'oto Vowel Dissimilation

As discussed previously in §3.2.1.4.1, the second vowel of a sequence of two vowels with the same height but different backness (that is *oe*, *eo*, *ui* and *iu*) can dissimilate to /a/ in the speech of the hamlet of Koro'oto. This dissimilation can also affect vowel sequences created through metathesis. Examples are given in (6) below.

- (6) $V_1[\alpha_{\text{HIGH}},\alpha_{\text{BACK}}]CV_2[\alpha_{\text{HIGH}},\beta_{\text{BACK}}] \rightarrow V_1aC$ (optionally in Koro'oto hamlet)

U-form	M-form	Koro'oto
<i>nope</i>	→ <i>noep</i>	→ <i>noap</i> 'cloud'
<i>nenō</i>	→ <i>neon</i>	→ <i>nean</i> 'day'
<i>ʔninu</i>	→ <i>ʔniun</i>	→ <i>ʔnian</i> 'glass'
<i>umi</i>	→ <i>uim</i>	→ <i>uam</i> 'house'

4.2.2 Complication 1: Metathesis and Consonant Deletion

Words with a final consonant (CVCVC#) derive their basic M-form through metathesis of the penultimate consonant with the final vowel and deletion of the final consonant. The surface relationship between the form *muʔit* → *muiʔ* 'animal' is shown in (7) below, with more examples given in (8).

- (7) 'animal'
 U-form: m u ʔ i t
 C V C V C
 ↓ ↓ ×
 C V V C
 M-form: m u i ʔ

- (8) ...V₁C₁V₂C₂# → ...V₁V₂C₁#

U-form	M-form	U-form	M-form
<i>ramup</i>	→ <i>raum</i> 'lamp'	<i>poʔon</i>	→ <i>pooʔ</i> 'orchard'
<i>muʔit</i>	→ <i>muiʔ</i> 'animal'	<i>oʔof</i>	→ <i>ooʔ</i> 'pen, corral'
<i>tenuk</i>	→ <i>teun</i> 'umbrella'	<i>manus</i>	→ <i>maun</i> 'betel vine'
<i>tenoʔ</i>	→ <i>teon</i> 'egg'	<i>anah</i>	→ <i>aan</i> 'child'
<i>ukum</i>	→ <i>uuk</i> 'cuscus'		

Such consonant deletion also affects final consonants which are suffixes. Examples are given in (9) below, in which the nominalising circumfix *a-...-t* or *a-...-s* (§3.6.2.3) occurs attached to various stems. The occurrence of the initial *a-* on each M-form attests that it is formed from U-forms with a final consonant.

- (9) ...V₁C₁V₂-C₂# → ...V₁V₂C₁#

	root	U-form	M-form
'work'	√ <i>mepu</i>	→ <i>a-mepu-t</i>	→ <i>a-meup</i> 'worker'
'do'	√ <i>moʔe</i>	→ <i>a-moʔe-t</i>	→ <i>a-moeʔ</i> 'doer'
'heal'	√ <i>suri</i>	→ <i>a-suri-t</i>	→ <i>a-suir</i> 'healer'
'sit'	√ <i>toko</i>	→ <i>a-toko-s</i>	→ <i>a-took</i> 'sitter'
'die'	√ <i>mate</i>	→ <i>a-mate-s</i>	→ <i>a-maet</i> 'dead one'

Word final consonant clusters are not permitted in (Kotos) Amarasi. The consonant deletion observed in the M-form of VCVC# final words can thus be accounted for by language specific phonotactic constraints. Metathesis occurs, resulting in a disallowed word final consonant cluster which is resolved by deletion of the final consonant.

In the Ro'is dialect of Amarasi certain word final clusters *are* permitted. This means that both consonants of certain CVC# words surface in the basic M-form. Four examples are given in (10) below.¹

(10) Ro'is Amarasi ...V₁C₁V₂C₂# → ...V₁V₂C₁C₂#

Kotos		Ro'is		
U-form	M-form	U-form	M-form	
<i>ʔonen</i>	<i>ʔoen</i>	<i>ʔonen</i>	<i>ʔoenn</i>	'prayer'
<i>metan</i>	<i>meet</i>	<i>metan</i>	<i>meetn</i>	'black'
<i>meisʔokan</i>	<i>meisʔook</i>	<i>meisinoran</i>	<i>meisinoorn</i>	'dark(ness)'
<i>okam</i>	<i>ook</i>	<i>okom</i>	<i>ookm</i>	'gourd, melon'

Similarly, when a suffix consisting of a single consonant is added to a stem, this consonant can surface after metathesis in Ro'is Amarasi. Some examples are given in (11) below with a number of nominal phrases referring to various body parts.

In the Ro'is Amarasi citation forms of these phrases, the first word of each phrase surfaces metathesised with the 3SG.GEN suffix *-n* attached. The first word of the Kotos Amarasi equivalents of these phrases occurs either in the U-form with this suffix attached, or in the M-form with no suffix attached.²

(11) Ro'is Amarasi ...V₁C₁V₂-C₂# → ...V₁V₂C₁-C₂#

U-form		Ro'is M-form	Kotos M-form	
<i>pana-</i>	'nose'	<i>paan-n koon-n=a</i>	<i>pana-n kona-f</i>	'nostril (<i>lit.</i> nose hole)'
<i>ruki-</i>	'ear'	<i>ruik-n koon-n=a</i>	<i>ruki-n kona-f</i>	'ear hole'
<i>mata-</i>	'eye'	<i>maat-n muit-n=a</i>	<i>maat muti-f</i>	'white of the eye'
<i>nisi-</i>	'tooth'	<i>niis-n eon-n=a</i>	<i>niis eno-f</i>	'incisors (<i>lit.</i> door teeth)'
<i>kruru-</i>	'finger'	<i>kruur-n ina?</i>	<i>kruur aina-f</i>	'thumb (<i>lit.</i> mother finger)'
<i>kruru-</i>	'finger'	<i>kruur-n ka-ruur-t=a</i>	<i>kruur a-ruru-t</i>	'index finger (<i>lit.</i> pointer finger)'

The data from the Ro'is dialect of Amarasi in which final consonant clusters do occur, provides support for analysing the consonant deletion seen in Kotos Amarasi after metathesis of VCVC# final words as being a result of phonotactic constraints. Kotos Amarasi does not allow word final consonant clusters, while Ro'is Amarasi does allow such clusters.

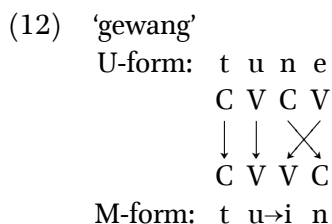
¹ My current Ro'is Amarasi data is insufficient to determine whether there are constraints on the kinds of word final consonant clusters which are permitted. Most, but not all, examples in my current Ro'is Amarasi data involve a final nasal consonant.

² Another difference in the citation forms is that in Ro'is Amarasi body parts are usually cited with the third person genitive suffix *-n* and the ODET enclitic *=a*, while in Kotos Amarasi body parts are usually cited with the 0 person genitive suffix *-f* and no enclitic attached.

4.2.3 Complication 2: Metathesis and Vowel Assimilation

4.2.3.1 Mid Vowel Assimilation

When the final vowel is mid and the penultimate vowel is high, the penultimate vowel is raised to high after metathesis. The surface relationship between the U-form and M-form of *tune* → *tuin* ‘gewang palm’ is shown in (12) below, with more examples given in (13).³



(13) ...V₁[+HIGH]C₁V₂[-HIGH,-LOW]# → ...V₁[+HIGH]V₂[+HIGH]C₁#

U-form	M-form	U-form	M-form
<i>ume</i> → <i>uim</i>	‘house’	<i>nine?</i> → <i>niin</i>	‘edge; wing’
<i>pune?</i> → <i>puin</i>	‘grain-head’	<i>na-hine</i> → <i>n-hiin</i>	‘knows’
<i>tune</i> → <i>tuin</i>	‘gewang palm’	<i>n-simo</i> → <i>n-sium</i>	‘receives (poetic)’

Words with this shape are uncommon in my corpus with only 22 attestations out of a total of 1,696 unique lexical roots (1.3%). Additionally, the majority of such words have variant U-forms in Amarasi in which the final vowel is raised to high. Examples include *ume* ~ *umi* ‘house’, *tune* ~ *tuni* ‘gewang palm’, *na-hine* ~ *na-hini* ‘knows’ and *nine?* ~ *nini?* ‘edge; wing’. The variant U-forms with a final high vowel are more common in my corpus with a total of 46 attestations as opposed to 21 attestations of the forms with a final mid vowel.

Vowel sequences of a high vowel followed by a mid vowel are not found in Amarasi; there are no attestations of **ie*, **io*, **ue* or **uo*. For this reason, the mid vowel assimilation observed when the final vowel is high and the penultimate vowel is mid, can be explained by the phonotactic constraints of the language.

A final wrinkle in the process of mid vowel assimilation is that it creates sequences of two high vowels, which are potential inputs for dissimilation in Koro'oto (§3.2.1.4.1, §4.2.1.1), with the second vowel optionally becoming /a/. An example is *ume* ‘house’ → *uim* → *uam*.⁴

4.2.3.2 Assimilation of /a/

The second kind of vowel assimilation in the formation of M-forms is assimilation of /a/. The M-form of words with final /a/ is formed via metathesis with complete assimilation of /a/ to

³ Mid vowel assimilation does not occur in all varieties of Uab Meto, see §8.2 for more discussion.

⁴ One attested example of the sequence /iCo/ → /iuC/ → /iaC/ is *Timor* ‘Timor(ese)’ + *-ein* PL → *Tiumr=ein* → *Tiamr=ein* ‘Timorese people’. The survival of the final consonant before vowel initial enclitics is regular (§4.4).

the quality of the first vowel. The surface relationship between the forms *nuka* → *nuuk* ‘grief’ is shown in (14), with more examples are given in (15) below.

- (14) ‘grief’
 U-form: n u k a
 C V C V
 ↓ ↓ ↘
 C V V C
 M-form: n u u k

- (15) ...V_αCa# → ...V_αV_αC#

U-form	M-form		U-form	M-form	
<i>n-biba</i>	→ <i>n-biib</i>	‘massages’	<i>nima</i>	→ <i>niim</i>	‘five’
<i>?beba</i>	→ <i>?beeb</i>	‘palm leaves’	<i>n-vena</i>	→ <i>n-veen</i>	‘hears’
<i>n-sosa</i>	→ <i>n-soos</i>	‘buys’	<i>na-tona</i>	→ <i>na-toon</i>	‘tells’
<i>nuka</i>	→ <i>nuuk</i>	‘grief’	<i>n-tupa</i>	→ <i>n-tuup</i>	‘sleeps’

Vowel sequences in which the second vowel is /a/ *can* occur in U-forms, with 83 examples in my current corpus. Eight of these examples are given in (16) below.

- (16) U-form ...VaC#

U-form		U-form	
<i>pnia?</i>	‘bitter melon’	<i>mansian</i>	‘human being’
<i>mneas</i>	‘hulled rice’	<i>teas</i>	‘staff, walking stick’
<i>noah</i>	‘coconut’	<i>n-koa?</i>	‘yells, whoops’
<i>kuan</i>	‘village’	<i>nuat</i>	‘cave’

The assimilation of /a/ in M-forms is an example of a derived environment effect (Kiparsky 1973, Kenstowicz and Kisseberth 1977), a phonological rule which only operates after the application of another rule. In this case, metathesis triggers assimilation of /a/.

4.2.3.3 Quantification of M-forms ending in V_αV_αC

In my description words ending in VCa# and V_αCV_α# yield M-forms ending in V_αV_αC. This differs from previous descriptions of Uab Meto, which report deletion of the final vowel, with no further changes (Steinhauer 1993; 1996a;b; 2008, McConvell and Kolo 1996, Blevins and Garrett 1998). Thus, for instance, Steinhauer (2008:285–286) gives the M-form of *bibi* ‘goat’ as *bib* and the M-form of *pena?* ‘maize’ as *pen*.

Such vowel deletion does not occur in Amarasí. Instead, the M-form of such words has a sequence of two identical vowels, i.e. *?bibi* → *?biib* ‘goat’ and *pena?* → *peen* ‘maize’. This can be demonstrated by refining the instrumental acoustic study of vowel length summarised in §3.2.1.4.2 (see Table 3.6 on page 87), in which I showed a sequence of two identical vowels is on average 31% longer than a single vowel in Amarasí.

I further refined this study by separating vowel sequences created through metathesis from vowel sequences which are underlying in U-forms. Of the 314 sequences of identical vowels measured, 240 represent a sequence of identical vowels in an M-form, such as *nuka* → *nuuk* ‘grief’ or *hutu* → *huut* ‘head-louse’ and 74 represent words which contain a sequence of two identical vowels in the U-form, such as *too* ‘citizens’ or *toon* ‘year’. The average lengths of each of these kinds of words is given in Table 4.3.

Table 4.3: Sequences of Identical Vowels in M-forms and U-forms

	V _α V _α (C)#			
	all	U-form	M-form	V
average length (sec.)	0.129	0.128	0.129	0.098
number of tokens	314	74	240	472
standard deviation	0.05	0.059	0.047	0.034
t-test (vs. M-form)		$p = 0.883$		$p < 0.001$

Table 4.3 shows that vowel sequences created through metathesis are on average 31% longer than a single vowel in Amarasi. This difference is statistically significant, as shown by a two tailed t-test. Sequences of two identical vowels created through metathesis are also a fraction longer than those which are underlying in U-forms. This difference is not statistically significant.⁵

Given this acoustic analysis, the simplest analysis of the data is to propose that words whose U-forms ends in VCa# or V_αCV_α# have M-forms with a double vowel in Amarasi.⁶ This is the pattern for all lexical words in Amarasi. There are a small number of functors in Amarasi for which the M-form *is* formed by deletion of the final vowel. Such examples are discussed in §4.2.5.1.

4.2.4 Complication 3: Consonant Deletion

Another complication in the formation of M-forms is found in words which end in VVC# in the U-form. Such words derive their M-form by deletion of the final consonant. The surface relationship between the segments of *kaut* → *kau* ‘papaya’ is shown in (17), with more examples given in (18) below. Note also that assimilation of /a/ does not occur in such M-forms.

⁵ Separating M-forms created through metathesis and assimilation of final /a/, (i.e. *nuka* → *nuuk* ‘grief’) from those created through metathesis with identical penultimate and final vowels, (i.e. *hutu* → *huut* ‘head-louse’), revealed no statistically significant differences.

⁶ Initial data collected from other varieties of Uab Meto including Amanatun, Amanuban, Amfo'an, Baikeno, Fatule'u, Kopas, Kusa-Manea, Molo and Timaus strongly indicates that U-forms ending VCa# or V_αCV_α# also have M-forms with double vowels.

- (17) ‘papaya’
 U-form: k a u t
 C V V C
 ↓ ↓ ↓
 C V V
 M-form: k a u

- (18) ...VVC# → ...VV#

U-form	M-form		U-form	M-form	
<i>kaut</i>	→ <i>kau</i>	‘papaya’	<i>kuan</i>	→ <i>kua</i>	‘village’
<i>bruuk</i>	→ <i>bruu</i>	‘pants’	<i>?naef</i>	→ <i>?nae</i>	‘old man’
<i>knaa?</i>	→ <i>knaa</i>	‘beans’	<i>poes</i>	→ <i>poe</i>	‘prawn/shrimp’
<i>heum</i>	→ <i>heu</i>	‘mango’	<i>noah</i>	→ <i>noa</i>	‘coconut’

Unlike the consonant deletion seen for VCVC# words (§4.2.2), this consonant deletion cannot be straightforwardly derived from surface phonotactic constraints of the language. However, in §4.5.1 and §4.5.2 I show that by utilising empty C-slots and positing that such words have a medial empty C-slot, this consonant deletion can also be analysed as an automatic result of metathesis and a prohibition against word final consonant clusters, including clusters involving empty C-slots.

4.2.5 Complication 4: Vowel Deletion

The final complication involves words which end in VVCV(C)# in the U-form. Such words derive their M-form by deletion of the final vowel. The surface relationship between the segments of the U-form and M-form of *nautus* → *naut* ‘beetle’ is given in (19), with more examples given in (20) below.

- (19) ‘beetle’
 U-form: n a u t u s
 C V V C V C
 ↓ ↓ ↓ ↓
 C V V C
 M-form: n a u t

- (20) ...V₁V₂C₁V₃(C₂)# → ...V₁V₂C₁#

U-form	M-form		U-form	M-form	
<i>aunu</i>	→ <i>aun</i>	‘spear’	<i>nautus</i>	→ <i>naut</i>	‘beetle’
<i>n-aiti</i>	→ <i>n-ait</i>	‘picks up’	<i>kauna?</i>	→ <i>kaun</i>	‘snake; creature’
<i>naunu?</i>	→ <i>naun</i>	‘breadfruit’	<i>aika?</i>	→ <i>aik</i>	‘thorn’

As discussed in §3.2.1.4 above, sequences of three vowels do not occur in Amarasi. Thus, this vowel deletion can be analysed as resulting from phonological constraints of the language. If consonant-vowel metathesis were to occur, it would result in a disallowed

sequence of three vowels which is resolved by vowel deletion. This is analysed and discussed further in §4.5.2 on page 176.

4.2.5.1 Lexical Vowel Deletion

There are a small number of functors in Amarasi which form the M-form by deletion of the final vowel of the U-form, resulting in the U-form containing only a single vowel. These functors consist of CV# final pronouns and the verb *n-ok* ‘with, accompanies’. They are given in (21) below.

(21) ...V₁CV₂# → ...V₁C#

U-form		M-form	
<i>ini</i>	→	<i>in</i>	3SG.NOM ‘he, she, it’
<i>sini</i>	→	<i>sin</i>	3PL ‘they’
<i>hiti</i>	→	<i>hit</i>	1PL.INCL.NOM ‘we’
<i>kiti</i>	→	<i>kit</i>	1PL.INCL.ACC ‘us’
<i>n-oka</i>	→	<i>n-ok</i>	‘with, accompanies’

There is evidence that these words originally had M-forms with a double vowel, with this vowel sequence being reduced due to the frequency of these words.⁷ Before vowel initial enclitics the 3SG pronoun *ini~in* still has the M-form *iin* with two vowels (§6.4.1). Likewise, in Ro’is Amarasi the M-form of *n-oka* ‘with, accompanies’ is still *n-ook* with a clear sequence of two identical vowels.⁸

There is also evidence that the words *es* ‘one’, *et* IPFV.LOC and *abit* ‘inhabitant’ ← (*a...-t* NML + *bi* RL.LOC) originally had U-forms with a final /a/. This evidence comes from the plural forms *esan*, *etan* and *abitan* respectively in which the plural enclitic =*n* (§5.6) occurs with a previous /a/. In the case of *es* the comparative evidence supports positing a historic U-form **esa* as the reconstructed Proto-Malayo-Polynesian form is **əsa* (Blust and Trussel ongoing). These plural forms notwithstanding, the putative/historic U-forms of these three words do not unambiguously occur in any of the expected environments discussed in Chapter 7. As a result, I analyse them in this thesis as having only a single form. This form is an original M-form.

⁷ That the M-form of these words has only a single vowel in the modern language is confirmed by an instrumental phonetic study. Although excluded from the data used to measure vowel length in §3.2.1.4.2, there are 106 instances of these words in the four texts used for this phonetic study. They have an average length of 0.064 seconds, well below even the average for a single vowel; 0.098 seconds.

⁸ In Baikeno the 3PL pronoun has the U-form *sina* and the M-form *sin* (Charles Grimes p.c. March 2016). The U-form *sina* is also expected in Amarasi given the Proto-Malayo-Polynesian reconstruction **s-ida*. The final vowel appears to have undergone assimilation in Amarasi. Similarly, the Amarasi 1PL.INCL pronouns *hit~hiti* and *kit~kit* are reflexes of Proto-Malayo-Polynesian **kita*. There are two possible, though somewhat ambiguous, examples of the 1PL.INCL.ACC pronoun with the U-form *kita* in my Amarasi corpus.

4.2.6 No Change

The U-form and basic M-form are identical for words which end in a vowel sequence. Some examples are given in (22) below.

(22) $VV\# \rightarrow VV\#$

U-form	M-form		U-form	M-form	
<i>hau</i>	→ <i>hau</i>	‘tree, wood’	<i>ai</i>	→ <i>ai</i>	‘fire’
<i>pui</i>	→ <i>pui</i>	‘quail’	<i>kee</i>	→ <i>kee</i>	‘turtle, tortoise’
<i>biɟae</i>	→ <i>biɟae</i>	‘cow’	<i>pansoe</i>	→ <i>pansoe</i>	‘earthworm’
<i>meo</i>	→ <i>meo</i>	‘cat’	<i>?sao</i>	→ <i>?sao</i>	‘viper’

4.2.7 Summary

A number of surface phonological operations derive basic M-forms from U-forms. These phonological processes include: metathesis, consonant deletion and vowel deletion. Furthermore, metathesis itself triggers additional processes of consonant deletion and vowel assimilation.

Which operations apply to a word is determined by the phonotactic structure of that word, as well as the quality of the vowels it contains. The different structures of the basic M-form are summarised in Table 4.4. In §4.5 I analyse all these forms as resulting from a single process of $CV \rightarrow VC$ metathesis and an associated process of /a/ assimilation. All other changes listed in the right-most column automatically result from the phonotactic constraints of Amarasi.

Table 4.4: Amarasi Surface Basic M-forms

	U-form	M-form	U-form	M-form	gloss	processes
1.	$V_1C_1V_2$	→ $V_1V_2C_1$	<i>fafi</i>	→ <i>faif</i>	‘pig’	metathesis
2.	$V_1C_1V_2C_2$	→ $V_1V_2C_1$	<i>mu?it</i>	→ <i>mui?</i>	‘animal’	consonant deletion
3.	$V_{1+HIGH}C_1V_{2+MID}$	→ $V_1V_{2+HIGH}C_1$	<i>ume</i>	→ <i>uim</i>	‘house’	height assimilation
4.	$V_{1\alpha}C_1a(C_2)$	→ $V_{1\alpha}V_{\alpha}C_1$	<i>nuka</i>	→ <i>nuuk</i>	‘grief’	/a/ assimilation
5.	$V_1V_2C_1V_3$	→ $V_1V_2C_1$	<i>aunu</i>	→ <i>aun</i>	‘spear’	vowel deletion
6.	$V_1V_2C_1V_3C_2$	→ $V_1V_2C_1$	<i>nautus</i>	→ <i>naut</i>	‘beetle’	vowel deletion
7.	$V_1V_2C_1$	→ V_1V_2	<i>kaut</i>	→ <i>kau</i>	‘papaya’	consonant deletion
8.	V_1V_2	→ V_1V_2	<i>ai</i>	→ <i>ai</i>	‘fire’	

It must be the case that the M-form is derived from the U-form. For instance, given an M-form with the shape $V_1V_2C_1\#$, we cannot predict whether the U-form will have a shape corresponding to any of shapes 1.–6. in Table 4.4. Likewise, given an M-form ending in $VV\#$, we cannot predict whether the U-form will end in $VVC\#$ or $VV\#$.

4.3 M-forms before CC Initial Modifiers ($\overset{\circ}{M}$)

Before modifiers which begin with a consonant cluster, consonant final words derive an M-form by deletion of the final consonant. M-forms before consonant clusters are glossed with ' $\overset{\circ}{M}$ '; $\overset{\circ}{m}$ with a 'c' for consonant above it. Examples are shown in (23) below for each word shape. The modifiers used to illustrate are *mnasi?* 'old', *kbubu?* 'round' *mnanu?* 'long' and *mnatu?* 'ripe, cooked' as semantically appropriate.

(23) $C\# \rightarrow \emptyset / _CC$

U-form		$\overset{\circ}{M}$ -form	
<i>mu?it</i>	→	<i>mu?i mnasi?</i>	'old animal'
<i>kaut</i>	→	<i>kau mnatu?</i>	'cooked/ripe papaya'
<i>nautus</i>	→	<i>nautu kbubu?</i>	'round beetle'

Words which end in a vowel in the M-form do not have distinct U-forms before modifiers which begin with a consonant cluster. Examples are given in (24) below. It is possible at an abstract level to analyse the M-form of such words as being formed by deletion of the final empty C-slot.

(24) $V\# \rightarrow V / _CC$

U-form		$\overset{\circ}{M}$ -form	
<i>fafi</i>	→	<i>fafi mnasi?</i>	'old pig'
<i>ume</i>	→	<i>ume kbubu?</i>	'round house'
<i>?beba</i>	→	<i>?beba mnasi?</i>	'old palm leaf'
<i>aunu</i>	→	<i>aunu mnanu?</i>	'long spear'
<i>oo</i>	→	<i>oo kbubu?</i>	'round (piece of) bamboo'

The relationship between the surface forms of the U-form and $\overset{\circ}{M}$ -form *mu?it* → *mu?i* 'animal' and *fafi* → *fafi* 'pig' are shown in (25) and (26) below respectively.

(25) 'animal'

U-form:	m	u	?	i	t
	C	V	C	V	C
	↓	↓	↓	↓	
	C	V	C	V	
$\overset{\circ}{M}$ -form:	m	u	?	i	

(26) 'pig'

U-form:	f	a	f	i
	C	V	C	V
	↓	↓	↓	↓
	C	V	C	V
$\overset{\circ}{M}$ -form:	f	a	f	i

VVC# words with a final /n/ form a partial exception to this rule when they occur before a modifier which begins with two nasals. In such instances either the final consonant is deleted, or it is retained and epenthesis occurs. One example is *kuan* 'village' modified by *mnaa?* 'old, former' in which case both *kua mnaa?* or *kuan a|mnaa?* occur with an attributive meaning.⁹

⁹ Nekmese' village was founded in the 1970s and many people still maintain fields and gardens near the old village (see §1.2 for more details). Thus, the phrase *kua(n a)mnaa?* is frequently heard. The form *kua mnaa?* is more common in my experience.

Likewise, when asked to translate ‘old tap’ into Amarasi (*kraan* ‘tap’ + *mnaa?* ‘old’), Roni (my main informant) produced the string *kraan a|mnaa?*. I immediately then presented him with the string *kraa mnaa?* which he interpreted as being ‘old glass’, from *kraas* + *mnaa?*.


4.3.1 CV# Final words

The failure of CV# final words such as *fafi* ‘pig’ to undergo metathesis before consonant clusters in Amarasi can be explained by the fact that clusters of three consonants are dis-preferred in Amarasi. It is more important in Amarasi to avoid a cluster of three consonants than it is to mark the M-form.

However, there are at least two logical ways in which Amarasi could avoid a cluster of three consonants and still mark the M-form for CV# final words. Firstly, metathesis could occur with subsequent epenthesis, producing *fafi* ‘pig’ + *mnasi?* ‘old’ → **faif mnasi?* → **faifa|mnasi?*. Epenthesis is attested elsewhere in Amarasi to break up sequences of three consonants (§3.8.2). Secondly, metathesis could take place with subsequent deletion of the final consonant, producing *fafi* ‘pig’ + *mnasi?* ‘old’ → **faif mnasi?* → **fai mnasi?*. Consonant deletion is attested elsewhere in the formation of M-forms (§4.2.2, §4.2.4).

We thus have at least four possible outputs when a CV# final word is modified by a nominal with an initial consonant cluster. Each of these potential outputs is given in the optimality table in (27) below, along with the constraint(s) they violate. The ranking of these constraints in Amarasi is *CCC > DEP > MAX > M-FORM > LIN. Definitions of these constraints are given in (28).

(27)

	[_{NP} <i>fafi</i> + <i>mnasi?</i>]	*CCC	DEP	MAX	M-FORM	LIN
a.	<i>faif mnasi?</i>	*!				*
b.	<i>faifa mnasi?</i>		*!			*
c.	<i>fai mnasi?</i>			*!		
d.	 <i>fafi mnasi?</i>				*	

- (28)
- a. *CCC: No clusters of three consonants
 - b. DEP: No epenthesis
 - c. MAX: No Deletion
 - d. M-FORM: Mark the M-form
 - e. LINEARITY: No Metathesis

Potential output (27a.) **faif mnasi?* does not occur because it is worse to have a cluster of three consonants than it is to mark the M-form. Potential output (27b.) **faifa|mnasi?* does not occur because it is worse to epenthesise (within a single phrase) than it is to mark the M-form. Potential output (27c.) **fai mnasi?* does not occur because it is worse to delete a

consonant than it is to mark the M-form. This leaves the occurring output *fafi mnasi?*, which fails to mark the M-form but does not violate any of the more highly ranked constraints.

Examples which show final consonant deletion in the M-form, such as *kaut* ‘papaya’ + *mnatu?* ‘cooked, ripe’ → *kau mnatu?* show that the constraint against deletion (MAX) must be formulated more precisely in Amarasi to allow deletion of root final consonants, but not root medial consonants.¹⁰ One way of achieving this would be to propose two constraints: MAX C# ‘no deletion of root final consonants’ and MAX -C- ‘no deletion of medial consonants’, with the ranking MAX -C- > M-FORM > MAX C#.

However, the purpose of this thesis is not to give a complete optimality theory account of Metathesis in Amarasi. Indeed, the high level of opacity in the formation of M-forms — including at least one derived environment effect (§4.2.3.2) — indicates that standard optimality theory would not fare particularly well in Amarasi, even if it is a useful tool to illuminate certain parts of the analysis.

In Ro’is Amarasi, CV# final words freely undergo metathesis before modifiers with an initial consonant cluster. This can be explained by positing that in Ro’is Amarasi avoiding a cluster of three consonants is less important than it is to mark the M-form. (In Optimality Theory terminology: M-FORM > *CCC.) Examples are given in (29) below.

(29) Ro’is Amarasi $V_1C_1V_2C_2 \rightarrow V_1V_2C_1C_2 / _CC$

Noun		mod.		Ro’is	Kotos	
<i>umi</i>	+	<i>kbubu?</i>	→	<i>uim kbubu?</i>	<i>umi kbubu?</i>	‘house + round’
<i>kruru-f</i>	+	<i>tnana-f</i>	→	<i>kruur tnana-f</i>	<i>kruru tnana-f</i>	‘finger + middle’
<i>(?)nima-f</i> ¹¹	+	<i>mneo-f</i>	→	<i>niim mneo-f</i>	<i>?nima mneo-f</i>	‘arm + lower’

4.3.2 CVC# Final words

When a CVC# final word, such as *mu?it* ‘animal’, occurs before an attributive modifier, such as *mnasi?* ‘old’, the final consonant of the first noun is deleted. This yields [_{NP} *mu?i mnasi?*] ‘an old animal’.

In this instance there are a large number of potential outputs which might conceivably occur involving combinations of: metathesis, consonant deletion and/or epenthesis. Each of these potential outputs is given in the Optimality Theory table in (30) below, along with the constraints they violate. These constraints have the same definitions and rankings as those in (28) above, with the addition of the constraint *CC# ‘No word final consonant clusters’ which is ranked more highly than the other constraints.

¹⁰ Such examples are also paralleled by final consonant deletion in the formation of the basic M-form, discussed in §4.2.2 and §4.2.4.

¹¹ There is dialect variation in the form of the word for ‘arm, hand’. Kotos Amarasi has *?nima-f* and Ro’is Amarasi has *nima-f*. Both forms are from Proto-Malyo-Polynesian *lima ‘five’ to which Kotos Amarasi appears to have added the nominalising circumfix *?...-?* (§3.6.2.4).

(30)

	[_{NP} <i>mu?it</i> + <i>mnasi?</i>]	*CC#	*CCC	DEP	MAX	M-FORM	LIN
a.	<i>mui?t mnasi?</i>	*!	**				*
b.	<i>mui? mnasi?</i>		*!		*		*
c.	<i>mui mnasi?</i>				**!		
d.	<i>mui?t a mnasi?</i>	*!		*			*
e.	<i>mu?it mnasi?</i>		*!			*	
f.	<i>mu?it a mnasi?</i>			*!		*	
g.	<i>mu?i mnasi?</i>				*		

Table (30) shows that the output with deletion of the final consonant *mu?i mnasi?* is the best output. This candidate marks the M-form and also avoids final consonant clusters, clusters of three consonants and epenthesis. While it does have consonant deletion (violates MAX), it only deletes one consonant while the next best candidate **mui mnasi?* has two consonants deleted.

When a CVC# final word such as *mu?it* occurs before a predicative modifier with an initial consonant cluster, epenthesis occurs between the two words. This is shown in (31a) and (32a) below, which contrast with the attributive phrases in (31b) and (32b).

- (31) a. [_{NP} *mu?it*] [_{NP} *a|mnasi?*]
 animal\U old\U
 ‘Animals are old.’
- b. [_{NP} *mu?i* *mnasi?*]
 animal\M old\U
 ‘(an) old animal’

- (32) a.
- ```

 S
 / \
 NP NP
 | |
 N N
 | |
 mu?it a|mnasi?
 animal\U old\U

```
- b.
- ```

      S
     / \
    ... NP
        / \
       N  N
       |  |
       mu?i mnasi?
       animal\M old\U
    
```

This can be explained by positing that while epenthesis is not allowed within a single phrase, it *is* allowed between two separate phrases. In the terminology of Optimality Theory, the constraint DEP is more highly ranked than MAX within a single phrase, while between two phrases MAX is more highly ranked than DEP. A modified version of table (30) is given in (33) below with these constraints re-ordered. The constraint M-FORM ‘mark the M-form’ has been removed as this is not a requirement of predicative phrases.

(33)


	[_{NP} <i>muʔit</i>] + [_{NP} <i>mnasiʔ</i>]	*CC#	*CCC	MAX	DEP	LIN
a.	<i>muiʔt mnasiʔ</i>	*!	**			*
b.	<i>muiʔ mnasiʔ</i>		*!	*		*
c.	<i>mui mnasiʔ</i>			**!		
d.	<i>muiʔt a mnasiʔ</i>	*!			*	*
e.	<i>muʔit mnasiʔ</i>		*!			
f.	 <i>muʔit a mnasiʔ</i>				*	
g.	<i>muʔi mnasiʔ</i>			*!		

Table (33) shows that when two separate noun phrases occur next to one another any cluster of three consonants is resolved by epenthesis. Table (33) states that it is better to epenethesise between two noun phrases than it is to have a cluster of three consonants. However, as shown in Table (30), within a single noun phrase it is better to delete a final consonant than it is to have a cluster of three consonants.

When a consonant final nominal occurs before a modifier with an initial consonant cluster, the cluster of three consonants is usually resolved in Amarasi. The way in which it is resolved is determined by the syntactic structure of the phrase. When the modifier is a separate predicate, epenthesis occurs. When the modifier is used attributively, the final consonant of the first nominal is deleted. This results in a second M-form for consonant final words.

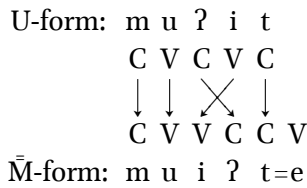
4.4 M-forms before Enclitics ($\backslash\bar{M}$)

In addition to the basic M-form ($\backslash M$) and the M-form before modifiers with an initial consonant cluster ($\backslash\check{M}$), there is an M-form used before vowel initial enclitics. Such forms are glossed ' $\backslash\bar{M}$ '; M with an equals sign above it, where the equals sign indicates a clitic boundary.

There are three phonological processes which clitic hosts undergo before a vowel initial enclitic: metathesis, consonant insertion and vowel assimilation. Each of these processes can be analysed as phonologically conditioned by the presence of the vowel initial enclitic. A full detailed analysis of all these processes is given in Chapter 5. In this section I present only an overview of the data, illustrating these M-forms with the enclitic =e 3DET/3SG.ACC, which is a definiteness marker on nominals and a 3SG object marker on verbs.

Words ending in VCVC# simply undergo metathesis of the penultimate consonant and final vowel before vowel initial enclitics. In §5.2 I analyse metathesis as occurring before vowel initial enclitics in order to create a crisp edge between the clitic host and enclitic. The surface relationship between the segments of the U-form and M-form of *muʔit* → *muiʔt=e* 'the animal' is given in (34) below, with more examples given in (35).

(34) 'animal'



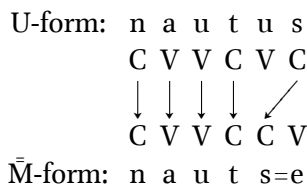
(35) ...V₁C₁V₂C₂ → ...V₁V₂C₁C₂=

U-form	M-form		U-form	M-form	
<i>ramup</i>	→ <i>raump=e</i>	'lamp'	<i>poʔon</i>	→ <i>pooʔn=e</i>	'garden'
<i>muʔit</i>	→ <i>muiʔt=e</i>	'animal'	<i>oʔof</i>	→ <i>ooʔf=e</i>	'pen, corral'
<i>tenuk</i>	→ <i>teunk=e</i>	'umbrella'	<i>manus</i>	→ <i>mauns=e</i>	'betel vine'
<i>tenoʔ</i>	→ <i>teonʔ=e</i>	'egg'	<i>anah</i>	→ <i>aanh=e</i>	'child'
<i>ukum</i>	→ <i>uukm=e</i>	'cuscus'	<i>motor</i>	→ <i>mootr=e</i>	'motorbike'

Recall from §4.2.2 that such words undergo metathesis and consonant deletion before (non-enclitic) modifiers. This consonant deletion is explained by a phonotactic constraint in Amarasí prohibiting word final consonant clusters. The retention of the final consonant before enclitics is straightforwardly explained if the clitic host and enclitic form a single phonological word, even if the enclitic is functioning grammatically at the level of the phrase or clause. While metathesis creates a new consonant cluster, this consonant cluster is not word final and thus does not violate any prohibited phonotactic structures of the language.

Similarly, words which end in VVCVC# form their M-form before enclitics by deletion of their final vowel but with retention of their final consonant. The surface relationship between *nautus* → *nauts=e* 'beetle' is given in (36) with additional examples given in (37).

(36) 'beetle'



(37) ...V₁V₂C₁V₃C₂ → ...V₁V₂C₁C₂=

U-form	M-form		U-form	M-form	
<i>kaunaʔ</i>	→ <i>kaunʔ=e</i>	'snake'	<i>naunuʔ</i>	→ <i>naunʔ=e</i>	'breadfruit'
<i>aikaʔ</i>	→ <i>aikʔ=e</i>	'animal'	<i>taekaʔ</i>	→ <i>taekʔ=e</i>	'puddle'
<i>nautus</i>	→ <i>nauts=e</i>	'beetle'	<i>a-maunu-t</i>	→ <i>a-maun-t=e</i>	'crazy person'

The M-forms of VCa# words before enclitics are the same as their basic M-form; final consonant-vowel metathesis occurs and the /a/ assimilates. The surface relationship between the segments of the U-form and M-form of *nuka* → *nuuk=e* 'the grief' is given in (38) below, with extra examples given in (39).

- (38) 'grief'
 U-form: n u k a
 C V C V
 ↓ ↓ ↓
 C V V C V
 M̄-form: n u u k=e

- (39) ...V_αCa → ...V_αV_αC=

U-form	M-form	
<i>n-biba</i>	→ <i>n-biib=e</i>	'massages him/her'
<i>?beba</i>	→ <i>?beeb=e</i>	'palm leaves'
<i>knaba</i>	→ <i>knaab=e</i>	'spider'
<i>n-sosa</i>	→ <i>n-soos=e</i>	'buys it'
<i>nuka</i>	→ <i>nuuk=e</i>	'grief'

Surface VVC# U-forms do not distinguish between the U-form and M-form before vowel initial enclitics. The surface relationship between *kaut* → *kaut=e* 'the papaya' is shown in (34) below, with additional examples given in (41).

- (40) 'papaya'
 U-form: k a u t
 C V V C
 ↓ ↓ ↓ ↓
 C V V C V
 M̄-form: k a u t=e

- (41) ...VVC → ...VVC=

U-form	M-form		U-form	M-form	
<i>kaut</i>	→ <i>kaut=e</i>	'papaya'	<i>kuan</i>	→ <i>kuan=e</i>	'village'
<i>bruuk</i>	→ <i>bruuk=e</i>	'pants'	<i>?naef</i>	→ <i>?naef=e</i>	'old man'
<i>knaa?</i>	→ <i>knaa?=e</i>	'beans'	<i>poes</i>	→ <i>poes=e</i>	'prawn/shrimp'
<i>heum</i>	→ <i>heum=e</i>	'mango'	<i>noah</i>	→ <i>noah=e</i>	'coconut'

4.4.1 Complication 1: Consonant Insertion

When an enclitic attaches to a word which ends in a vowel sequence (in which the final vowel is not /a/) a voiced obstruent is inserted at the clitic boundary. After front vowels /dʒ/ is inserted and after back vowels /gw/ is inserted. In §5.3 I analyse this consonant insertion as occurring to provide the enclitic with an onset consonant. The surface relationship between *nii* → *niidʒ=e* 'the pole' is given in (42) below, with more examples given in (43).

- (42) 'pole'
 U-form: n i i
 C V V
 ↓ ↓ ↘
 C V V C V
 M̄-form: n i i dʒ=e

- (43) ...V_αV_α → ...V_αV_αC_α=

U-form	M-form		U-form	M-form	
<i>kmii</i>	→ <i>kmii</i> dʒ=e	'urine'	<i>too</i>	→ <i>toogw</i> =e	'populace'
<i>nii</i>	→ <i>nii</i> dʒ=e	'pole'	<i>oo</i>	→ <i>oogw</i> =e	'bamboo'
<i>fee</i>	→ <i>feedʒ</i> =e	'wife'	<i>kfiu</i>	→ <i>kfiu</i> gw=e	'star'

4.4.2 Complication 2: Consonant Insertion and Vowel Assimilation

When the members of the vowel sequence are of a different quality, the final vowel conditions which consonant is inserted and this final vowel then assimilates to the quality of the previous vowel. These processes are analysed in full detail in §5.4. The surface relationship between *pui* → *puudʒ*=e 'the quail' is given in (44), with additional examples given in (45).

- (44) 'quail'
 U-form: p u i
 C V V
 ↓ ↘ ↘
 C V V C V
 M̄-form: p u u dʒ=e

- (45) ...V_αV_β → ...V_αV_αC_β=

U-form	M-form	gloss	U-form	M-form	gloss
<i>krei</i>	→ <i>kreedʒ</i> =e	'church'	<i>kiu</i>	→ <i>kiigw</i> =e	'tamarind'
<i>ai</i>	→ <i>aadʒ</i> =e	'fire'	<i>keu</i>	→ <i>n-keegw</i> =e	'shaves it'
<i>n-roi</i>	→ <i>n-roodʒ</i> =e	'carries'	<i>hau</i>	→ <i>haagw</i> =e	'wood, tree'
<i>pui</i>	→ <i>puudʒ</i> =e	'quail'	<i>meo</i>	→ <i>meegw</i> =e	'cat'
<i>mae</i>	→ <i>maadʒ</i> =e	'taro'	<i>ao</i>	→ <i>aagw</i> =e	'slaked lime'
<i>oe</i>	→ <i>oodʒ</i> =e	'water'			

4.4.3 Complication 3: Consonant Insertion, Metathesis, V Assimilation

When a word ends in VCV# (but not VCa#) /dʒ/ or /gw/ is inserted as conditioned by the quality of the final vowel, consonant-vowel metathesis occurs, and the final vowel assimilates to the quality of the preceding vowel. In §5.4 I show that vowel assimilation is triggered by metathesis occurring after consonant insertion. The surface relationship between *fafi* → *faafdʒ*=e 'the pig' is given in (46) below, with more examples shown in (47).

- (46) ‘pig’
 U-form: f a f i
 C V C V
 ↓ ↘ ↙ ↘
 C V V C C V
 M̄-form: f a a f dʒ=e

- (47) ...V_{1α}C₁V_{2β} → ...V_{1α}V_αC₁C_β=

U-form	M-form	gloss	U-form	M-form	gloss
<i>fini</i>	→ <i>fɪndʒ=e</i>	‘seed’	<i>nenō</i>	→ <i>neɛŋgw=e</i>	‘day; sky’
<i>besi</i>	→ <i>beesdʒ=e</i>	‘knife’	<i>knafo</i>	→ <i>knaɔfgw=e</i>	‘mouse’
<i>fafi</i>	→ <i>faafɔʒ=e</i>	‘pig’	<i>koro</i>	→ <i>koorgw=e</i>	‘bird’
<i>oni</i>	→ <i>oonɔʒ=e</i>	‘bee’	<i>ʔfiʔu</i>	→ <i>ʔfiʔgw=e</i>	‘sling’
<i>uki</i>	→ <i>uukɔʒ=e</i>	‘banana’	<i>tefu</i>	→ <i>teefgw=e</i>	‘sugar-cane’
<i>rene</i>	→ <i>reendʒ=e</i>	‘field’	<i>fatu</i>	→ <i>faatgw=e</i>	‘stone’
<i>bare</i>	→ <i>baardʒ=e</i>	‘place’	<i>nopu</i>	→ <i>noopgw=e</i>	‘hole’
<i>nope</i>	→ <i>noopɔʒ=e</i>	‘cloud’	<i>hutu</i>	→ <i>huutgw=e</i>	‘louse’

4.4.4 Complication 4: Consonant Insertion and Vowel Deletion

When a word ends in VVCV# (and the final vowel is not /a/), /dʒ/ or /gw/ is inserted as conditioned by the quality of the final vowel and this final vowel is then deleted. There are only nine words with this shape in my corpus, of these only two have been attested (or elicited) with an enclitic attached. The surface relationship between *n-aiti* → *n-aitdʒ=e* ‘picks it up’ is shown in (48) below, with more examples given in (49).

- (48) ‘picks up’
 U-form: n-a i t i
 C V V C V
 ↓ ↓ ↓ ↓ ↓
 C V V C C V
 M̄-form: n-a i t dʒ=e

- (49) ...V₁V₂C₁V_{3α} → ...V₁V₂C₁C_α=

U-form	M-form	gloss
<i>aunu</i>	→ <i>aunɔgw=e</i>	‘spear’
<i>n-aiti</i>	→ <i>n-aitdʒ=e</i>	‘picks it up’

4.4.5 Complication 5: U-form Glottal stop Suffixation

A final complication in the formation of the M-form and U-form is only revealed when the data from enclitics is considered. There are at least three words in my current corpus which

end in a glottal stop in the U-form, which does not surface in the M-form. These words are *atoni-ʔ* ‘man, person’, *mabe-ʔ* ‘afternoon, evening; time’ and *uaba-ʔ* ‘speech’.

Before attributive modifiers these nouns undergo metathesis or vowel deletion as appropriate and the final glottal stop does not surface (though this is also expected for consonant final roots, as discussed in §4.2.2). This is shown in (50) below.

(50) ...V₁C₁V₂-ʔ → ...V₁V₂C₁

U-form		M-form	
<i>atoni-ʔ</i>	→	<i>atoin</i>	‘man, person’
<i>mabe-ʔ</i>	→	<i>maeb</i>	‘afternoon, evening; time’
<i>uaba-ʔ</i>	→	<i>uab</i>	‘speech, language’

However, before enclitics the final glottal stop found in the U-form does not surface. This is shown in (51) below. The forms in (51) can be contrasted with many other forms in which a final glottal stop in the U-form does surface in the M-form before enclitics. Examples include *bareʔ* → *baerʔ=e* ‘stuff’, *riʔanaʔ* → *riʔaanʔ=e* ‘child’ and *naunuʔ* → *naunʔ=e* ‘breadfruit’.

(51) ...V₁C₁V₂-ʔ → ...V₁V₂C₁=

U-form		M-form	
<i>atoni-ʔ</i>	→	<i>atoin=e</i>	‘man, person’
<i>mabe-ʔ</i>	→	<i>maeb=e</i>	‘afternoon, evening; time’
<i>uaba-ʔ</i>	→	<i>uab=e</i>	‘speech, language’

I analyse the final glottal stop in the U-form of these words as a suffix which redundantly marks the U-form. Comparative evidence provides some support for an analysis in which the final glottal stop is not part of the root. In Naitbelak Amfo'an all vowel final roots undergo consonant insertion phrase finally, i.e. Amarasi *tasi* ‘sea’ corresponds to Naitbelak Amfo'an *tasiɕ*. Similarly, the cognate of Amarasi *atoni-ʔ* in Naitbelak Amfo'an is *atoniɕ* phrase finally, providing evidence that the root is vowel final \sqrt{atoni} . (See §4.5.1.3.6 for more discussion.)

It is possible that the final glottal stop of the U-forms of these words appeared to fill a word final empty C-slot. This would be analogous to the non-etymological word medial glottal stops discussed in §4.5.1.3.8 below.

4.5 Unified Analysis

The way in which the different M-forms of an Amarasi word are derived from the U-form is summarised in Table 4.5 with instantiated examples given in Table 4.6. Column \M gives the basic M-forms (§4.2), column \M̄ gives the M-forms used before vowel initial enclitics (§4.4) and column \M̂ the M-forms used before modifiers with an initial consonant cluster (§4.3).

The final column also indicates the number of attestations of such shapes in my dictionary of 1,696 unique lexical roots.¹²

Table 4.5: Amarasi Surface M-forms

	U-form	→	M-forms			no.
			\backslash_M	$\backslash_{\bar{M}}$	$\backslash_{\dot{M}}$	
1.	$V_{1\alpha}C_1V_{2\beta}$	→	$V_1V_2C_1$	$V_{1\alpha}V_\alpha C_1C_\beta$	$V_1C_1V_2$	569
2.	$V_1C_1V_2C_2$	→	$V_1V_2C_1$	$V_1V_2C_1C_2$	$V_1C_1V_2$	340
3.	$V_{1\alpha[+HIGH]}C_1V_{2\beta[+MID]}$	→	$V_1V_{2[+HIGH]}C_1$	$V_{1\alpha}V_\alpha C_1C_\beta$	$V_1C_1V_2$	22
4.	$V_{1\alpha}C_1a_2(C_2)$	→	$V_{1\alpha}V_\alpha C_1$	$V_{1\alpha}V_\alpha C_1(C_2)$	$V_1C_1a_2$	388
5.	$V_1V_2C_1V_{3\alpha}$	→	$V_1V_2C_1$	$V_1V_2C_1C_\alpha$	$V_1V_2C_1V_3$	9
6.	$V_1V_2C_1V_3C_2$	→	$V_1V_2C_1$	$V_1V_2C_1C_2$	$V_1V_2C_1V_3$	16
7.	$V_1V_2C_1$	→	V_1V_2	$V_1V_2C_1$	V_1V_2	139
8.	$V_{1\alpha}V_{2\beta}$	→	V_1V_2	$V_{1\alpha}V_\alpha C_\beta$	V_1V_2	208
9.	$V_1C_1V_2-?$	→	$V_1V_2C_1$	$V_1V_2C_1$	$V_1C_1V_2$	3

Table 4.6: Amarasi Instantiated Surface M-forms

	U-shape	U-form	→	M-forms			
				\backslash_M	$\backslash_{\bar{M}}$	$\backslash_{\dot{M}}$	
1.	VCV#	<i>fafi</i>	→	<i>faif</i>	<i>faafdʒ</i>	<i>fafi</i>	‘pig’
2.	VCVC#	<i>muʔit</i>	→	<i>muiʔ</i>	<i>muiʔt</i>	<i>muʔi</i>	‘animal’
3.	$V_{[+HIGH]}C_1V_{[+MID]}$	<i>ume</i>	→	<i>uim</i>	<i>uumdʒ</i>	<i>ume</i>	‘house’
4.	VCa#	<i>nuka</i>	→	<i>nuuk</i>	<i>nuuk</i>	<i>nuka</i>	‘grief’
5.	VVCV#	<i>aunu</i>	→	<i>aun</i>	<i>aujgw</i>	<i>aunu</i>	‘spear’
6.	VVCVC#	<i>nautus</i>	→	<i>naut</i>	<i>nauts</i>	<i>nautu</i>	‘beetle’
7.	VVC#	<i>kaut</i>	→	<i>kau</i>	<i>kaut</i>	<i>kau</i>	‘papaya’
8.	VV#	<i>ai</i>	→	<i>ai</i>	<i>aadʒ</i>	<i>ai</i>	‘fire’
9.	VCV-?#	<i>mabe-?</i>	→	<i>maeb</i>	<i>maeb</i>	<i>mabe</i>	‘time’

While it may initially appear challenging to provide a unified analysis for all these processes, the fact that the different outcomes can be predicted based solely on the phonotactic shape of the U-form indicates that a unified analysis is possible.

There is a large amount of opacity in the formation of M-forms. M-forms are completely predictable based on the U-form, and U-forms are not completely predictable based on the M-form. A concrete example is the form *n-neen*, which is the M-form of both *n-nene* ‘pushes’ and *n-nena* ‘hears’.

My analysis consists of a single process of metathesis, an associated morphemically conditioned process (/a/ assimilation), a process of subtraction and one phonological

¹² Some root shapes belong to multiple rows. Additionally, while some vowel final M-forms are not distinguishable from their U-forms, these forms are listed for the sake of completeness.

process (consonant insertion). These processes, combined with an obligatory CVCVC foot structure and the general phonotactic constraints of the language, generate all the different M-forms. My analysis is framed under autosegmental phonology (Goldsmith 1976).

In my autosegmental diagrams, empty C-slots are occasionally ‘filled’ with \emptyset in order to make it explicit that they behave identically to filled C-slots. This is mainly a notational convenience. Similarly, the x-tier (or timing tier) is used as a notational device to illustrate clearly the effect of metathesis. Use of the x-tier should not be taken as a claim about its theoretical status.

4.5.1 The Phonological Rules

4.5.1.1 CVCVC Foot

The main phonological rule is to posit that the foot obligatorily has the structure CVCVC, and that C-slots may be empty. This rule is given in (52) below. Extensive evidence (independent of metathesis) for the existence of empty C-slots in Amarasi is given below in §4.5.1.3.

- (52) Ft. \rightarrow CVCVC
 a. V-slots must be filled
 b. C-slots may be empty

The structures of the words *fafi* ‘pig’, *mu?it* ‘animal’, *kaut* ‘papaya’, *ai* ‘fire’, *naunu?* ‘breadfruit’ and *aunu* ‘spear’ under this analysis are given in (53) below.

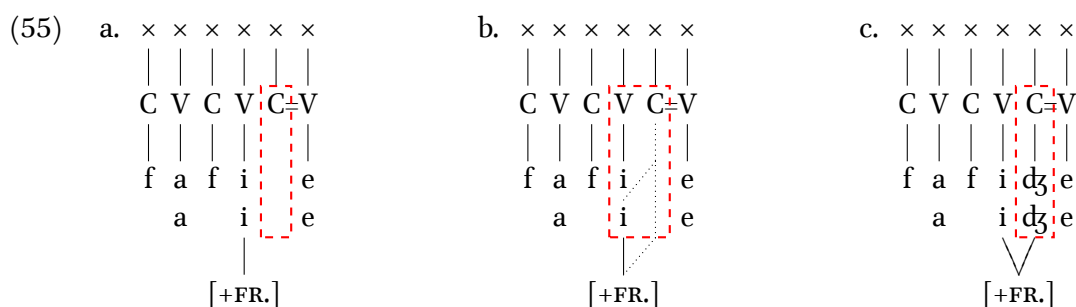
- (53) a. C V C V C b. C V C V C c. C V C V C
 | | | | | | | | | | | |
 f a f i m u ? i t k a u t
- d. C V C V C e. C V C V C f. C V C V C
 | | | ^ | | | ^ | |
 a i n a u n u ? a u n u

4.5.1.2 Consonant Insertion

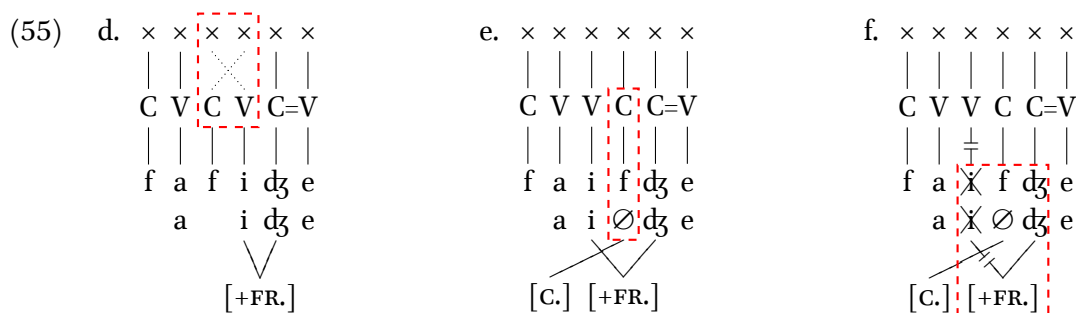
The second phonological rule is the process of consonant insertion before vowel initial enclitics. This rule is given in (54) below. In §5.3 I analyse this rule as occurring to fulfil the phonological constraint that all morphemes (including enclitics) begin with an onset consonant.

- (54) V C =
 |
 [PLACE]

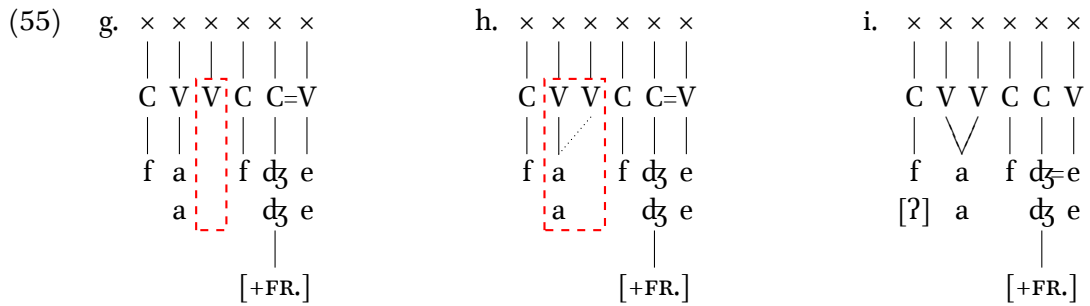
The operation of this process for *fafi* → *faafɔ̯=e* ‘the pig’ and *ai* → *aaɔ̯=e* ‘the fire’ is illustrated in (55) below. Spreading of the vocalic features is triggered by the presence of the clitic boundary in (55a). In this case the feature [+FRONT] spreads in (55b) resulting in the obstruent /ɔ̯/ in (55c). In instances such as *fatu* → *faatgw=e* ‘the stone’ and *meo* → *meegw=e* ‘the cat’, the features [+BACK] and [+ROUND] spread to produce the consonant /gw/.



Assimilation of the final vowel is analysable as an automatic result of metathesis occurring after consonant insertion, illustrated below. Metathesis is triggered in (55d) to create a crisp edge between the clitic host and the enclitic (§5.2). Metathesis results in the features of the final vowel of the clitic host being shared across an intervening consonant, including the intervening null consonant, with ‘lines crossing’ as shown in (55e). (In (55e) [C.] is used to represent the features of the intervening consonant, or in the case of the null consonant, the lack of features of this intervening consonant.) A prohibition against association lines crossing is one of the fundamental principles of autosegmental phonology (Goldsmith 1976:48). As a result, the place feature [+FRONT] de-links from the V-slot in (55f).



Final vowel deletion results in an empty V-slot in (55g), into which the adjacent vowel features spread in (55h), giving the outputs *faafɔ̯=e* and *aaɔ̯=e* with double vowels in (55i).



While the root *ai* ‘fire’ has no surface phonemic consonants, every empty C-slot I posit plays a role in the derivation of its surface M-form before an enclitic. The final C-slot is filled by the features of the previous vowel resulting in the consonant /d₃/, the medial C-slot prevents the final C-slot and V-slot from sharing features after consonant-vowel metathesis, and the initial C-slot is filled by a glottal stop.

4.5.1.3 Empty C-Slots

In this section I provide evidence for the presence of empty C-slots in Amarasi. I analyse the Amarasi foot as being obligatorily CVCVC, with vowel slots being obligatorily filled, and C-slots only optionally filled.

Under certain conditions there are phonetic traces of actual consonants in these empty C-slots. There are at least six language internal phenomena under which phonetic traces in these empty C-slots can be identified. These conditions are discussed in §4.5.1.3.1–§4.5.1.3.5 below. In §4.5.1.3.6–§4.5.1.3.8 I discuss three pieces of further comparative data which provide evidence for empty C-slots.

4.5.1.3.1 Nominalising/Property Infixation One piece of evidence I present for empty C-slots in Amarasi is the behaviour of the nominalising circumfix *?-...-?* (§3.6.2.4) and the property circumfix *ma-...-?* (§3.6.2.2). When these circumfixes attach to a surface CVCV root, the initial element occurs as a prefix and the second element as a suffix. Examples are given in (56) below.

(56) Circumfixes *?-...-?* and *ma-...-?*

‘grate’	<i>√fona</i>	+	<i>?-...-?</i>	→	<i>?-fona-?</i>	‘grater’
‘bind’	<i>√futu</i>	+	<i>?-...-?</i>	→	<i>?-futu-?</i>	‘cloth band’
‘sit’	<i>√toko</i>	+	<i>?-...-?</i>	→	<i>?-toko-?</i>	‘chair’
‘sweep’	<i>√sapu</i>	+	<i>?-...-?</i>	→	<i>?-sapu-?</i>	‘broom’
‘stone’	<i>fatu</i>	+	<i>ma-...-?</i>	→	<i>ma-fatu-?</i>	‘rocky’
‘hair’	<i>funu-</i>	+	<i>ma-...-?</i>	→	<i>ma-funu-?</i>	‘hairy’

When these circumfixes occur on a root with a final vowel sequence, the second glottal stop occurs between these two vowels as an infix. Examples are given in (57) below.

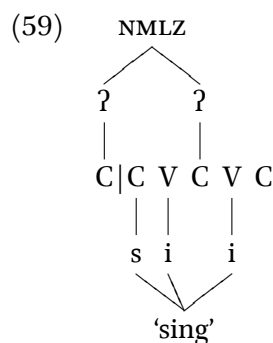
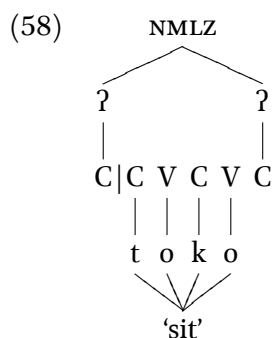
(57) Circum-/Infixes ʔ-...ʔ and ma-...ʔ

'cover'	$\sqrt{\text{neo}}$	+	ʔ-...ʔ	→	ʔ-neʔo	'umbrella'
'pound'	$\sqrt{\text{pau}}$	+	ʔ-...ʔ	→	ʔ-paʔu	'mortar and pestle'
'exit'	$\sqrt{\text{poi}}$	+	ʔ-...ʔ	→	ʔ-poʔi	'exit (noun)'
'sing'	$\sqrt{\text{sii}}$	+	ʔ-...ʔ	→	ʔ-siʔi	'song'
'write'	$\sqrt{\text{tui}}$	+	ʔ-...ʔ	→	ʔ-tuʔi	'pen'
'write'	$\sqrt{\text{tui}}$	+	ma-...ʔ	→	ma-tuʔi	'written'
'be aware'	$\sqrt{\text{keo}}$	+	ma-...ʔ	→	ma-keʔo	'aware'

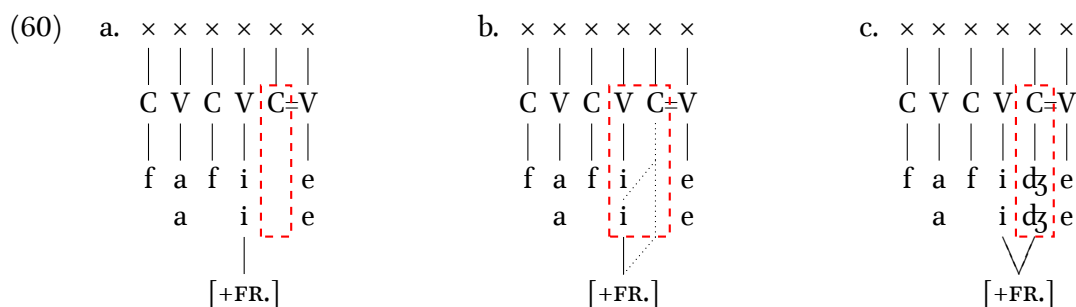
When these circumfixes appear on a consonant final root, this glottal stop suffix appears to replace the final consonant, though there is only one putative example, *puah* 'betel nut' → *ma-pua-ʔ* 'exchanging betel nut', which may involve the reciprocal prefix *ma-*.

Under an analysis involving empty C-slots, the infixed allomorph can be captured by proposing that the circumfix is fundamentally a prefix with the second element occupying the first available empty C-slot from the left edge of the word.

When the medial C-slot of a root is already filled the first available empty C-slot is word final, as shown in (58) below for *ʔ-toko-ʔ* 'chair'. When the root contains a vowel sequence the first available empty C-slot is root medial, as shown in (59) below for *ʔ-siʔi* 'song'.



4.5.1.3.2 Consonant Insertion As discussed in §4.5.1.2, consonant insertion can be analysed as vocalic features spreading into an adjacent empty C-slot. The first stage of the formation of *fafi* 'pig' + *=e* 3DET → *faafɛ=e* 'the pig' and *ai* 'fire' + *=e* 3DET → *aadɛ=e* 'the fire' from (55) is repeated in (60) below.

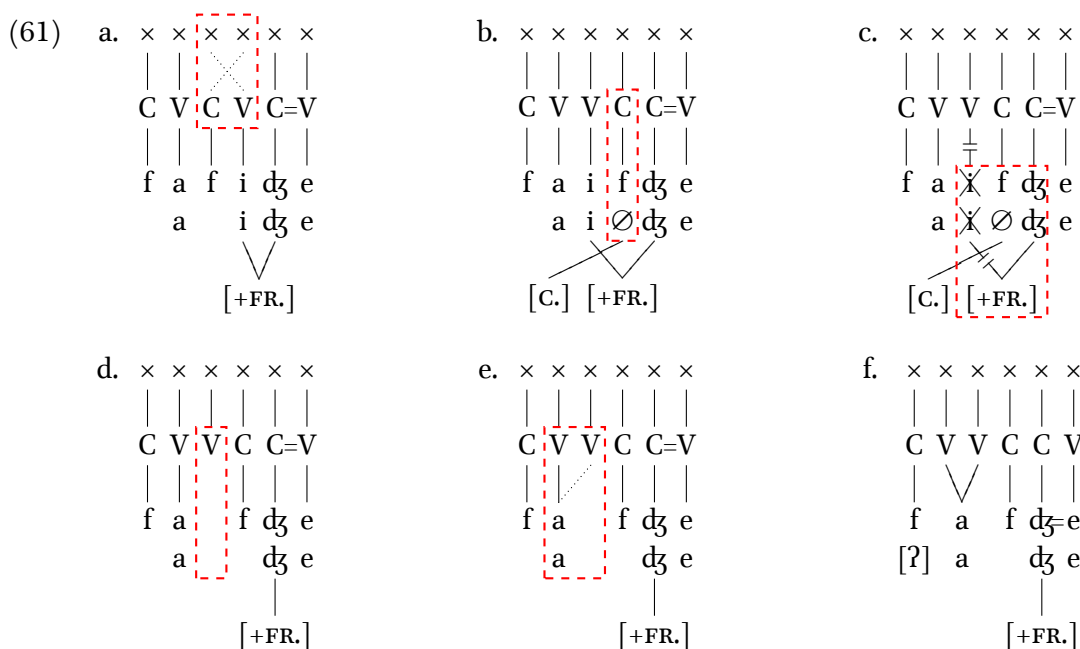


The creation of a segmental consonant at clitic boundaries provides evidence for the existence of an empty C-slot at the clitic boundary. In §5.3.1 I present some arguments in favour of analysing the inserted consonant as belonging to the clitic host.

The process of consonant insertion provides evidence for empty C-slots in Amarasi. The presence of an enclitic boundary triggers spreading of vocalic features. In §5.3 I analyse this consonant insertion as occurring to provide enclitics with an onset consonant.

4.5.1.3.3 Vowel Assimilation after Consonant Insertion As discussed in §4.5.1.2, the vowel assimilation which accompanies consonant insertion provides evidence for empty C-slots word medially. This vowel assimilation is automatically triggered by metathesis of the penultimate C-slot and final V-slot.

The next stages of the formation of *fafi* ‘pig’ + =e 3DET *faafɔ̃=e* ‘the pig’ and *ai* ‘fire’ + =e 3DET → *aaɔ̃=e* ‘the fire’ are given in (61) below. After consonant insertion has taken place, consonant vowel metathesis occurs in (61a). Metathesis results in the features of the final vowel of the clitic host being shared across an intervening consonant; including the intervening null consonant, with ‘lines crossing’ as shown in (61b). As a result, the place feature [+FRONT] de-links from the V-slot in (61c). This results in an empty V-slot in (61d), into which the adjacent vowel features spread in (61e), giving the outputs *faafɔ̃=e* and *aaɔ̃=e* with double vowels in (61f).



The fact that the vocalic features de-link in (61b) for both *fafi* ‘pig’ and *ai* ‘fire’ can be attributed to the presence of a medial C-slot. The only difference between these C-slots is that in *fafi* ‘pig’ the C-slot is filled, while in *ai* ‘fire’ this C-slot is empty.

4.5.1.3.4 /dʒ/ in Native Vocabulary An additional piece of evidence for empty C-slots comes from the distribution of the marginal consonant /dʒ/ in native Amarasi roots. There are currently five words in my current dictionary of 1,696 unique lexical roots which are not obviously loans which contain /dʒ/. In each instance /dʒ/ occurs in the environments i_VV or Vi_V . These words are given in (62) below.

(62) Attestations of Native /dʒ/:

<i>aidʒoʔo</i>	[ʔajdʒ'ɔʔɔ]	🔊	'iron-wood tree'
<i>aidʒonuus</i>	[ʔajdʒɔ'nɔ:s]	🔊	'cummin'
<i>bidʒae</i>	[bi'dʒæ]	🔊	'cow'
<i>naiʒeer</i>	[naj'dʒɛ:r]	🔊	'ginger'
<i>taiʒonif</i>	[taj'dʒonif]	🔊	'jackfruit'

Of these, the word *aidʒonuus* 'cummin' is historically a compound of *aidʒoʔo* 'iron-wood tree' and *nuus* which has no independent meaning in Amarasi. (In Fatule'u *nuus* is attested with the meaning 'blue'.)

If the /dʒ/ were removed from the words in (62), we would find a sequence of three or more vowels in each instance. Given that sequences of more than two vowels are not found in Amarasi (§3.2.1.4), it is possible to analyse /dʒ/ in the examples in (62) as epenthetic, occurring to break up the disallowed underlying trivocalic sequence.

Under this analysis, the place features of the vowel /i/ would spread rightwards to fill an adjacent empty C-slot. The way in which this analysis would work is shown for *bidʒae* in (63) below. In (63a) we have an illicit sequence of three vowels. The place feature [+FRONT] of the vowel /i/ spreads in (63b) to break up the VVV sequence, thus producing the consonant /dʒ/ in (63c).

(63)	a.	C V C V C V C	b.	C V C V C V C	c.	C V C V C V C
		b i a e		b i a e		b i dʒ a e
		[+FR.]		[+FR.]		[+FR.]

Evidence that this process has operated, at least historically, comes from cognates in other Uab Meto varieties. Thus we find Molo *bia* 'buffalo' (Middelkoop 1972) in addition to Amanatun *bie* 'cow', both without medial /dʒ/.

While the *dʒ* in the words in (62) is probably historically epenthetic, arising through a process similar to that illustrated in (63), in the modern language /dʒ/ also occurs in other environments in recent loanwords such as *√dʒari* 'to become' < Malay *jadi* and *dʒeket* 'jacket' < Malay *jeket* < English *jacket*.

4.5.1.3.5 Glottal Stop Insertion A fourth phenomenon which can be accounted for by empty C-slots is glottal stop insertion. This process was discussed in more detail in §3.8.1 on page 134. All phonemically vowel initial words in Amarasi surface with a predictable glottal stop word initially. The examples from page 134 are repeated in (64) below:

(64) /V/ → [ʔV] /#_

<i>ikaʔ</i>	[ʔikəʔ]	🔊	‘fish’
<i>ekam</i>	[ʔəkəm]	🔊	‘wild pandanus’
<i>ate</i>	[ʔet̪e]	🔊	‘servant’
<i>oo</i>	[ʔo:]	🔊	‘bamboo’
<i>uki</i>	[ʔuk̪i]	🔊	‘banana’

Under an analysis involving empty C-slots, glottal stop insertion can be analysed as operating to obey a constraint requiring words to begin with a consonant. When the word contains no specified consonant, the consonant [ʔ] is inserted in the initial empty C-slot. This is shown for *uki* ‘banana’ in (65) below. In §5.3 I analyse the glottal stop /ʔ/ as the default word initial consonant.

(65)	a.	#	C	V	C	V	C		b.	#	C	V	C	V	C		c.	#	C	V	C	V	C	
			u	k	i						ʔ	u	k	i					ʔ	u	k	i		

4.5.1.3.6 Comparative Support 1: Consonant Insertion There is also evidence for empty C-slots in Amarasi from other varieties of Uab Meto and comparison of current Uab Meto forms with forms reconstructed for Proto-Malayo-Polynesian (PMP). Reconstructions cited in this section are from Blust and Trussel (ongoing).

Firstly, there are a handful of words in which another variety of Uab Meto has a full consonant where Amarasi has a medial empty C-slot. One example is the word for ‘two’. In Amarasi we find *nua* (< *dua < PMP *duha). In Baikeno ‘two’ is *nuban*,¹³ with medial /b/, and in Naitbelak Amfo’an ‘two’ is *nuga*, with medial /g/. Both consonants can be analysed as resulting from features of the previous vowel spreading into an empty C-slot.

An additional Naitbelak Amfo’an example is *na-guab* ‘talks’, which can be compared with Amarasi *na-ʔuab* ‘speaks’. In this case both varieties have a root initial consonant, probably to resolve an original sequence of three vowels. Naitbelak Amfo’an has inserted a consonant conditioned by the following vowel and Amarasi has inserted default [ʔ].¹⁴

¹³ The final *n* in Baikeno *nuban* could be a fossilised plural marker.

¹⁴ A similar Naitbelak Amfo’an example is *agoel* ‘rattan’ which can be compared with Fatule’u *ual* and Molo *ue* ‘rattan’. These forms may be connected with Proto-Malayo-Polynesian *quay ‘rattan’, though phonetic irregularities in the Fatule’u and Amfo’an forms make this connection slightly tenuous. (Amarasi has the unrelated form *kpaʔum* for ‘rattan’.)

4.5.1.3.7 Comparative Support 2: Word Final Consonant Insertion In addition to sporadic examples of medial C-slots which are empty in Amarasi but filled in other varieties of Uab Meto, there is also a regular system of word final consonant insertion phrase finally in some varieties of Uab Meto. Such consonants are not historical retentions and can be predicted based on the quality of the final vowel. In each of the varieties discussed below consonant insertion occurs in the citation form of independent nouns and does not occur when the noun is followed by an attributive nominal. Forms with an inserted consonant are U-forms, while forms without these consonants are M-forms (§8.2). The location of Uab Meto varieties discussed in this section is given in Figure 1.2 on page 6.

In Naitbelak Amfo'an, all (historically) vowel final nouns undergo consonant insertion. After the back vowels /o/ and /u/ the consonant /g/ is inserted. Such instances of /g/ are usually unreleased and slightly devoiced thus: [ɟ̚]. After the high front vowel /i/ the consonant /dʒ/ is inserted. Such word final instances of /dʒ/ are usually devoiced, often de-palatalised and often tend towards a non-sibilant fricative.¹⁵ After /e/ the consonant /l/ is inserted. No consonant appears to be inserted after /a/. Examples are given in (66) below.

(66) Amfo'an (Naitbelak) consonant insertion:

PMP	*taqi	*punti	*bahi	*wahiR	*qaləjaw	*asu	*batu
Amarasi	<i>tei</i>	<i>uki</i>	<i>fee</i>	<i>oe</i>	<i>nenō</i>	<i>asu</i>	<i>fatu</i>
Amfo'an	<i>teidʒ</i>	<i>ukidʒ</i>	<i>feel</i>	<i>oel</i>	<i>nenog</i>	<i>asug</i>	<i>fatug</i>
gloss	'faeces'	'banana'	'wife'	'water'	'day, sky'	'dog'	'stone'

In Baikeno, consonants are only inserted after vowel sequences. /b/ is inserted after the back rounded vowels /o/ and /u/, /dʒ/ is inserted after /i/ and /l/ is inserted after /e/. Baikeno /dʒ/ is almost always realised as a fricative [ʒ] or for some speakers [z], likewise Baikeno /b/ is almost always the fricative [β]. Final /l/ in Baikeno is usually laminal [l̥] in recordings available to me. Examples of Baikeno consonant insertion are given in (67) below.

(67) Baikeno consonant insertion:

PMP	*hapuy	*taqi	*bahi	*wahiR	*qapuR	*kahiw	*qihu
Amarasi	<i>ai</i>	<i>tei</i>	<i>fee</i>	<i>oe</i>	<i>ao</i>	<i>hau</i>	<i>iik iu</i>
Baikeno	<i>aidʒ</i>	<i>teidʒ</i>	<i>feel</i>	<i>oel</i>	<i>aob</i>	<i>haub</i>	<i>iik iub</i>
gloss	'fire'	'faeces'	'wife'	'water'	'lime'	'wood'	'shark'

Fatule'u consonant insertion is very similar to that of Baikeno, with the additional complication that vowel assimilation occurs after insertion of /dʒ/. Examples of Fatule'u consonant insertion are given in (68) below.

¹⁵ All of the following phonetic symbols occur as transcriptions of inserted /dʒ/ in my Naitbelak Amfo'an data: [dʒ], [tʃ], [ts], [ʒ] and [s]. Speakers identify this sound with the letter <j>, used in Indonesian for /dʒ/.

(68) Fatule'u (Bineon-Koa' hamlet) consonant insertion:

PMP	*hapuy	*waRi	*taqi	*bahi	*wahiR	*qapuR	*kahiW
Amarasi	<i>ai</i>	<i>fai</i>	<i>tei</i>	<i>fee</i>	<i>oe</i>	<i>ao</i>	<i>hau</i>
Fatule'u	<i>aadʒ</i>	<i>faadʒ</i>	<i>teedʒ</i>	<i>feel</i>	<i>oel</i>	<i>aob</i>	<i>haub</i>
gloss	'fire'	'night'	'faeces'	'wife'	'water'	'lime'	'wood'

In Kopas, consonant insertion takes place only after vowel sequences. Unlike Baikeno and Fatule'u (but like Amfo'an), /g/ is inserted after back vowels. After insertion of /dʒ/ or /g/ final vowels assimilate in Kopas. Inserted /g/ in Kopas is always voiced in my data, while inserted /dʒ/ is usually somewhat devoiced and tends towards a fricative. Examples of Kopas consonant insertion are given in (69) below.

(69) Kopas (Tuale'u hamlet) Consonant Insertion:

PMP	*hapuy	*taqi	*bahi	*wahiR	*qapuR	*kahiW	
Amarasi	<i>ai</i>	<i>tei</i>	<i>fee</i>	<i>oe</i>	<i>ao</i>	<i>hau</i>	<i>kiu</i>
Kopas	<i>aadʒ</i>	<i>teedʒ</i>	<i>feel</i>	<i>oel</i>	<i>aag</i>	<i>haag</i>	<i>kiig</i>
gloss	'fire'	'faeces'	'wife'	'water'	'lime'	'wood'	'tamarind'

The vowel assimilation after consonant insertion in Fatule'u for forms ending in /i/ and in Kopas for forms ending in /i/, /o/ or /u/ is evidence *against* the analysis of the similar vowel assimilation seen in Amarasi after consonant insertion, discussed in §4.5.1.3.3.

The most unusual kind of consonant insertion I have so far encountered occurs in the Timaus variety of Uab Meto, spoken on the border of the Amarasi area.¹⁶ In Timaus consonant insertion affects all vowel final nouns in phrase final position. This consonant insertion is also accompanied by a shift in the quality of the final vowel. In phrase final position, root final /i/ is replaced by /ar/,¹⁷ root final /e/ is replaced by /al/, root final /o/ is replaced by /ugw/ and root final /u/ is replaced by /idʒ/. Examples are given in (70) below.¹⁸

(70) Timaus (Sanenu hamlet) CV# consonant insertion:

PMP	*babuy	*talih	*Rumaq		*qaləjaw	*asu	*batu
Amarasi	<i>fafi</i>	<i>tani</i>	<i>ume</i>	<i>koro</i>	<i>nenō</i>	<i>asu</i>	<i>fatu</i>
Timaus	<i>fafar</i>	<i>tanar</i>	<i>umal</i>	<i>kolugw</i>	<i>nenugw</i>	<i>asidʒ</i>	<i>fatiđʒ</i>
gloss	'pig'	'rope'	'house'	'bird'	'day, sky'	'dog'	'stone'

¹⁶ Timaus speakers trace their origins to *Timau* mountain in southern Amfo'an.

¹⁷ Timaus /r/ is from original *dʒ which is inserted word finally in Amfo'an: i.e. Amarasi *fafi* = Amfo'an *fafidʒ* = Timaus *fafar* 'pig'. This hypothesis is confirmed by other instances of /dʒ/ which correspond to Timaus /r/. Two examples include Amarasi *bidʒae* Timaus *birael* and Amarasi *naiđʒeer* Timaus *nairael* 'ginger'.

¹⁸ The insertion of /dʒ/ after /u/ may be explicable in terms of a push-pull chain. Word final front vowels /i/ and /e/ condition insertion of /r/ and /l/ respectively after which these vowels lower to /a/. Word final /o/ conditions insertion of /gw/ after which /o/ is then raised to /u/. Word final /u/ is either pushed or pulled into the empty high front vowel position, and then conditions insertion of /dʒ/.

When a noun ends in a vowel sequence in Timaus, the same consonants are inserted after a single vowel, with subsequent assimilation of the final vowel to the quality of the previous vowel. Vowel assimilation does not occur after insertion of /l/. Examples of Timaus consonant insertion after vowel sequences are given in (71) below.¹⁹

(71) Timaus (Sanenu hamlet) VV# consonant insertion:

PMP	*hapuy	*taqi	*bahi	*wahiR	*qapuR	*kahiw	
Amarasi	<i>ai</i>	<i>tei</i>	<i>fee</i>	<i>oe</i>	<i>ao</i>	<i>hau</i>	<i>kiu</i>
Timaus	<i>aar</i>	<i>teer</i>	<i>feel</i>	<i>oel</i>	<i>aagw</i>	<i>haadz</i>	<i>kiicz</i>
gloss	'fire'	'faeces'	'wife'	'water'	'lime'	'wood'	'tamarind'

That other varieties of Uab Meto display consonant insertion in positions where I posit empty C-slots for Amarasi provides support for positing empty C-slots in Amarasi. That consonant insertion is most common after vowel sequences is probably due to Uab Meto varieties dis-prefering more than one empty C-slot per foot.

4.5.1.3.8 Comparative Support 3: Non-etymological Glottal Stops Some words in Amarasi which would be expected by regular sound changes to contain a vowel sequence, instead occur with a medial glottal stop. Cognates of these words in Amanuban and Amanatun occur with a word final glottal stop. The Amarasi words which are clear inheritances from PMP in which this non-etymological glottal stop occurs are given in (72) below, along with known Amanuban cognates for comparison.

(72) Non-etymological glottal stops in Amarasi and Amanuban:

PMP	*baqəRu	*dahun	*ma-iRaŋ	*kakay	*puqun
Amarasi	<i>feʔu</i>	<i>noʔo</i>	<i>meʔe</i>	<i>haʔe</i>	<i>uʔu</i>
Amanuban	<i>feʔʔ</i>	<i>nooʔ</i>	<i>meeʔ</i>		
gloss	'new'	'leaf'	'red'	'leg'	'source'

Although the forms in (72) are reconstructed with medial consonants, each of PMP *q, *R, *h, and *k are otherwise regularly lost word medially in Uab Meto. An example of each with an Amarasi reflex includes: *ma-qitəm > *metan* 'black', *diRus > *na-niu* 'bathe', *duha > *nua* 'two', and *sakay > *n-sae* 'go up'. More examples can be found in Edwards (2016b).

Additionally, when a genitive suffix is attached to the Amarasi words in (72), the medial glottal stop does not appear. Examples are given in (73) below. A complete list of the forms (including those not clearly inherited from PMP) in which a medial glottal stop is deleted after genitive suffixation is given in §3.6.3.1 on page 123.

¹⁹ Timaus has another kind of consonant insertion for words with the shape /CVah/ and /CVaʔ/. The same consonant insertion and vowel shift which affects final CV# affects these words, with the difference that this process occurs *before* the vowel sequence. I have only three examples: Amarasi *puah* = Timaus *pcʒiah* 'betel nut', Amarasi *tuaʔ* = Timaus *tdʒiaʔ* 'lontar palm' and Amarasi *noah* = Timaus *nguah* 'coconut'.

(73) Medial Glottal Stop Deletion:

<i>feʔu</i>	+	<i>-f</i>	→	<i>moen feʔ-f</i>	‘son-in-law’ (<i>lit.</i> ‘new male’)
<i>noʔo</i>	+	<i>-n</i>	→	<i>in noo-n</i>	‘its leaves’
<i>haʔe</i>	+	<i>-f</i>	→	<i>hae-f</i>	‘leg’
<i>uʔu</i>	+	<i>-f</i>	→	<i>uu-f</i>	‘source’

In addition to the words given in (72), the likely PMP inheritances *taqi > *tei* ‘faeces’ and *kəmiq > *kmi* ‘urine’ have verbal forms with an unexpected medial glottal stop: *na-teʔi* ‘defecates’ and *na-kmiʔi* ‘urinates’.

That non-etymological glottal stops occur word medially in some words in Amarasi is evidence for empty medial C-slots in this position. It is not unlikely that these glottal stops have been inserted due to a preference in Uab Meto for a foot not to have more than one empty C-slot. Additional evidence for this preference comes from the fact that such glottal stops do not occur when the final C-slot is filled by a genitive suffix.

4.5.1.4 Summary

I have discussed seven situations in which consonants surface in positions we might not otherwise expect. The analysis I propose to account for this data is to posit an obligatory CVCVC foot in which C-slots can be empty. The seven phenomena are summarised in (74) below, along with the location of the empty C-slot within the root they provide evidence for.

(74) Evidence for Empty C-slots in Amarasi:

- | | |
|--|----------------|
| a. Glottal stop infixation | (medial) |
| b. Consonant insertion at clitic boundaries | (final) |
| c. Vowel assimilation after consonant insertion | (medial) |
| d. Distribution of native /dʒ/ | (medial) |
| e. Glottal stop insertion | (initial) |
| f. Consonant insertion in other Uab Meto varieties | (medial/final) |
| g. Non-etymological glottal stops | (medial) |

The obligatory CVCVC foot structure with empty C-slots allows us to account straightforwardly for consonant deletion in the basic M-form of words such as *kaut* → *kau* ‘papaya’ as occurring for the same reasons as consonant deletion in *muʔit* → *muiʔ* ‘animal; word final clusters of two consonants are not permitted in Amarasi.

4.5.2 The Morphological Rules

4.5.2.1 Metathesis

The phonological process required to generate the basic M-forms and M-forms before enclitics is metathesis. It is given in (75) below, which states that a C-slot and a V-slot

metathesise after a stressed V-slot. Before vowel initial enclitics this process is phonologically conditioned (Chapter 5). In other circumstances, metathesis expresses a morphological category. This is discussed in Chapters 6 and 7.

$$(75) \quad CV \rightarrow VC / \acute{V} _$$

In (75) I have included the phonological environment in which metathesis takes place; after a stressed V-slot. This is *not* the environment which triggers metathesis but rather the environment by which metathesis is constrained. As discussed in §3.4.1, stress predictably falls on the penultimate V-slot of a foot for all Amarasi words in all environments.

This phonological environment is included in (75) in order to constrain the transformational rewrite rule and to generate only attested forms.²⁰ A rule such as $V_1CV_2 \rightarrow V_1V_2C$ would be too powerful, logically being able to generate unattested forms such as CV_1V_2 , CV_2V_1 , V_2V_1C and V_2CV_1 . However, the rule in (75) generates only attested outputs.

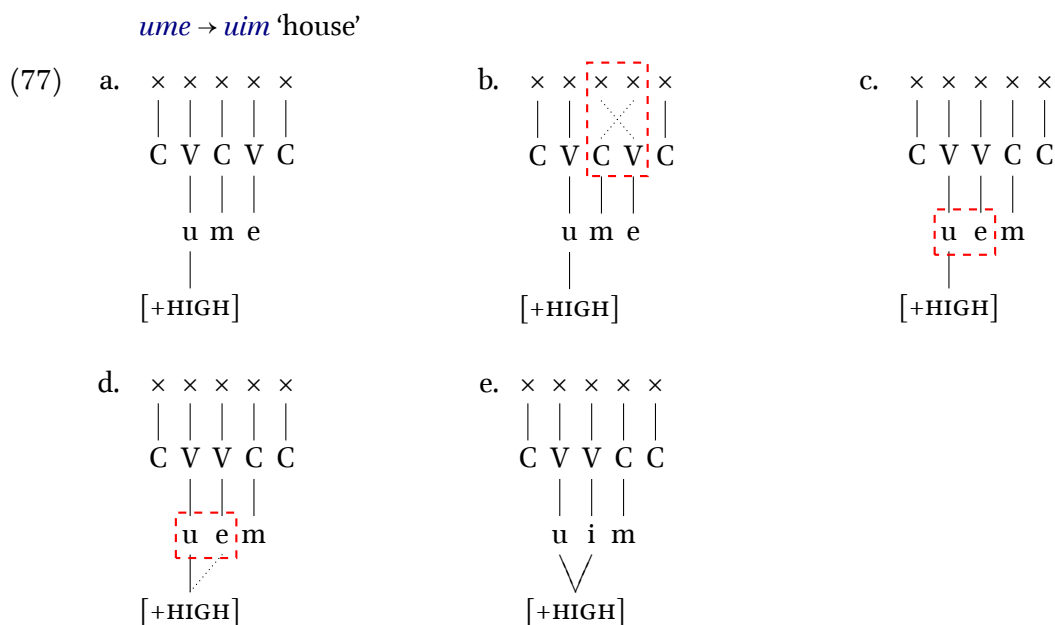
The operation of metathesis for the words *mu?it* ‘animal’, *kaut* ‘papaya’, *fafi* ‘pig’ and *ai* ‘fire’, is given in (76) below. (76a) shows the underlying U-form of each of these words. The word *ka_ut* has an empty medial C-slot, *fafi_* an empty final C-slot and *_a_i* three empty C-slots. In (76b) metathesis of the penultimate C-slot and final V-slot takes place. This results in a disallowed word final cluster of two C-slots in (76c). To resolve this, the final C-slot is deleted in (76d) producing the M-forms in (76e).

mu?it → *mui?* ‘animal’, *kaut* ‘papaya’, *fafi* → *faif* ‘pig’, *ai* ‘fire’

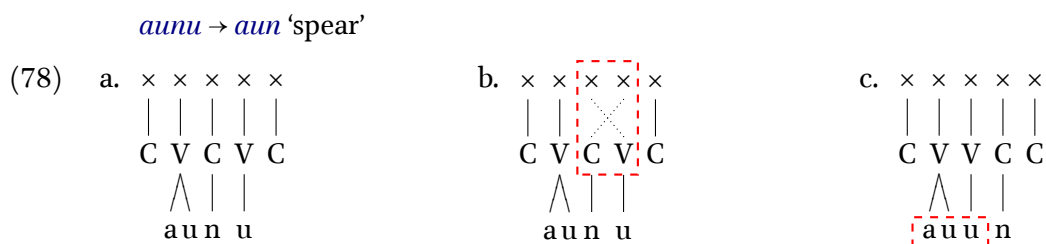
(76) a.	$\begin{array}{cccccc} \times & \times & \times & \times & \times & \\ & & & & & \\ C & V & C & V & C & \# \\ & & & & & \\ m & u & ? & i & t & \\ k & a & \emptyset & u & t & \\ f & a & f & i & \emptyset & \\ \emptyset & a & \emptyset & i & \emptyset & \end{array}$	b.	$\begin{array}{cccccc} \times & \times & \times & \times & \times & \\ & & & & & \\ C & V & C & V & C & \# \\ & & & & & \\ m & u & ? & i & t & \\ k & a & \emptyset & u & t & \\ f & a & f & i & \emptyset & \\ \emptyset & a & \emptyset & i & \emptyset & \end{array}$	c.	$\begin{array}{cccccc} \times & \times & \times & \times & \times & \\ & & & & & \\ C & V & V & C & C & \# \\ & & & & & \\ m & u & i & ? & t & \\ k & a & u & \emptyset & t & \\ f & a & i & f & \emptyset & \\ \emptyset & a & i & \emptyset & \emptyset & \end{array}$
d.	$\begin{array}{cccccc} \times & \times & \times & \times & \times & \\ & & & & & \\ C & V & V & C & \emptyset & \# \\ & & & & & \\ m & u & i & ? & t & \\ k & a & u & \emptyset & t & \\ f & a & i & f & \emptyset & \\ \emptyset & a & i & \emptyset & \emptyset & \end{array}$	e.	$\begin{array}{cccc} \times & \times & \times & \times \\ & & & \\ C & V & V & C \# \\ & & & \\ m & u & i & ? \\ k & a & u & \emptyset \\ f & a & i & f \\ \emptyset & a & i & \emptyset \end{array}$		

²⁰ This constraint is a typological constraint based on cross linguistic patterns of metathesis (§2.5.3).

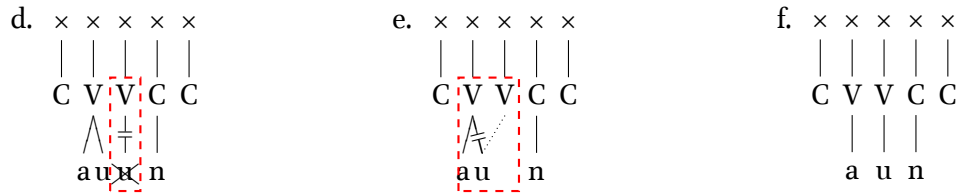
As discussed in §4.2.3.1, any final mid vowel will assimilate to the height of a previous high vowel after metathesis. This is an automatic process due to the fact that sequences of a high vowel and mid vowel are disallowed in Amarasi. This process is illustrated for *ume* → *uim* ‘house’ in (77) below. After metathesis in (77b), the feature [+HIGH] of the stressed vowel spreads in (77d) resulting in a sequence of two high vowels in (77e).



The vowel deletion seen in VVCV(C)# words such as *aunu* → *aun* ‘spear’ results from the operation of metathesis and the fact that Amarasi does not allow sequences of three vowels. This is illustrated in (78) below. Metathesis in (78b) results in a disallowed sequence of three vowels in (78c). As a result, the final vowel is deleted in (78d), with subsequent spreading of the adjacent vowel into the now empty V-slot in (78e).²¹



²¹ All examples of VVCV(C)# words in my corpus are ones in which the penultimate and final vowels are identical, or in which the final vowel is /a/ — which assimilates after metathesis (§4.2.3.2). Based on this data, we could posit that either the final or penultimate vowel is deleted, and the outcome would be identical. I propose the final vowel is deleted by analogy with deletion of the final C-slot to resolve word final consonant clusters. In the Molo variety of Uab Meto the word for ‘spear’ is *auni* (Middelkoop 1972). If Molo derives the basic M-form in the same way as Amarasi, my analysis predicts *auni* would have the M-form **aun*. If the M-form is in fact **ain* this would be comparative evidence that the penultimate vowel is deleted at step (78d).



4.5.2.2 Subtraction

As discussed in §4.3, the failure of metathesis to occur before modifiers which begin with a consonant cluster can be straightforwardly accounted for by a prohibition against a sequence of more than two C-slots; the result that would be produced by metathesis of the CVCVC foot in such an environment; i.e. $CVCVC\#CC \rightarrow CVVCC\#CC$.

However, consonant final forms do have M-forms before modifiers which begin with a consonant cluster. Such M-forms are formed through consonant deletion (§4.3), and can be generated by a morphological process of subtraction given in (79) below.

$$(79) \quad C \rightarrow \emptyset / _CC$$

The morphological process of subtraction in (79) operates when the following word is an attributive modifier. If the following modifier is predicative, epenthesis occurs as discussed in more detail in §4.3.2.

4.5.2.3 Assimilation of /a/

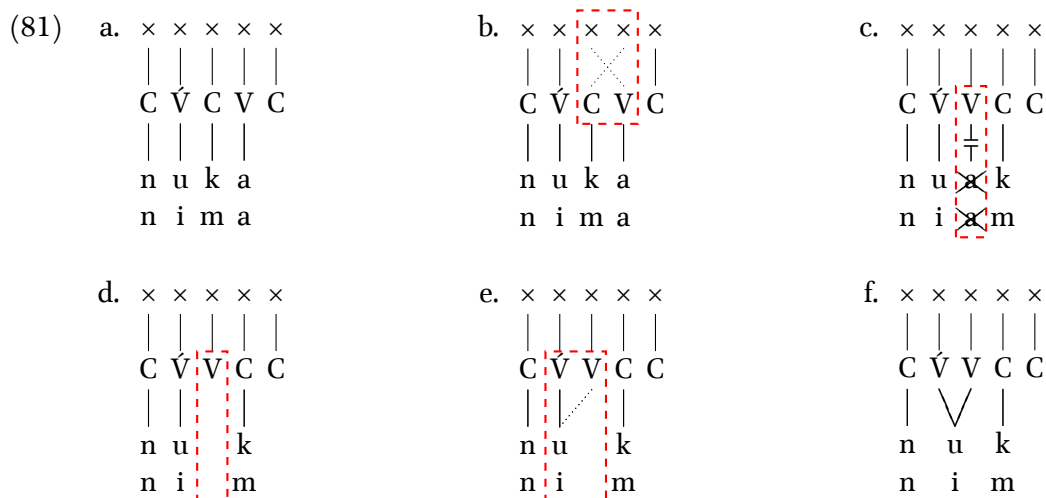
The morphological rule of metathesis triggers assimilation of final /a/, as seen in examples such as *nuka* → *nuuk* ‘grief’. This rule is given in (80) below. This rule states that the vowel /a/ de-links when it occurs immediately after a stressed V-slot and before a filled C-slot.

This is a morphemically conditioned process similar to umlaut in German plurals (§2.3). In German umlaut occurs in morphologically derived environments, such as in plurals. In Amarasī /a/ assimilation only occurs in a morphologically derived environment, the M-form.

$$(80) \quad \begin{array}{ccc} \hat{V} & V & C \\ | & \perp & | \\ & a & \end{array}$$

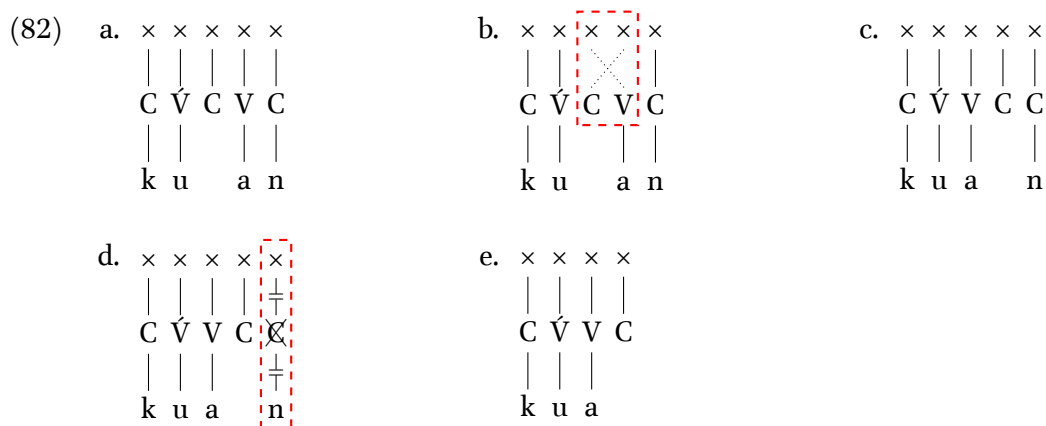
The formation of *nuka* → *nuuk* ‘grief’ and *nima* → *niim* ‘five’ is given in (81) below. Metathesis occurs in (81b), resulting in /a/ occurring after a stressed V-slot and before a filled C-slot. Thus, this vowel de-links in (81c), creating an empty V-slot into which the penultimate vowel spreads in (81e)–(81f).

nuka → *nuuk* 'grief', *nima* → *niim* 'five'



The rule of /a/ assimilation in (80) must be specified as occurring only before filled C-slots, as this assimilation is not observed in the M-form of words such as *kuan* → *kua* 'village', the formation of which is given in (82) below. Metathesis occurs in (82b), resulting in the vowel /a/ being found directly after the stressed vowel. However, the following C-slot is empty preventing the application of rule (80). The final C-slot is then deleted in (82d)–(82e). Examples such as this indicate that a vowel can be 'protected' by a following empty C-slot.

kuan → *kua* 'village'



The idea of vowels being protected by an empty C-slot finds comparative support from the Ro'is dialect of Amarasi. Ro'is Amarasi has a process whereby any unstressed /a/ optionally assimilates to the quality of the preceding stressed vowel, even in U-forms. The Ro'is Amarasi words in which this has been attested are given in Table 4.7 below.

All the words in which this has been attested end in a surface consonant; a filled C-slot. This assimilation has not been observed in words which end in a vowel; an empty C-slot. One example is Kotos *na-tfeka* Ro'is *na-tfera* (**na-tfere*) 'to decide'.

Table 4.7: Ro'is Amarasi Post-stress /a/ Assimilation

Kotos	Ro'is	
<i>ekam</i>	<i>erem, eram</i>	'wild pandanus'
<i>benas</i>	<i>fenes, fenas</i>	'machete'
<i>kenat</i>	<i>renet</i>	'weapons'
<i>okam</i>	<i>okom, okam</i>	'melon, gourd'
<i>ruman</i>	<i>rumun</i>	'empty'
<i>teka-f</i>	<i>tere-f</i>	'lungs'
<i>na-tenab</i>	<i>na-teneb</i>	'to think'
<i>utan</i>	<i>utuk, utak</i>	'vegetables'

While only the vowel /a/ assimilates in Amarasi M-forms, in some other Uab Meto varieties, all vowels assimilate in M-forms. Two such varieties in which this has been attested are Amfo'an and Baikeno. Examples from the Naitbelak dialect of Amfo'an are given in Table 4.8 below. This data can be accounted for by modifying rule (80) to delink any vowel, not just the vowel /a/.²²

Table 4.8: Assimilation of V₂ In Amfo'an (Naitbelak) M-forms

U-form	M-form		gloss
	Amarasi	Amfo'an	
<i>hitu</i>	<i>hiut</i>	<i>hiit</i>	'seven'
<i>n-inu</i>	<i>n-iun</i>	<i>n-iin</i>	'drink'
<i>na-kinu</i>	<i>na-kiun</i>	<i>na-kiin</i>	'spit'
<i>na-r/leko</i>	<i>na-reok</i>	<i>na-leek</i>	'is good'
<i>na-henu</i>	<i>na-heun</i>	<i>na-heen</i>	'fill'
<i>tenu</i>	<i>teun</i>	<i>teen</i>	'three'
<i>n-mani</i>	<i>n-main</i>	<i>a n-maan</i>	'laugh'
<i>n-mate</i>	<i>n-maet</i>	<i>a n-maat</i>	'die'
<i>n-hake</i>	<i>n-haek</i>	<i>a n-haak</i>	'stand'
<i>fanu</i>	<i>faun</i>	<i>faan</i>	'eight'

²² This vowel assimilation has resulted in the allophones of the mid vowels /e/ and /o/ becoming marginally contrastive in Amfo'an. As discussed in §3.2.1 (see particularly the examples in (3) on page 82), the mid vowels are realised as mid-high [e] and [o] before high vowels and as mid-low [ɛ] and [ɔ] elsewhere. In Amfo'an and Baikeno these vowels often retain this quality after assimilation of the conditioning vowel. This results in contrasts such as *na-leko* 'is good' → *na-leok* → *na-leek* → [na'le:k] and *na-henu* → *na-heun* → *na-heen* → [na'he:n]. Steinhauer (1993; 1996a;b) reports a similar phenomenon in his Miamafa data.

In my Amfo'an data assimilation of vowels other than /a/ appears to be optional. Forms such as *na-leko* → *na-leok* 'is good' occur alongside assimilated forms such as *na-leek*. Vowel assimilation is overwhelmingly the most common pattern in my data.

4.5.3 Alternate Analyses

In this section I consider the ways in which some alternate approaches would handle the Amarasi data. This discussion is primarily concerned with the structure of the basic M-form.

I consider three analyses that have been proposed for metathesis and associated phenomena in other languages: (i.) phonologically conditioned metathesis, similar to the analysis of Kwara'ae (§2.2.2) (ii.) metathesis as a response to vowel deletion, as has been proposed for Rotuman (§2.4.1.3.3), and (iii.) metathesis as a result of affixation with different consonant-vowel melodies, as has been proposed for Rotuman.

4.5.3.1 Phonologically Conditioned Metathesis?

Another approach to the Amarasi data would be to analyse the metathesis (and associated phonological processes) as phonologically conditioned; as a response to some other phonological environment.

While metathesis before vowel initial enclitics in Amarasi can be analysed as phonologically conditioned (Chapter 5), other instances of metathesis are not phonologically conditioned, since the conditions triggering these other metatheses are morphosyntactic. This is discussed in full detail in Chapter 6 where I show that nominal M-forms are triggered by syntactic structures and in Chapter 7 where I show that verbal U-forms and M-forms are triggered by discourse structures.

Other cases of synchronic consonant-vowel metathesis have been analysed as conditioned by stress (§4.5.3.1.1) and as conditioned by intonation (§4.5.3.1.2). Neither of these analyses can account for all of the Amarasi data.

4.5.3.1.1 Metathesis Conditioned By Stress In both Kwara'ae (§2.2.2) and Luang (§2.2.1) metathesis can be analysed as conditioned by stress. Heinz (2004) analyses Kwara'ae metathesis as a response to the need to make stressed syllables heavy. Similarly, Taber and Taber (2015) analyse Luang verbs as undergoing metathesis in order to join two words into a single rhythm segment with only one stressed syllable.

Amarasi nouns when followed by cardinal and ordinal numerals provide the clearest demonstration that metathesis of nouns in Amarasi cannot be analysed as phonologically conditioned. When followed by a cardinal number, nouns occur in the U-form. However, when followed by an ordinal number, nouns occur in the M-form. Examples are given in Table 4.9, which shows the noun *nenō* 'day' followed by cardinal numbers 1–6 and ordinal numbers 1–6. The ordinal numbers are those used for counting days and months, and are derived from the cardinal numbers with the addition of a glottal stop as a suffix or infix.

As can be seen from the phonetic transcriptions, or heard with the associated audio

Table 4.9: Amarasi Nouns and Numerals

Cardinal			Ordinal		
<i>nenō meseʔ</i>	[nɛnɔ'mɛsɛʔ]	☞ '1 day'	<i>neon meseʔ</i>	[nɛ.ɔn'mɛsɛʔ]	☞ 'Monday'
<i>nenō nua</i>	[nɛnɔ'nɔ.ɐ]	☞ '2 days'	<i>neon nua-ʔ</i>	[nɛ.ɔ'nɔ.ɐʔ]	☞ 'Tuesday'
<i>nenō teun</i> [†]	[nɛnɔ'tɛ.ɔn]	☞ '3 days'	<i>neon tenu-ʔ</i>	[nɛ.ɔn'tɛnɔʔ]	☞ 'Wednesday'
<i>nenō haa</i>	[nɛnɔ'ha:]	☞ '4 days'	<i>neon haa-ʔ</i>	[nɛ.ɔn'haʔ]	☞ 'Thursday'
<i>nenō niim</i>	[nɛnɔ'ni:m]	☞ '5 days'	<i>neon nima-ʔ</i>	[nɛ.ɔ'n:i:mɛʔ]	☞ 'Friday'
<i>nenō nee</i>	[nɛnɔ'ne:]	☞ '6 days'	<i>neon ne(ʔ)e</i>	[nɛ.ɔ'n:ɛʔɛ]	☞ 'Saturday' [‡]

[†] The default form for cardinal numerals is the M-form (Chapter 7).

[‡] The normal phrase for Sunday is *nenō krei* 'day + Church'. The phrase *neon hitu-ʔ* 'seventh day' occurs twice in the Amarasi Bible translation in Genesis 2.

files, there is no phonetic difference between each kind of phrase, with the exception of the metathesis of the noun and, where applicable, the addition of the glottal stop forming ordinal numbers. In every phrase the noun has two syllables and stress falls on the penultimate vowel of the numeral. Compare especially the phrase *nenō meseʔ* 'one day' with that of *neon meseʔ* 'Monday', in which the only difference is in the metathesis of the noun.

Such data all but rules out an analysis of metathesis before attributive modifiers as a side effect of some other phonological condition, unless we are willing to posit that different syntactic structures are associated with different abstract phonological structures — phonological structures with no phonological realisation.

4.5.3.1.2 Metathesis Conditioned by Intonation Based on preliminary data on a north-eastern variety of Uab Meto, McConvell and Kolo (1996) raise the possibility that metathesis in Uab Meto could be prosodically conditioned.²³ They noted that they had two examples of a U-form verb with falling or low pitch, and two examples of an M-form verb with rising or high pitch.

Table 4.10: Verbal Metathesis and Intonation

		U-form	M-form
rise	/	10	9
high	∟	14	15
mid	⊢	14	5
low	∟	2	10
fall	\	40	41

To test the hypothesis that metathesis in Amarasi could be conditioned by intonation,

²³ Thanks go to Patrick McConvell for providing me with his unpublished notes. Based on this material, the variety described appears to be Miamafa, Insana or Beboki.

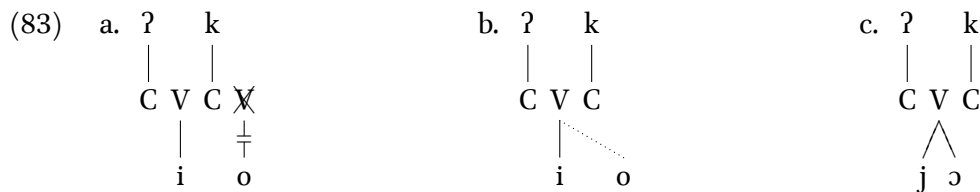
I took a random selection of 80 U-form verbs and 80 M-form verbs in different sentence positions from a number of natural texts. The pitch of each verb was recorded as either a rise, a fall, high, mid or low. The results are summarised in Table 4.10.

Table 4.10 shows that the pitch of both U-form and M-form verbs is remarkably similar. About half of both U-forms and M-forms have a falling pitch and about a quarter have a rising or high pitch. The only difference is in the frequency of mid pitch and low pitch, with M-forms occurring with a low pitch more frequently than U-forms — the opposite to what would be predicted by McConvell and Kolo’s preliminary hypothesis. This difference could be a result of the difficulty in consistently distinguishing between these two pitches in running text.

4.5.3.2 Vowel Deletion and Re-association

As discussed in §2.4.1.3.3 (beginning page 42) Besnier (1987) analyses metathesis in Rotuman as a result of vowel deletion with subsequent relocation of the floating vowel features leftwards.

The way this analysis works is illustrated with Rotuman *?iko* → *?jɔk* ‘thrust’ in (83) below. In (83a) the final V-slot is deleted. The vowel of this V-slot then re-associates leftwards in (83b). The final step is to convert the vowel /i/ into a glide in (83c) to allow both vowels to occupy the single V-slot.



This analysis is possible for Rotuman as in the modern language the metathesised forms have only a single syllable. This is not the case in Amarasi. As discussed in §3.3, in Amarasi each individual vowel forms the nucleus of its own phonemic syllable including both vowels in a metathesised word.²⁴

Furthermore, while some sequences of two vowels *do* phonetically coalesce into a single syllable in Amarasi, this is far from obligatory. Examples of metathesised words with a vowel sequence in which each vowel still forms the nucleus of its own phonetic syllable are given in (84) below. (Repeated from example (33) on page 95.)

²⁴ The only exception is VVCV(C)# final words in which the initial two vowels are assigned to a single V-slot. See §3.5.1.1 for more discussion.

(84) $V_1CV_2\# \rightarrow V_1V_2C\# \rightarrow [V.VC]$

\sqrt{toti}	<i>a n-toit</i>	[ʔan't _ɒ .i _t]	☞	'asks'
\sqrt{mani}	<i>a n-main</i>	[ʔan'ma.in]	☞	'laughs'
\sqrt{hake}	<i>a n-haek</i>	[ʔan'ha.ɛki]	☞	'stands'
\sqrt{fanu}	<i>faun</i>	[fa.ɔn]	☞	'eight'
\sqrt{tenu}	<i>teun</i>	[tɛ.ɔn]	☞	'three'

Given these facts, an analysis of the Amarasí data in which metathesis is a result of vowel deletion would be problematic. An analysis of metathesis as a result of vowel deletion may be appropriate for the modern day Rotuman data, but is not appropriate for the Amarasí data.

4.5.3.3 Affixation of Consonant-Vowel Melody

The final alternate analysis of metathesis in Amarasí I consider here is one in which the consonant-vowel template itself is a kind of affix which attaches to the segmental information of a word. Such an analysis would be similar to the analysis of Arabic verbal morphology in McCarthy (1981) or that of Rotuman metathesis proposed by Stonham (1994:160f).

Under this analysis, each consonant of an Amarasí word would be ordered with respect to each other consonant and each vowel would be ordered with respect to each other vowel, but consonants and vowels would not be ordered with respect to one another. An Amarasí word such as *fatu* ~ *faut* 'stone' could then be represented as either /ft,au/ or /au,ft/. This segmental information then combines with the appropriate consonant-vowel melody. This is shown in (85) below which makes explicit the concatenative nature of this analysis, and in (86) with autosegmental notation. The examples in (85a) and (86a) show U-forms and the examples in (85b) and (86b) show M-forms.

(85) a. /ft,au/ + CVCV → *fatu* 'stone\U'

b. /ft,au/ + CVVC → *faut* 'stone\M'

(86) a. $\begin{array}{cc} f & t \\ | & | \\ C & V & C & V \\ | & & | & \\ a & & u & \end{array}$

b. $\begin{array}{ccc} f & & t \\ | & & | \\ C & V & V & C \\ | & & | & \\ a & & u & \end{array}$

The examples in (85) and (86) show only the simplest case of a surface CVCV word. In the case of words with a final consonant, such as *muʔit* → *muiʔ* 'animal', we would need to specify the U-form melody as CVCVC instead of CVCV. In this case, the consonant deletion would come about due to the M-form melody not having enough C-slots for each of the consonants specified for the lexeme *muʔit*.

To deal with M-forms which involve only deletion of a surface consonant, such as *kaut* → *kau* ‘papaya’, we could call on empty C-slots to prevent the U-form from surfacing as **katu* and the M-form as **kaut*. Specifying the segmental inventory of such a word as /kØt,au/ would accurately produce the correct outcomes. Again, consonant deletion in M-forms would come about from the M-form melody not having sufficient C-slots for all the specified consonants, with the final C-slot being occupied by the null consonant.

To deal with /a/ assimilation seen in words such as *nuka* → *nuuk* ‘grief’ we would still be required to introduce an additional rule similar to that given in (80) above, which only operates in M-forms. This rule would introduce wrinkles associated with the M-form of words such as *kuan* → *kua* ‘village’ where such assimilation does not take place, but these wrinkles also exist under the analysis I adopted in §4.5.2.3.

An analysis of Amarasi metathesis as a result of affixation with different consonant-vowel melodies is possible for the basic M-forms. Similarly, such an analysis is possible for the M-forms found before enclitics. Given instances such as *mu?it* → *mui?t=e* ‘animal’, the M-form consonant-vowel melody before enclitics would be CVVCC. This melody then combines with the segmental information of the word in question. This is shown in (87) and (88) below for *mu?it* → *mui?t* ‘animal’.

- (87) a. /m?t,ui/ + CVCVC → *mu?it*
 ‘animal\U’
 b. /m?t,ui/ + CVVCC → *mui?t*
 ‘animal\M’

- (88) a. m ? t
 | | |
 C V C V C
 | |
 u i
- b. m ? t
 | | |
 C V V C C
 | |
 u i

An analysis of Amarasi metathesis in which this process is a result of affixation with different consonant-vowel melodies is possible. The selection of the appropriate melody would be determined by morphosyntactic criteria. Both a process-based analysis (as described in §4.5.2) and a concatenative analysis accurately describe the Amarasi data. Although some analysts may select their preferred analysis based mainly on their theoretical commitments, there are at least two ways in which the process-based analysis better fits the Amarasi data.

Firstly, the affixal approach to metathesis is completely unconstrained. Under this analysis there is no clear reason why the M-form melody has the shape CVVC instead of any other arbitrary shape.²⁵ The process-based analysis with a single rule of metathesis after

²⁵ The language-specific phonotactic structures of Amarasi would be one constraining factor.

stressed vowels ($CV \rightarrow VC / \acute{V}_-$) is highly constrained and provides a clear reason why the M-form has the shape CVVC.

An obvious defence of the concatenative analysis would be that there are indeed languages in which all sorts of consonant-vowel melodies *do* occur, such as Arabic or Miwok. However, there are sound typological and areal reasons for selecting the process-based analysis for the Amarasi data: languages such as Arabic are not found in the Timor region, while there *are* many languages in this region which have consonant-vowel metathesis. (Whether phonologically conditioned, morphemically conditioned or morphological.)

Secondly, as mentioned throughout this chapter and summarised explicitly in Table 4.5 (page 163) it is always possible to derive surface M-forms from U-forms, but not *visa-versa*. Thus, U-form \rightarrow M-form. Under a concatenative analysis, we simply have two affixes CVCVC (U-form) and CVVC (M-form), with no clear relationship between the two, and no apparent explanation for why one form predicts the latter but not *visa-versa*. With a process-based analysis this is simply because M-forms are formed from U-forms.

4.6 Conclusions: Metathetic Phonology

The five rules which generate all of the observed Amarasi M-forms are summarised from §4.5 and given in (89) below.

- (89) a. Ft. \rightarrow CVCVC
 b. $CV \rightarrow VC / \acute{V}_-$
 c. $C \rightarrow \emptyset / _CC$
 d. $a \rightarrow \emptyset / \acute{V}_C$
 e. $V_\alpha \rightarrow V_\alpha C_\alpha / _ = V$

Rule (89a) states that all feet have the structure CVCVC, this then requires that when no phonemic consonant is present, a C-slot is empty. Rule (89b) is the rule of metathesis, metathesising the C-slot and V-slot which follow the stressed V-slot. Rule (89c) is a rule of subtraction which generates the M-forms (\acute{m}) found before modifiers which begin with a consonant cluster. Both metathesis and subtraction are triggered by morphosyntactic structures of the language, as discussed in Chapter 6 and Chapter 7. Rule (89d) states that any /a/ which is directly preceded by a stressed V-slot and followed by a filled C-slot is deleted. This rule is triggered by metathesis. Rule (89e) is the rule of consonant insertion which generates voiced obstruents at the boundary of vowel initial enclitics. This rule is phonologically conditioned (§5.3).

All other phonological processes seen in Amarasi M-forms, are either accounted for by phonotactic constraints of the language (i.e. *CC#, *VVV), or by the general constraints

of autosegmental phonology, (i.e. vowel assimilation seen after consonant insertion and metathesis).

Amarasi U-forms and M-forms have different phonologies. M-forms have additional phonemes when compared with U-forms as well as different constraints on the occurrence of vowel sequences. The three main ways in which M-forms are phonologically different from U-forms are given in (90) below.²⁶

- (90) Unique M-form phonological properties:
- a. Obligatory vowel sequences
 - b. phonemes /dʒ/ and /gw/
 - c. *VaC (no sequences of a vowel and /a/ followed by a consonant)

Part of the reason for the different phonological structures of M-forms and U-forms is the fact that M-forms are derived from the U-forms. Thus, the M-form can always be predicted based on the U-form but the reverse is not always true. One concrete example is form *n-neen*, which is the M-form of both *n-nene* ‘pushes’ and *n-nena* ‘hears’.

4.6.1 Empty C-slots

In §4.5.1.3 I provided evidence independent of metathesis for the existence of empty C-slots in Amarasi. This evidence was summarised in (74) on page 174.

Amarasi is not an isolated example of a language with empty C-slots. Other languages analysed with empty C-slots include Turkish and Finnish (Clements and Keyser 1983), as well as the Mexican language Seri (Marlett and Stemberger 1983).

One way in which the empty C-slots in Amarasi differ from those of Turkish, Finnish and Seri, is that in each of these languages there are only a handful of words with empty C-slots, with these words behaving exceptionally due to the loss of a historic consonant.²⁷

However, empty C-slots in Amarasi are different in several respects. Firstly, empty C-slots are not restricted to a lexically specified sub-set of words, but are found in any word whose final foot does surface as CVCVC. Secondly, empty C-slots in Amarasi have not arisen from the loss of a historic consonant. To take just two examples, the word *_asu_* ‘dog’ with an empty initial and final C-slot is a reflex of proto-Austronesian **asu* without any consonants in these positions. Likewise, Amarasi *fu_a-f* ‘fruit’, with an empty medial C-slot, is a reflex of proto-Austronesian **buaq* without any medial consonant (Blust and Trussel ongoing). Instead, empty C-slots in Amarasi have arisen from the highly constrained CVCVC foot structure of the language.

²⁶ In Ro’is Amarasi M-forms are further differentiated from U-forms by the fact that consonant clusters are permitted word finally in M-forms, but not in U-forms.

²⁷ In Turkish there is comparative evidence that this consonant was /ɣ/, and it is still represented orthographically as the so-called *yumuşak ge*: <ğ>.

4.6.2 Origins of Amarasi Metathesis

As discussed in §2.5.1.1 Blevins and Garrett (1998), propose a number of ways in which a language can acquire a synchronic process of metathesis through a number of phonetically natural steps. Under their account the kind of metathesis seen in Amarasi is compensatory metathesis, which arose originally in certain prosodically conditioned environments:

Compensatory metatheses originate when VCV sequences are pronounced with extreme coarticulation of one vowel, resulting in a seepage or shift of that vowel to the other side of the medial consonant. This extreme form of coarticulation occurs in syllables which are already long due to stress. The peripheral unstressed vowel, whose cues are now primarily on the opposite side of the consonant, withers into a reduced form, and is ultimately lost. The migration of the peripheral vowel across the intervening consonant into tonic position is complete. (Blevins and Garrett 1998:529)

Under this account a noun such as *fatu* ‘stone’ goes through a process like that illustrated in (91) below. This process would only occur in certain prosodic environments, with the end result that the forms *fatu* and *faut* are found in different phonological environments.

(91) *fatu* > **fautu* > **fautũ* > *faut*

In (Kotos) Amarasi only the first stage (*fatu*) and the final stage (*faut*) are attested. If this is indeed the process that gave rise to metathesis in Amarasi, we would expect to find data attesting the hypothesised medial stages. I have collected comparative data from other varieties of Uab Meto in which the hypothesised medial stages are attested.

Table 4.11: Ro'is Amarasi Stressed V-slot Diphthongisation

U-forms		M̄-form	
Kotos	Ro'is	Kotos	
<i>anet</i>	<i>aenet</i>	<i>aent=</i>	‘needle’
<i>n-matek</i>	<i>n-maetek</i>	<i>maetk=</i>	‘is numb’
<i>masik</i>	<i>maisik</i>	<i>maisk=</i>	‘salt’
<i>n-manis</i>	<i>n-mainis</i>	<i>mains=</i>	‘laughs at s.o.’
<i>hunik</i>	<i>huinik</i>	<i>huink=</i>	‘turmeric’
<i>munif</i>	<i>muinif</i>	<i>muinf=</i>	‘young’
<i>esuk</i>	<i>eusuk</i>	<i>eusk=</i>	‘mortar’
<i>tenuk</i>	<i>teunuk</i>	<i>teunk=</i>	‘umbrella’
<i>n-kiʔun</i>	<i>n-kiuʔun</i>	<i>n-kiuʔn=</i>	‘shakes one’s head’
<i>aruk</i>	<i>auruk</i>	<i>aurk=</i>	‘k.o. small bag’
<i>kbatus</i>	<i>kbautus</i>	<i>kbauts=</i>	‘k.o. sea snail’
<i>manus</i>	<i>maunus</i>	<i>mauns=</i>	‘betel pepper’

Intermediate stages with an initial diphthong and final full vowel (i.e. *fautu) are found in the Ro'is dialect of Amarasi. In Ro'is Amarasi the U-form of certain consonant final nouns shows the predicted spread of the final vowel to the first syllable.²⁸ Examples are given in Table 4.11 above, which shows Kotos Amarasi U-forms, Ro'is Amarasi U-forms and the Kotos Amarasi M-forms before enclitics.

The second intermediate stage, showing forms with a reduced final vowel (i.e. *fautŭ), is found in (some varieties of) Fatule'u. (The Fatule'u data presented is from the hamlet of Bineon-Koa' in the village of Nunsanen.) In Fatule'u, roots with a final back vowel /u/ or /o/ 'metathesise' when cited to a form with a medial double vowel and with a non-syllabic final back vowel, with /u/ → [w] and /o/ → [ɔ]. Examples are given in Table 4.12 below.

Table 4.12: Fatule'u Metathesised Forms[†]

U-form	M-form	phonetic		Amarasi	gloss
<i>tenu</i>	<i>teenw</i>	[t̪eːnw]	🔊	<i>teun</i>	'three'
<i>hitu</i>	<i>hiitw</i>	[hiːt̪w]	🔊	<i>hiut</i>	'seven'
<i>t-kisu</i>	<i>a t-kiisw</i>	[ʔet̪ˈkiːsw]	🔊	<i>t-kius</i>	'we see'
<i>t-mofu</i>	<i>a t-moofw</i>	[ʔet̪ˈmoːfw]	🔊	<i>t-mouf</i>	'we fall'
<i>ta-kinu</i>	<i>ta-kiinw</i>	[t̪ak̪iːnw]	🔊	<i>ta-kiun</i>	'we spit'
<i>ta-kano</i>	<i>ta-kaonɔ</i>	[t̪ak̪aːnɔ]	🔊	<i>ta-kaon</i>	'we plait'
<i>na-mnanu</i>	<i>na-mnaanw</i>	[nɛmˈnaːnw]	🔊	<i>na-mnaun</i>	'is long'
<i>na-ʔapu</i>	<i>na-ʔaapw</i>	[naˈʔap̪w]	🔊	<i>na-ʔapuʔ</i>	'is pregnant'

[†] The Fatule'u recordings were made in an Indonesian village with all the associated noise such an environment entails. It was also raining during recording.

Phonetically, such final non-syllabic vowels are realised by the organs of the mouth taking the correct position for the articulation of the root final vowel, but without any subsequent vibration of the vocal cords. When the final consonant is a voiceless plosive there is also a subsequent puff of air. After other consonants there is no (clear) additional sound or air expelled. Visually it was quite clear during recording that my informant rounded his lips after the root final consonant.²⁹ The realisation of word final [w] in Fatule'u appears to match very closely the description of Selaru word final /w/ in Coward and Coward (2000:21). Timaus also shows a similar pattern to Fatule'u, with words such as *tenu* 'three' having the M-form *teenw*.

The Ro'is Amarasi and Fatule'u data attest the intermediate stages between unmetathesised forms (*fatu*) and metathesised forms (*faut*) predicted by Blevins and Garrett (1998) for the development of compensatory metathesis, one pathway by which a language can acquire

²⁸ Vowel spread is not attested in Ro'is when the U-form ends in /ʔ/, when the final vowel is lower than the penultimate vowel, and when both vowels are mid vowels. See §3.5.1.1 for more discussion.

²⁹ Such word final glides were also perceived by Heronimus Bani (my main Amarasi informant) who accompanied me to the village where I collected this Fatule'u data. In discussions with him afterwards he described his perception of the sound as "A u sound which is almost lost, but still there".

synchronic metathesis. If metathesis arose in Amarasi according to this scenario, the large number of roots which end in (C)VCV(C)# — 79% (1,338/1,696) of my current corpus — was a necessary precondition for its development and spread in the language.

The final stage in the development of Amarasi metathesis was for the prosodic environments in which each form occurred to be reinterpreted as different morphological environments (Chapters 6 and 7). This creation of a paradigm of morphological metathesis led to the imposition of the CVCVC# template to all words of the language in order to provide the necessary machinery for consonant-vowel metathesis to operate and thereby allow each word to fill both cells of the morphological paradigm. Metathesis has thus taken over the phonology of the language and become the central organising principle by which words are phonologically structured.

Chapter 5

Phonologically Conditioned Metathesis

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5.1 Introduction

In this chapter I discuss the use of M-forms (metathesised forms) before vowel initial enclitics. Such M-forms occur only in a specific phonological environment and it is possible to analyse them as being phonologically conditioned by this environment. Three phonological processes are triggered before vowel initial enclitics, summarised in (1) below.

- (1) Processes at Enclitic Boundaries
- a. Metathesis
 - b. Consonant Insertion
 - c. Vowel Assimilation

Metathesis is triggered by CRISP-EDGE; the need to keep the clitic and its host phonologically distinct (§5.2). Consonant insertion is triggered by the need for morphemes to have an onset consonant (§5.3). Vowel assimilation is triggered by metathesis occurring after consonant insertion (§5.4).

The vowel initial enclitics which trigger these processes are given in Table 5.1. The enclitics *=i*, *=ein* and *=e* have slightly different uses when attached to verbs than they do with nouns. The enclitic *=ein* displays some complex allomorphy and is associated with an unusual process of consonant insertion (§5.6). The function and syntactic behaviour of most of these enclitics is discussed in Chapter 6.

Table 5.1: Amarasi Vowel Initial Enclitics

Form	Gloss	Use
<i>=i</i>	1DET	definite referent near/relevant to speaker
	1DET	raises discourse prominence
<i>=an</i>	2DET	definite referent near/relevant to addressee
<i>=e</i>	3DET	definite referent near/relevant to a third person
	3SG.ACC	third person P argument (object) of verb
<i>=a</i>	0DET	definite referent near/relevant to no one (a kind of obviative)
<i>=ein</i>	PL	definite plural
	PL	third person plural verbal argument (S/A/P)
<i>=es</i>	one	indefinite singular; the numeral one (1)
<i>=en</i>	INCEP	inceptive, beginning of state/event
<i>=ah</i>	just	restrictive
<i>=o-n</i>	REFL	reflexive

The structure of the M-form before these vowel initial enclitics has been briefly discussed in §4.4 above. The forms are summarised in Table 5.2 below according to the nine unique surface phonotactic shapes of U-forms which can be identified. The different M-forms in

Table 5.2: Amarasi M-forms before Enclitics

	U-form		M-form	U-form		M-form	gloss
1.	$V_{1\alpha}C_1V_{2\beta}$	→	$V_{1\alpha}V_{\alpha}C_1C_{\beta}$	<i>fafi</i>	→	<i>faafɔ̃=</i>	‘pig’
2.	$V_1C_1V_2C_2$	→	$V_1V_2C_1C_2$	<i>muʔit</i>	→	<i>muiʔt=</i>	‘animal’
3.	$V_{1\alpha[+HIGH]}C_1V_{2\beta[+MID]}$	→	$V_{1\alpha}V_{\alpha}C_1C_{\beta}$	<i>ume</i>	→	<i>uumɔ̃=</i>	‘house’
4.	$V_{1\alpha}C_1a_2(C_2)$	→	$V_{1\alpha}V_{\alpha}C_1(C_2)$	<i>nuka</i>	→	<i>nuuk=</i>	‘grief’
5.	$V_1V_2C_1V_{3\alpha}$	→	$V_1V_2C_1C_{\alpha}$	<i>aunu</i>	→	<i>aungw=</i>	‘spear’
6.	$V_1V_2C_1V_3C_2$	→	$V_1V_2C_1C_2$	<i>nautus</i>	→	<i>nauts=</i>	‘beetle’
7.	$V_1V_2C_1$	→	$V_1V_2C_1$	<i>kaut</i>	→	<i>kaut=</i>	‘papaya’
8.	$V_{1\alpha}V_{2\beta}$	→	$V_{1\alpha}V_{\alpha}C_{\beta}$	<i>ai</i>	→	<i>aadɔ̃=</i>	‘fire’
9.	$V_1C_1V_2-ʔ$	→	$V_1V_2C_1$	<i>mabe-ʔ</i>	→	<i>maeb=</i>	‘time’

Table 5.2 are *completely* predictable based on the corresponding U-form, while the M-forms are not fully predictive of the U-forms, as discussed in §4.6.

In this chapter I describe each of these M-forms in detail and analyse the ways in which these M-forms are formed from the U-form. This analysis has two fundamental elements: morphemes should begin with a consonant and clitic hosts and enclitics should be phonologically separate from one another.

In accordance with the terminological definitions given in §1.5, the term ‘word’ throughout this chapter refers to the minimal phonological string which can occur in isolation. A clitic host and enclitic form a single word.

5.2 Metathesis

Metathesis is obligatorily triggered before vowel-initial enclitics. Examples of CVC# final stems before the enclitic =*e* are given in (2) below. In each example metathesis of the penultimate consonant and final vowel occurs before the enclitic.

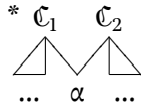
(2) ... $V_1C_1V_2C_2$ → ... $V_1V_2C_1C_2$ =

<i>ramup</i>	→	<i>raump=e</i>	‘lamp’	<i>poʔon</i>	→	<i>poʔn=e</i>	‘garden’
<i>muʔit</i>	→	<i>muiʔt=e</i>	‘animal’	<i>oʔof</i>	→	<i>ooʔf=e</i>	‘pen, corral’
<i>tenuk</i>	→	<i>teunk=e</i>	‘umbrella’	<i>manus</i>	→	<i>mauns=e</i>	‘betel vine’
<i>tenoʔ</i>	→	<i>teonʔ=e</i>	‘egg’	<i>anah</i>	→	<i>aanh=e</i>	‘child’
<i>ukum</i>	→	<i>uukm=e</i>	‘cuscus’	<i>motor</i>	→	<i>mootr=e</i>	‘motorbike’

The metathesis found in M-forms before enclitics is analysable as a result of a crisp edge constraint; the clitic host and following enclitic should be phonologically separate from one another. This constraint prohibits a single element from being linked to more than one prosodic category. It is given in (3) below, as first described by Itô and Mester (1999:208).

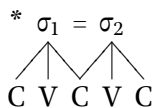
(The symbol ‘C’ represents a prosodic category such as a foot, syllable or prosodic word and ‘α’ is an element which is linked to more than one prosodic category.)

- (3) CRISP-EDGE: ‘Multiple linking between prosodic categories is prohibited’



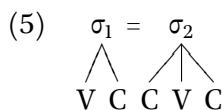
The Amarasi constraint is CRISP-EDGE[=σ], given in (4) below, which prohibits elements from being linked to more than one syllable across a clitic boundary. Note that such dual linking *is* allowed within morphemes and at affix boundaries. The reason a fuzzy border is not allowed at clitic boundaries is because an enclitic and its host are the head of separate syntactic phrases, while an affix and its stem form a single syntactic head. Clitic boundaries are visible at the syntax-phonology interface, while affix boundaries are not.

- (4) CRISP-EDGE[=σ]: ‘Multiple linking of syllables at clitic boundaries is prohibited’



Stated positively, (4) means that the ambisyllabic consonant shared between the final syllable of the clitic host and the initial syllable of the enclitic should be linked to only one of these syllables.

This is achieved by CV → VC metathesis. Metathesis results in a syllable final cluster. Because final consonant clusters are not allowed in Amarasi, the final consonant delinks from the previous syllable, but remains linked to the final syllable. This yields the structure in (5) below, in which neither syllable shares a segment and there is a clear separation between each at the clitic boundary.



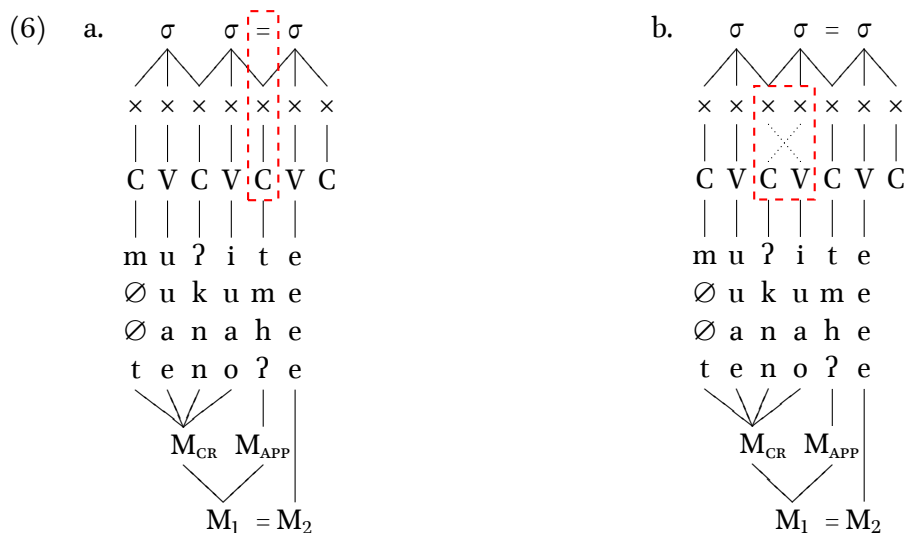
Metathesis ‘pushes’ the final consonant of the final syllable of the clitic host out of this syllable and into the initial syllable of the following enclitic, thus creating a crisp edge at the clitic boundary.

This analysis is illustrated in (6) below for four consonant final stems; *mu?it* → *mui?t=e* ‘animal’, *ukum* → *uukm=e* ‘cuscus’, *anah* → *aanh=e* ‘child’, and *teno?* → *teon?=e* ‘egg’.

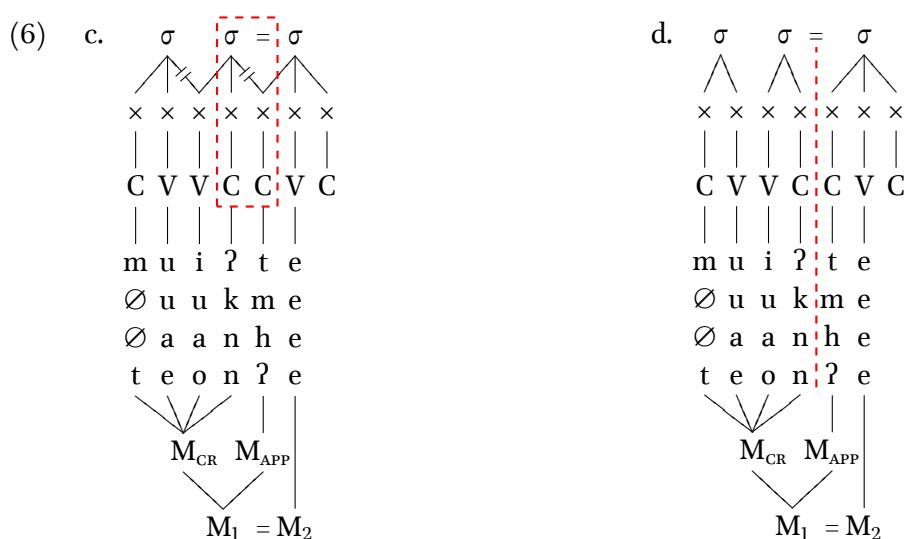
Example (6a) shows the underlying syllable and morphological structure of each of these words before metathesis takes place. The final consonant of the host is a morpheme appendix, which is not fully integrated into the morphological structure of the root (§3.5.6). Each syllable has the structure CVC with consonants at syllable boundaries being

ambisyllabic (§3.3).¹ This includes the final consonant of the host which is shared between syllables of both the clitic host and the enclitic; there is a fuzzy phonological border between the host and enclitic. Because this is not allowed, metathesis occurs in (6b).

mu?it + =e ‘animal’, *ukum* + =e ‘cuscus’, *anah* + =e ‘child’, *teno?* + =e ‘egg’



Metathesis creates a syllable final consonant cluster in (6c) which is resolved by the final consonant delinking from this syllable. Because this consonant was ambisyllabic, it remains linked to the following syllable. This yields the structure in (6d) in which the final syllable of the first morpheme (the host) and the initial syllable of the second morpheme (the enclitic) are phonologically separate from one another. There is a crisp edge at the phonological tier between the host and enclitic, indicated by the dashed line.

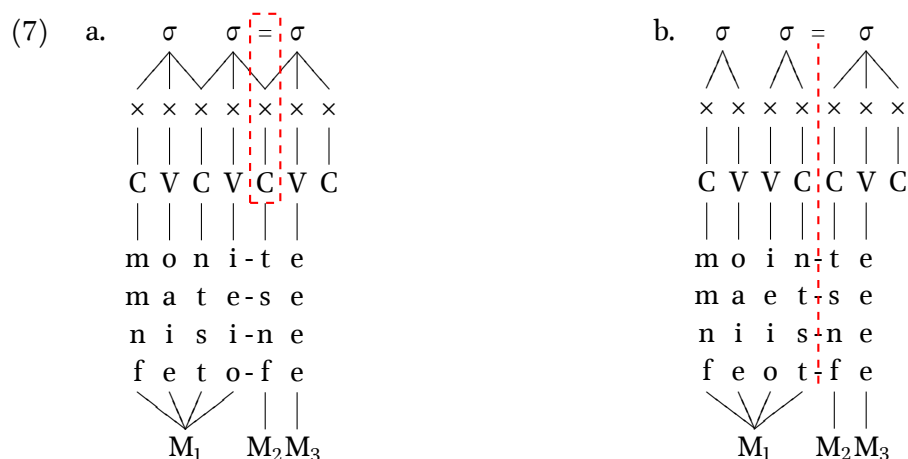


¹ Evidence for the final empty C-slot of the enclitic comes from the consonant insertion which occurs here when another enclitic follows (§5.7).

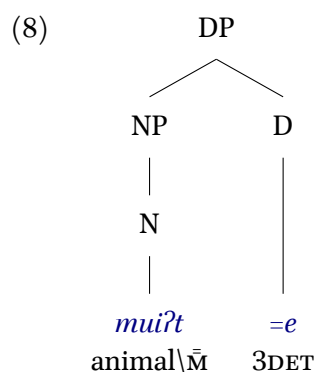
In the case of root final consonants, as in (6) above, metathesis results in a mismatch between the phonological and morphological structures of the clitic host and enclitic. While the final consonant is morphologically a member of the clitic host, phonologically it is a member of the enclitic. Such a mismatch is permissible as root final consonants are not fully integrated into the morphological structure of the root, as discussed in §3.5.6.

Such a mismatch does not occur when the final consonant of the host is a suffix. The structures of four stems with a final suffix and vowel initial enclitic are shown in (7) below; both before metathesis in (7a) and after metathesis in (7b). Words shown include two verbs with the nominalising suffix *-t/-s* (§3.6.3.4), *moni-t* ‘live-NML’ and *mate-s* ‘die-NML, and two nouns with a genitive suffix (§3.6.3.1), *nisi-n* ‘tooth-3SG.GEN’ and *feto-f* ‘mZ-KIN.GEN’.

moni-t + =e ‘life’, *mate* + =s ‘death’, *nisi-n* + =e ‘tooth’, *feto-f* + =e ‘sister’



Multiple linking across clitic boundaries is prohibited because clitics form the head of a separate syntactic phrase to the host. This syntactic separation is reflected by a phonological separation. The syntactic structure of a noun and determiner phrase such as *muiʔt=e* ‘the animal’ is given in (8) below. The determiner is the head of a determiner phrase and the noun is the head of a noun phrase. (See Chapter 6, particularly §6.5.2, for more details on the structure of the nominal and determiner phrase.)

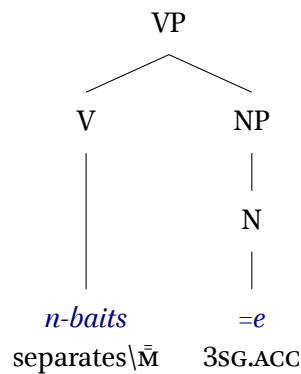


When attached to verbs, the enclitic =e marks a third person object. Such enclitics are the pronominal head of a noun phrase. Some examples are given in (9) below, with the third person prefix *n-/na-* attached. The syntactic structure of the verb and object phrase *n-baits=e* ‘separates it’ is given in (10) below. (See §6.7 for details on the structure of the verb phrase.)

(9) ...V₁C₁V₂C₂ → ...V₁V₂C₁C₂=V

<i>na-nani?</i>	+	=e	→	<i>na-nain?</i> =e	‘moves it’
<i>na-ʔkoro?</i>	+	=e	→	<i>na-ʔkoro?</i> =e	‘hides it’
<i>na-barab</i>	+	=e	→	<i>na-baarb</i> =e	‘prepares him/her’
<i>n-batis</i>	+	=e	→	<i>n-baits</i> =e	‘separates it’
<i>n-oʔen</i>	+	=e	→	<i>n-oeʔn</i> =e	‘calls to him/her’

(10)



Metathesis before vowel initial enclitics results from a mismatch between the syntactic and phonological structure. A clitic host and enclitic are a single phonological word, but are two separate syntactic heads. There is a fuzzy phonological border between two separate syntactic heads. Metathesis eliminates the fuzzy border at the phonological level, thus reflecting phonologically the syntactic separateness of the clitic host and enclitic.

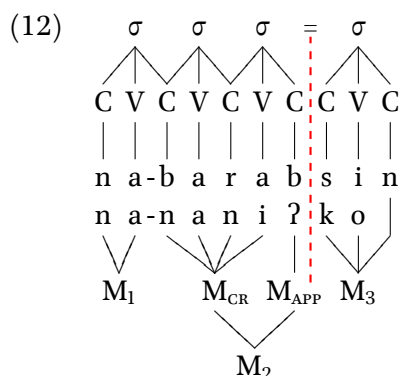
Metathesis is only triggered by vowel initial enclitics. Examples of consonant initial enclitics before which metathesis does not take place are given in (11) below, which shows a number of verbs with consonant initial pronominal enclitics attached.²

(11) ...VCVC → ...VCVC=C

<i>na-fani-ʔ</i>	+	=ko	→	<i>na-fani-ʔ=ko</i>	‘returns (it) to you’
<i>na-nani?</i>	+	=ko	→	<i>na-nani?</i> =ko	‘moves you’
<i>na-ʔkoro?</i>	+	=kau	→	<i>na-ʔkoro?</i> =kau	‘hides me’
<i>na-barab</i>	+	=sin	→	<i>na-barab=sin</i>	‘prepares them’
<i>n-batis</i>	+	=kit	→	<i>n-batis=kit</i>	‘separates us (incl.)’
<i>n-oʔen</i>	+	=kit	→	<i>n-oʔen=kit</i>	‘calls to us (incl.)’
<i>n-ʔukur</i>	+	=kai	→	<i>n-ʔukur=kai</i>	‘assesses us (excl.)’

² Vowel final verbs can occur in the U-form or M-form before consonant initial enclitics. Which form the verb takes is driven by discourse structures, as discussed in Chapter 7.

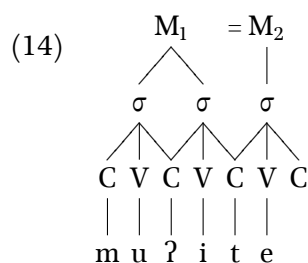
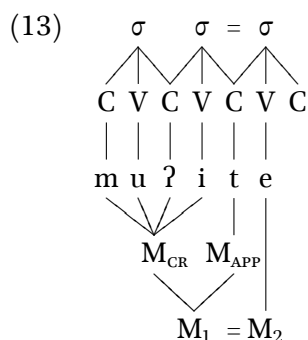
The lack of metathesis before consonant initial enclitics is due to there already being a crisp edge between such an enclitic and its host. The structures of the words *na-barab=sin* ‘prepares them’ and *na-nani?-ko* ‘moves you’ are given in (12) below, which shows that no segments are shared between the final syllable of the host and the syllable of the enclitic. The two morphemes are already phonologically separate.



Metathesis is also not triggered by affixes, such as the verbal agreement prefix *na-* or the transitive suffix *-?* in examples such as *na-fani?-ko* ‘returns (it) to you’. While affixes are separate morphemes from the stem to which they attach, they are not syntactically separate from the stem.

Metathesis before vowel initial enclitics is syntactically driven, but phonologically conditioned. This metathesis is different to the metathesis before attributive modifiers described in Chapter 6. Metathesis before attributive modifiers is both syntactically driven *and* syntactically conditioned.

In the remaining sections of this chapter the representation of the morphological structure of words is usually simplified in my autosegmental diagrams. The internal structure of roots with a final consonant is not shown and the morphological tier is shown above the phonological tier with morphemes linked to syllables rather than segments. The complete representation of *mu?it=e* ‘the animal’ before metathesis is shown in (13) below which can be compared with the simplified version in (14).



5.3 Consonant Insertion

When a vowel initial enclitic is attached to a vowel final stem, a consonant conditioned by the final vowel of the stem is inserted. After the front vowels /i/ and /e/ the inserted consonant is /dʒ/. After the back rounded vowels /u/ and /o/ the inserted consonant is /gw/. Examples are given in (15) below. (Consonant insertion after /a/ is discussed in §5.5 below.)

(15) $VV[+\alpha\text{PLACE}]=V \rightarrow VVC[+\alpha\text{PLACE}]=V$

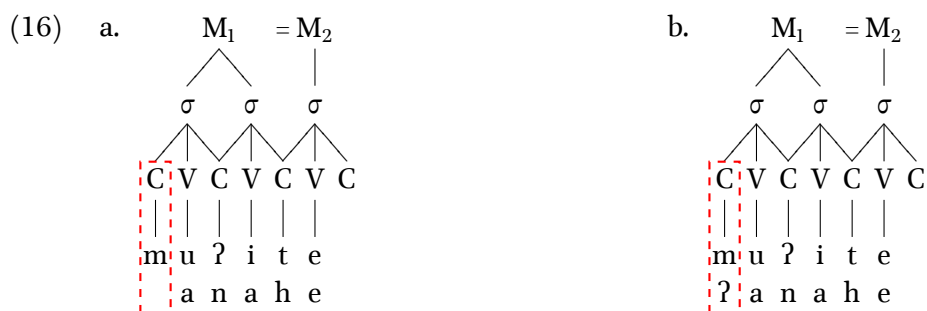
<i>nii</i>	+	=e	→	<i>nii</i> dʒ =e	‘the pole’
<i>fee</i>	+	=e	→	<i>fee</i> dʒ =e	‘the wife’
<i>kfiuu</i>	+	=e	→	<i>kfiuu</i> gw =e	‘the star’
<i>oo</i>	+	=e	→	<i>oo</i> gw =e	‘the bamboo’

This consonant insertion takes place because morphemes in Amarasii require an onset consonant. This is a very common requirement cross linguistically (McCarthy and Prince 1993, Prince and Smolensky 2004:111f), and is also the reason vowel initial words automatically begin with a glottal stop (§3.8.1). Consonant insertion provides enclitics with an initial consonant.

When an enclitic is attached to a clitic host, the final C-slot of the host is ambisyllabic and is shared between the host and enclitic. When the clitic host is consonant final, this consonant is shared between both morphemes and is thus both the coda of the clitic host and the onset of the enclitic. This is illustrated in (16) below for the words *muʔit* → *muʔit=e* ‘animal’ and *anah* → *anah=e* ‘child’. In each instance the final consonant of the host is both the coda of this morpheme and the onset of the enclitic.

However, in the case of *anah* ‘child’ the first morpheme (the clitic host) begins with an empty C-slot. Because morphemes require an initial consonant, a glottal stop is inserted in (16b). The glottal stop is the default word initial consonant (§3.8.1). Metathesis would then take place in each of these words as described in §5.2 above.

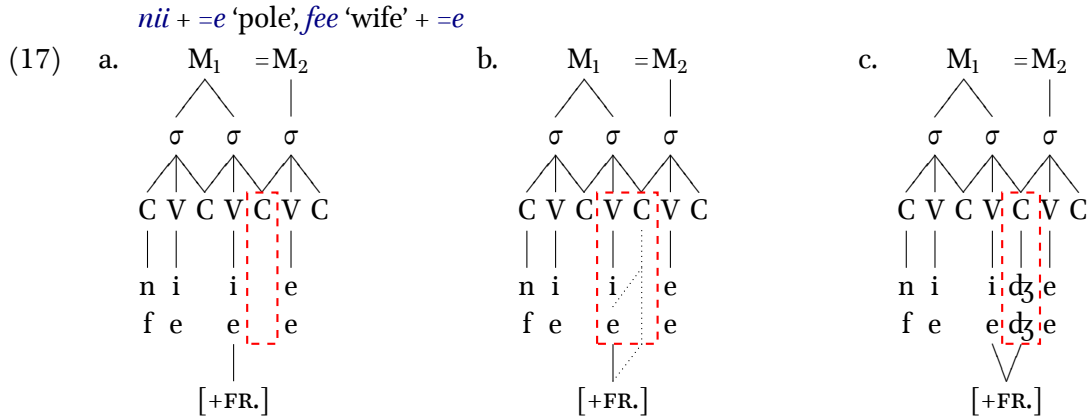
muʔit ‘animal’, *anah* ‘child’



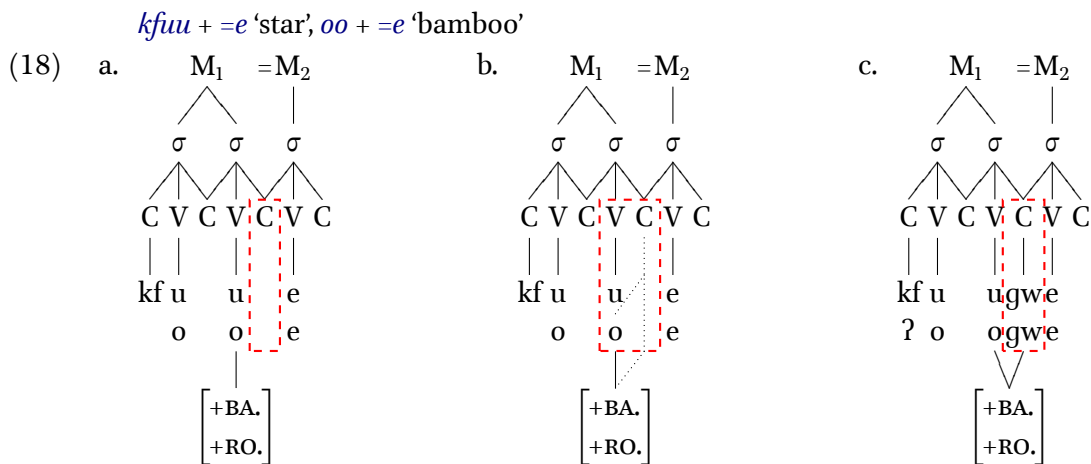
Instead of inserting a glottal stop, empty C-slots which are word medial at clitic boundaries are usually filled by vowel features spreading. Before vowel initial enclitics this

results in either /dʒ/ or /gw/, depending on the quality of the vowel which spreads. The way this works is illustrated in (17) below for the words *nii* → *niiɟ=e* ‘pole’ and *fee* → *feeɟ=e* ‘wife’.

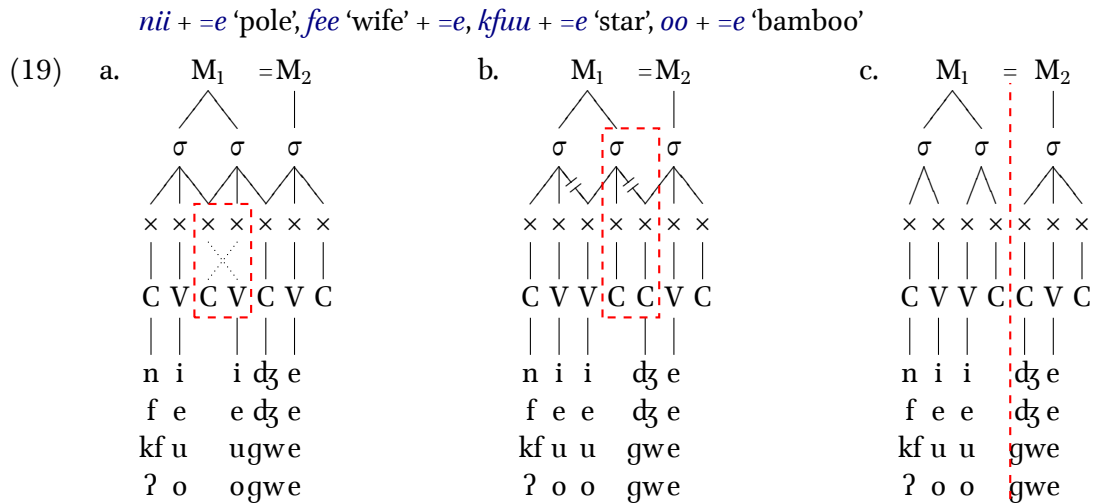
Example (17a) shows the structure of these words before metathesis. The final C-slot of the enclitic host is empty. Because this C-slot is ambisyllabic and shared with the enclitic, this means the enclitic does not have an onset consonant. In order to resolve this, the feature [+FRONT] of the previous V-slot spreads in (17b), resulting in the consonant /dʒ/ in (17c).



The process is the same when /gw/ is inserted. This is shown for *kfiu* → *kfiugw=e* ‘star’ and *oo* → *oogw=e* ‘bamboo’ in (18) below. In (18a) the initial C-slot of the enclitic is empty. As a result, the features [+BACK,+ROUND] of the previous vowel spread in (18b) producing the consonant /gw/ in (18c). The word initial empty C-slot in *oo* ‘bamboo’ is also filled by a glottal stop in (18c).



The newly inserted consonant in both (17) and (18) is shared between syllables of the clitic host and enclitic. This is resolved by metathesis, as shown in (19) below. Metathesis results in a syllable final sequence of two C-slots in (19b). This is resolved by the final C-slot de-linking from this syllable, but remaining linked to the following syllable, yielding the structure in (19c) with a crisp edge. (See §5.2 for a full discussion of such metathesis.)



For words which contain a surface vowel sequence, the C-slot affected by metathesis is empty. As a result, metathesis has no discernible effect on the surface structure of such words. However, in §5.4 I show that we can still detect metathesis for words in which the surface vowel sequence involves vowels of different qualities.

5.3.1 Location of the Inserted Consonant

Amarasi consonant insertion can be analysed as a result of vowel features spreading into an adjacent empty C-slot. However, this empty C-slot could logically originate with the clitic host, or the enclitic. There are at least five reasons for analysing this empty C-slot as originating with the clitic host rather than the enclitic:

- i. There are varieties of Uab Meto in which consonant insertion occurs with no enclitic present (§4.5.1.3.7).
- ii. It simplifies the analysis of consonant final words.³
- iii. It predicts the vowel features of the clitic host rather than the enclitic spread.
- iv. It provides a reason why glottal stop insertion does not occur at clitic boundaries.
- v. Given the evidence for empty C-slots foot medially and initially (§4.5.1.3), it is simpler to posit a single rule requiring the foot to be CVCVC than an additional rule requiring enclitics to be consonant initial.

While the empty C-slot originates with the clitic host, the syllabification of Amarasi words (§3.3) means that when a vowel initial enclitic is attached this consonant is ambisyllabic, occurring as the coda of the clitic host and as the onset of the enclitic. This dual membership is the reason why metathesis is triggered before vowel initial enclitics

³ If the empty C-slot originated with the enclitic forms such as *mu?it+=e* ‘the animal’ → *mui?t=e* would be underlyingly *mu?it+=Ce* and we would probably expect something like **mu?itte*, (cf. Seri, discussed by Marlett and Stemberger 1983). Additional rules would then have to be introduced to avoid such forms.

in Amarasi (§5.2). Metathesis rearranges the phonotactic structure of the word (host and enclitic) such that after metathesis this empty C-slot forms only the onset to the enclitic.

5.3.2 No Insertion after U-form Suffix -ʔ

As discussed in §4.4.5, there are a small number of stems which take a suffix -ʔ in the U-form, but not in the M-form. I analyse this suffix as redundantly marking the U-form.

When a vowel initial enclitic is attached to such a stem, consonant insertion does not occur, metathesis takes place, and the U-form suffix does not surface. The examples from page 162 are repeated in (20) below.

(20) ...V₁C₁V₂-ʔ → ...V₁V₂C₁=

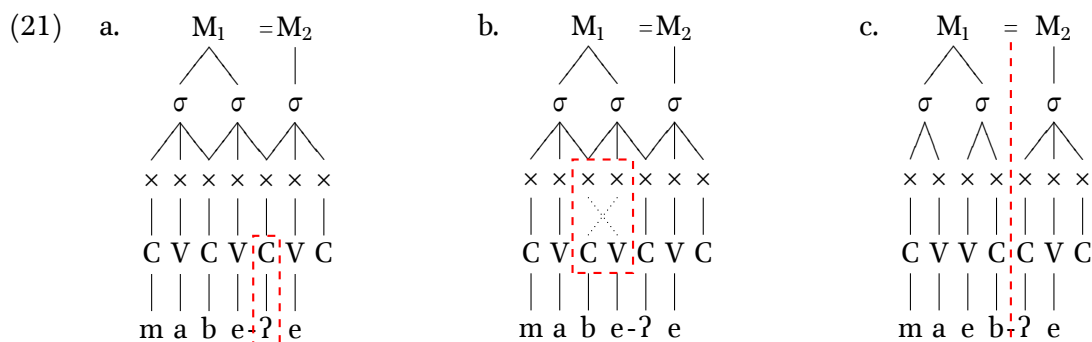
<i>atoni-ʔ</i>	+ =e	→	<i>atoin=e</i>	‘man, person’
<i>mabe-ʔ</i>	+ =e	→	<i>maeb=e</i>	‘afternoon, evening; time’
<i>ʔuaba-ʔ</i>	+ =e	→	<i>ʔuab=e</i>	‘speech, language’

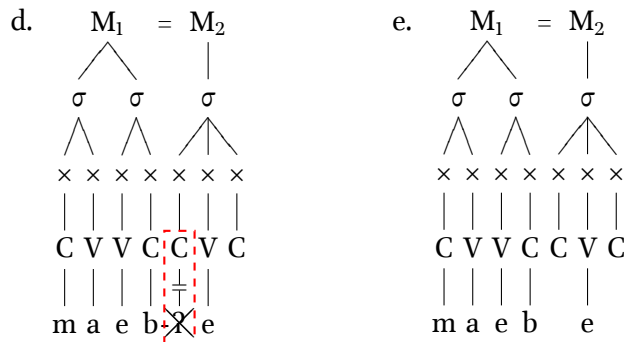
It must be emphasised here that the vast majority of final glottal stops are members of the root and are not U-form suffixes. There is thus a difference between examples such as *mabe-ʔ* → *maeb=e* ‘afternoon’ in which the glottal stop is a suffix and does not occur in the M-form and examples such as *sbakeʔ* → *sbaekʔ=e* ‘branch’ in which the glottal stop *is* part of the root and *does* occur in the M-form before enclitics.

When the U-form suffix -ʔ occurs, it appears to ‘survive’ long enough to prevent consonant insertion. After metathesis has taken place, the stem is in the M-form and the suffix is deleted. This is illustrated for *mabe-ʔ* → *maeb=e* ‘afternoon’ in (21) below.

Example (21a) gives the structure of this word before metathesis. The initial C-slot of both the first and second morpheme is filled, thus consonant insertion is not triggered. Metathesis takes place in (21b) to create a crisp edge between the host and its enclitic (§5.2). This produces an M-form in (21c). Because this form is an M-form, the U-form suffix -ʔ is deleted in (21d), giving the final output in (21e).

mabe-ʔ + =e ‘afternoon, evening; time’





Again, this behaviour contrasts with that of root final glottal stops, which are not deleted. Three examples are *bare?* ‘stuff’ → *baer?*=e, *meto?* ‘dry’ → *meot?*=e and *ri?ana?* ‘child’ → *ri?aan?*=e. This difference between the behaviour of the glottal stop in these examples and those in (20) above is the only evidence that the glottal stop in *atoni-?* ‘man’ *mabe-?* ‘time’ and *uaba-?* ‘speech’ is a suffix.

The analysis of forms which take the U-form suffix *-?* is somewhat ad-hoc. However, there does not currently seem to be an alternate analysis which accounts for the data. It is possible that this suffix is attached after the stem has surfaced as either a U-form or M-form.

5.4 Vowel Assimilation

When a vowel initial enclitic attaches to a stem which ends in a vowel sequence in which the vowels are of a different quality, the final vowel conditions insertion of /dʒ/ or /gw/, and then assimilates to the quality of the previous vowel. Examples are given in (22) below.

$$(22) V_\alpha V_\beta += V \rightarrow V_\alpha V_\alpha C_\beta += V$$

<i>krei</i>	+	=e	→	<i>kreedʒ=e</i>	‘the church/week’
<i>fai</i>	+	=e	→	<i>faadʒ=e</i>	‘the night’
<i>roi</i>	+	=e	→	<i>n-roodʒ=e</i>	‘carries it’
<i>pui</i>	+	=e	→	<i>puudʒ=e</i>	‘the quail’
<i>mae</i>	+	=e	→	<i>maadʒ=e</i>	‘the taro’
<i>oe</i>	+	=e	→	<i>oodʒ=e</i>	‘the water’
<i>kiu</i>	+	=e	→	<i>kiigw=e</i>	‘the tamarind’
<i>keu</i>	+	=e	→	<i>n-keegw=e</i>	‘shaves it’
<i>hau</i>	+	=e	→	<i>haagw=e</i>	‘the wood/tree’
<i>meo</i>	+	=e	→	<i>meegw=e</i>	‘the cat’
<i>ao</i>	+	=e	→	<i>aagw=e</i>	‘the slaked lime’

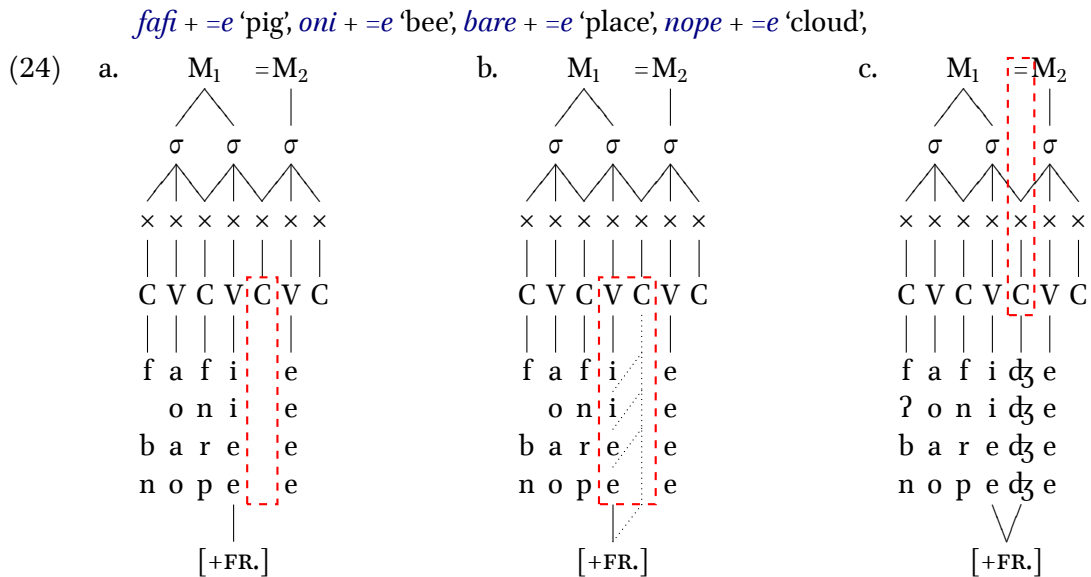
When a vowel initial enclitic attaches to a stem which ends in CV#, the final vowel conditions insertion of /dʒ/ or /gw/, metathesis takes place, and the vowel which conditioned consonant insertion assimilates to the quality of the previous vowel. Examples are given in (23) below.

(23) $V_{\alpha}CV_{\beta}+=V \rightarrow V_{\alpha}V_{\alpha}CC_{\beta}=V$

<i>kbiti</i>	+	=e	→	<i>kbiiɗʒ=e</i>	'the scorpion'
<i>kreni</i>	+	=e	→	<i>kreɛnɗʒ=e</i>	'the ring'
<i>fafi</i>	+	=e	→	<i>faafɗʒ=e</i>	'the pig'
<i>oni</i>	+	=e	→	<i>oondʒ=e</i>	'the bee; the sugar'
<i>uki</i>	+	=e	→	<i>uukɗʒ=e</i>	'the banana'
<i>kepe</i>	+	=e	→	<i>keepɗʒ=e</i>	'the tick (parasite)'
<i>bare</i>	+	=e	→	<i>baardʒ=e</i>	'the place'
<i>nope</i>	+	=e	→	<i>noopɗʒ=e</i>	'the cloud'
<i>biku</i>	+	=e	→	<i>biikgw=e</i>	'the curse'
<i>tefu</i>	+	=e	→	<i>teefgw=e</i>	'the sugar-cane'
<i>fatu</i>	+	=e	→	<i>faatgw=e</i>	'the stone'
<i>nopu</i>	+	=e	→	<i>noopgw=e</i>	'the grave'
<i>hutu</i>	+	=e	→	<i>huutgw=e</i>	'louse'
<i>nefo</i>	+	=e	→	<i>neefgw=e</i>	'the lake'
<i>knafo</i>	+	=e	→	<i>knaafgw=e</i>	'the mouse'
<i>koro</i>	+	=e	→	<i>koorgw=e</i>	'the bird'

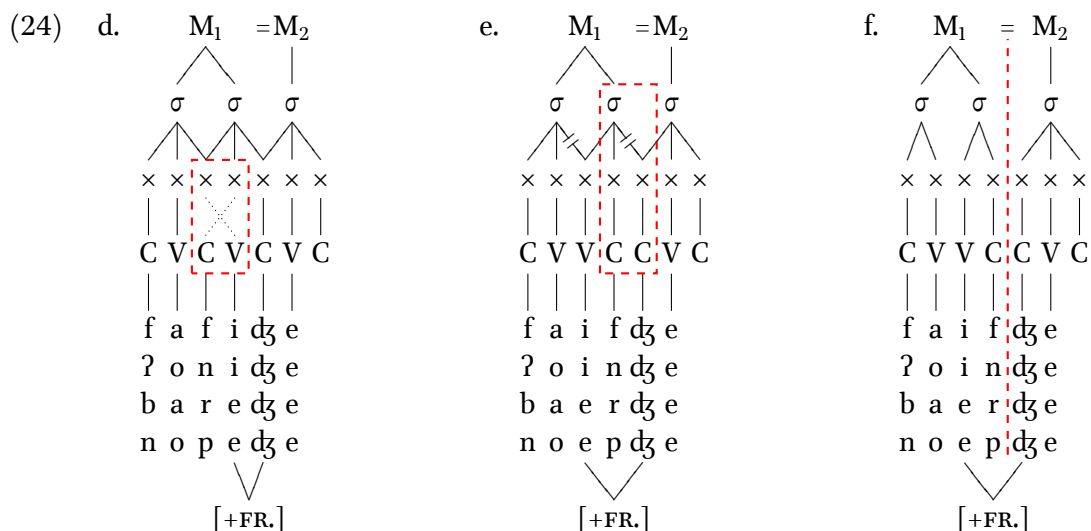
This vowel assimilation can be analysed as an automatic result of metathesis occurring after consonant insertion. This is illustrated in (24) below for the words *fafi* → *faafɗʒ=e* 'pig', *oni* → *oondʒ=e* 'bee; sugar', *bare* → *baardʒ=e* 'place' and *nope* → *noopɗʒ=e* 'cloud'.

Example (24a) shows the form of these words before any phonological processes have occurred. The enclitic begins with an empty C-slot. Because morphemes require an initial consonant, the features [+FRONT] of the previous vowel spread in (24b), producing the obstruent /ɗʒ/ in (24c).

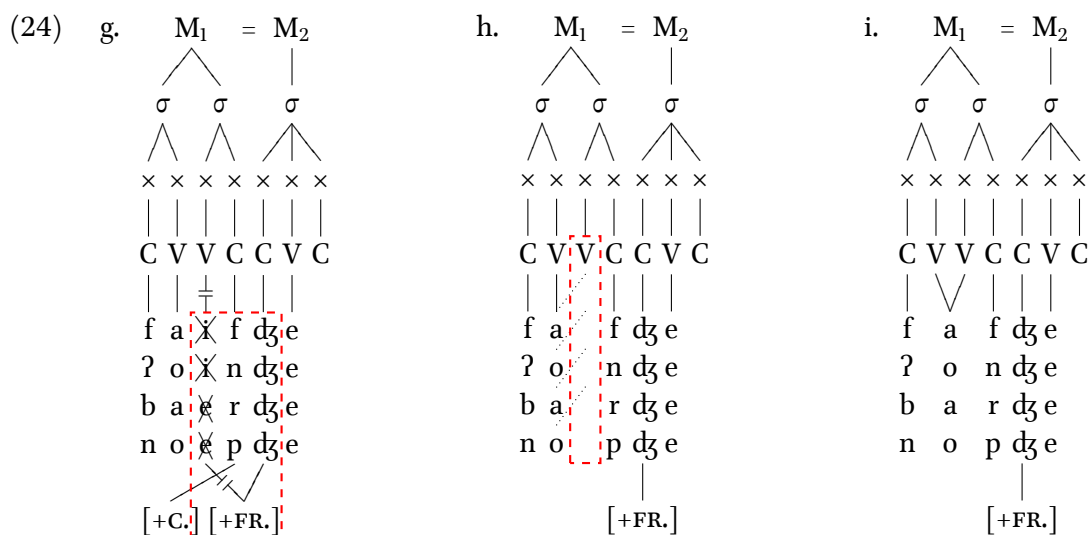


The third C-slot is shared between the clitic host and the enclitic. Because fuzzy borders are not allowed at clitic boundaries, metathesis is triggered in (24d). This results in a

disallowed final consonant cluster in (24e) which is resolved by the final consonant delinking. This yields the form in (24f) with a crisp edge between the clitic host and enclitic.

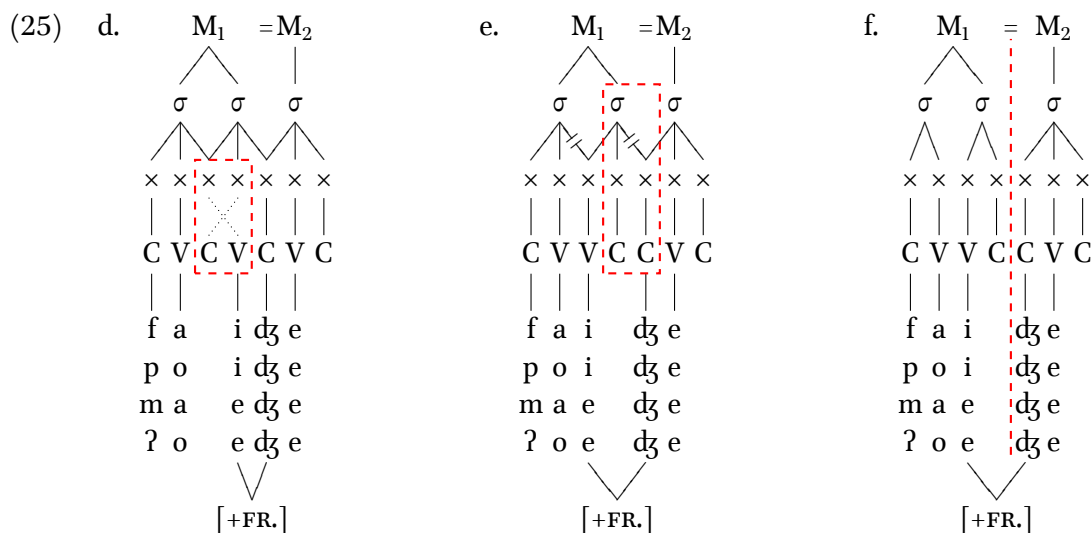


Metathesis results in the features of the final vowel of the clitic host being shared across an intervening consonant. This results in ‘lines crossing’, as shown in (24g), with the features of the intervening consonant represented by [+c.]. A prohibition against association lines crossing is one of the fundamental principles of autosegmental phonology (Goldsmith 1976:48). Thus, the vowel features de-link in (24g), yielding an empty V-slot in (24h) into which the previous vowel spreads, yielding the final output with a double vowel in (24i).

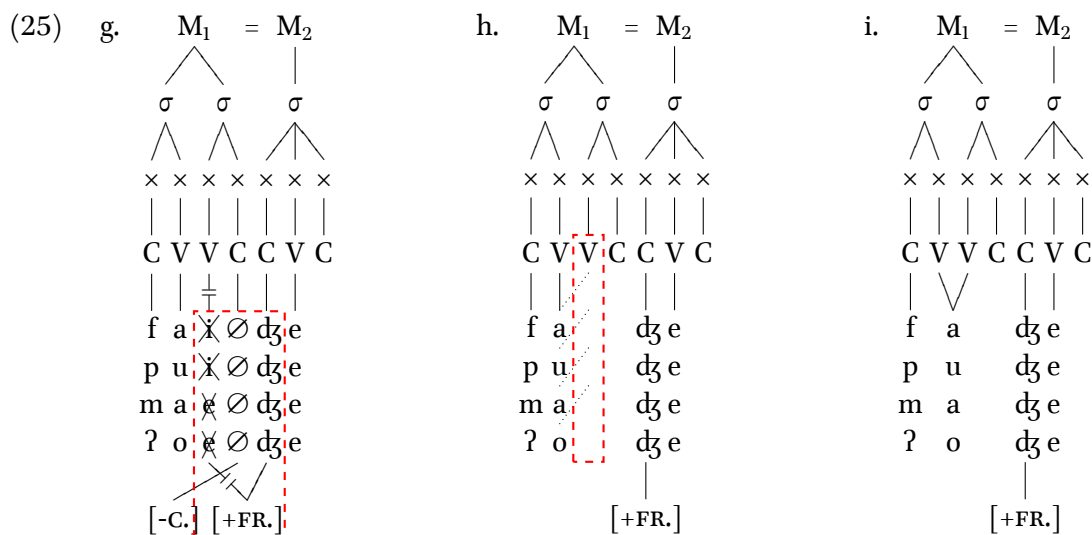


The reason why vowel features rather than the consonant features de-link in (24g) can probably be ascribed to vowel deletion/assimilation being preferred over consonant

disallowed final consonant cluster in (25e) which is resolved by the final consonant delinking. This yields the form in (25f) in which there is a crisp edge between the host and enclitic.

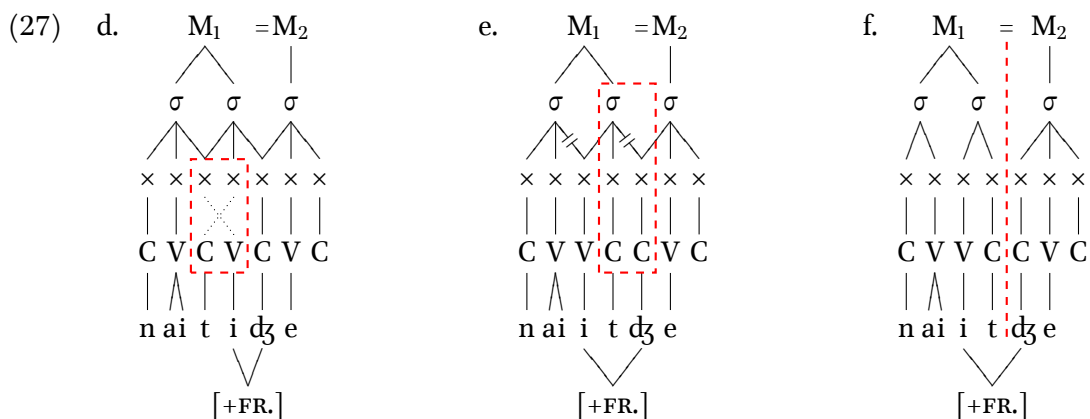


Metathesis results in the features of the final vowel of the clitic host being shared across an intervening C-slot. In this case the C-slot is ‘filled’ by a null consonant, whose featurelessness is represented as [-c.] in (25g). Because of this intervening consonant, the vowel features de-link in (25g), yielding an empty V-slot in (25h) into which the previous vowel spreads, yielding the final outputs in (25i).

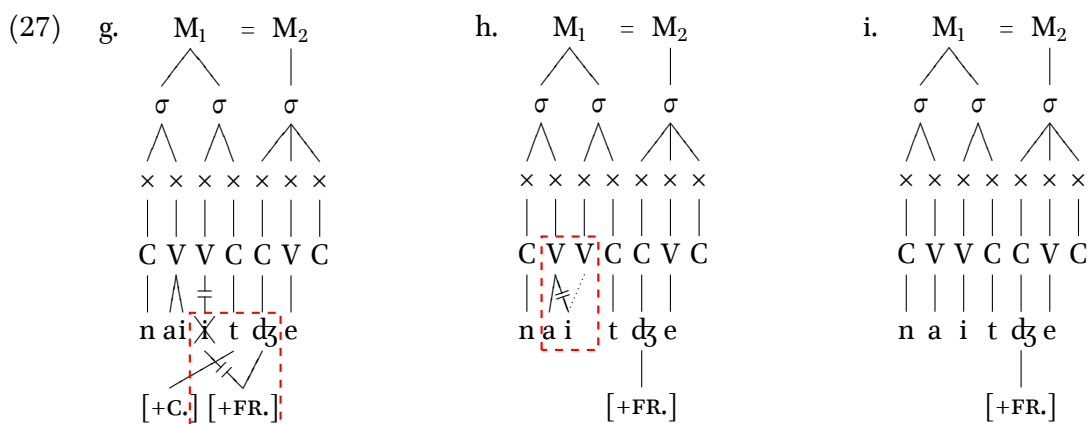


Evidence that both consonant insertion *and* metathesis are required for vowel assimilation comes from two sources. Firstly, as discussed in §5.5.2 below, in Fo'asa' hamlet consonant insertion before enclitics is not conditioned by vowel features spreading, instead

in a disallowed final consonant cluster in (27e) which is resolved by the final consonant de-linking. This gives us the form in (27f) in which there is a crisp edge between the host and enclitic.



The final vowel of the clitic host then de-links. This is both because it shares features with /dʒ/ across an intervening C-slot, and because sequences of three vowels are not allowed in Amarasí. After this vowel de-links, the previous vowel spreads into the empty V-slot in (27g), yielding the final output in (27h).



5.5 Clitic Hosts with Final /a/

When an enclitic attaches to stems which end in the vowel /a/, the clitic host undergoes metathesis and no consonant is inserted. Examples of vowel initial enclitics attached to stems which end in surface /Ca/ are given in (28) below.

As discussed in §4.2.3.2, when a word which ends in surface /Ca/ undergoes metathesis, the vowel /a/ undergoes complete assimilation. Assimilation of /a/ in metathesised forms is a derived environment effect and should not be confused with assimilation of vowels after

consonant insertion discussed in §5.4 above. Although the results are similar, assimilation of /a/ and assimilation after consonant insertion are triggered by different factors.

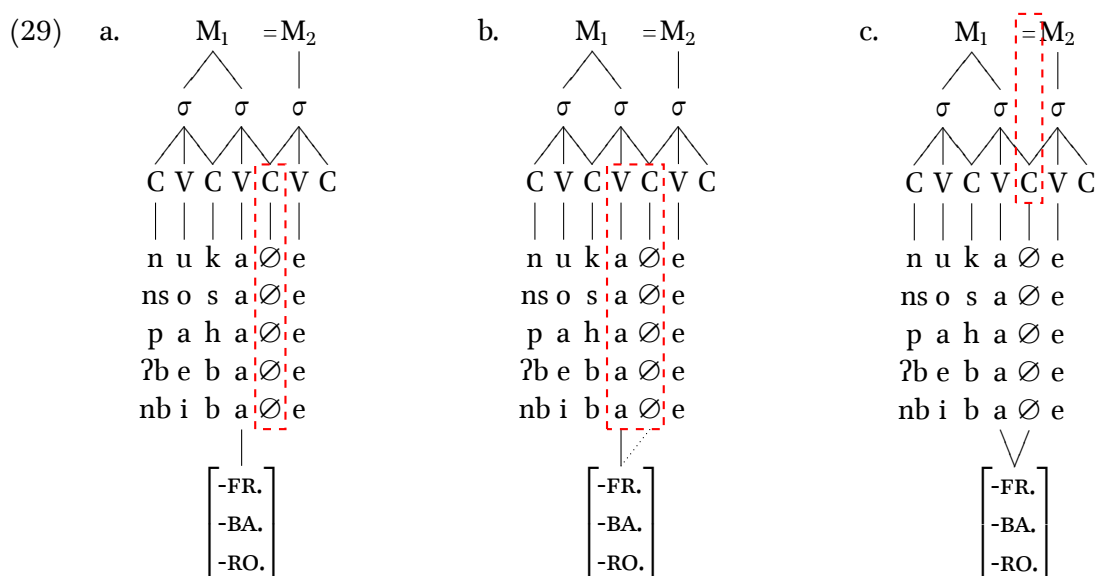
$$(28) V_{\alpha}Ca\# + =V \rightarrow V_{\alpha}V_{\alpha}C=V$$

<i>n-biba</i>	+	=e	→	<i>n-bib=e</i>	‘massages him/her’
<i>?beba</i>	+	=e	→	<i>?beb=e</i>	‘the dried gewang palm leaves’
<i>paha</i>	+	=e	→	<i>pah=e</i>	‘the country’
<i>n-sosa</i>	+	=e	→	<i>n-soos=e</i>	‘buys it’
<i>nuka</i>	+	=e	→	<i>nuuk=e</i>	‘the grief’

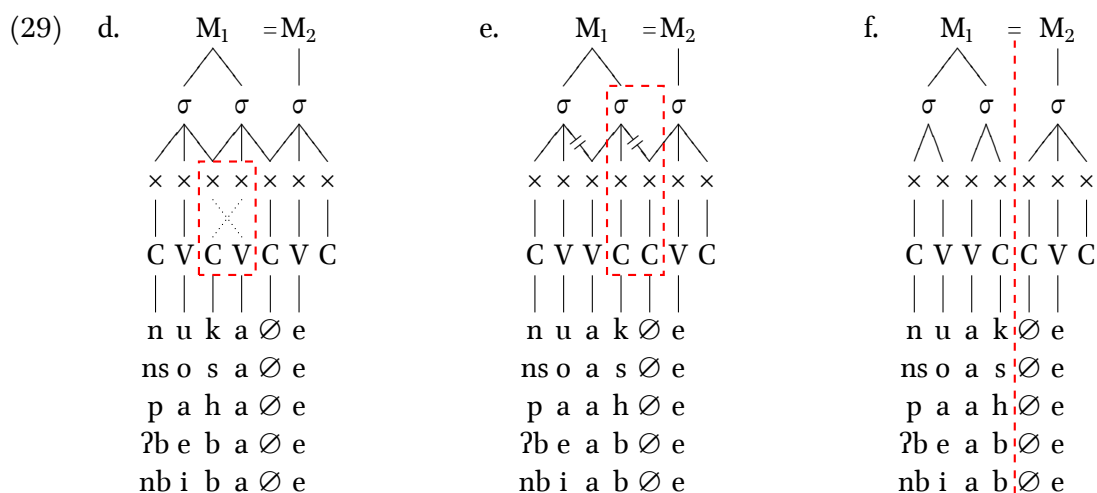
The lack of consonant insertion in such examples can be accounted for because the vowel /a/ is featureless regarding the relevant vocalic place features which spread. The vowel /a/ is [-FRONT, -BACK, -ROUND]. Thus, it can provide no features to fill a following empty C-slot.

The structures of the words in (28) above are given in (29a) below. The onset C-slot of the enclitic is empty but not word initial. As a result the features of the previous vowel spread in (29b). However, the features of /a/ are insufficient to produce a consonant and the onset C-slot of the enclitic remains empty in (29c).

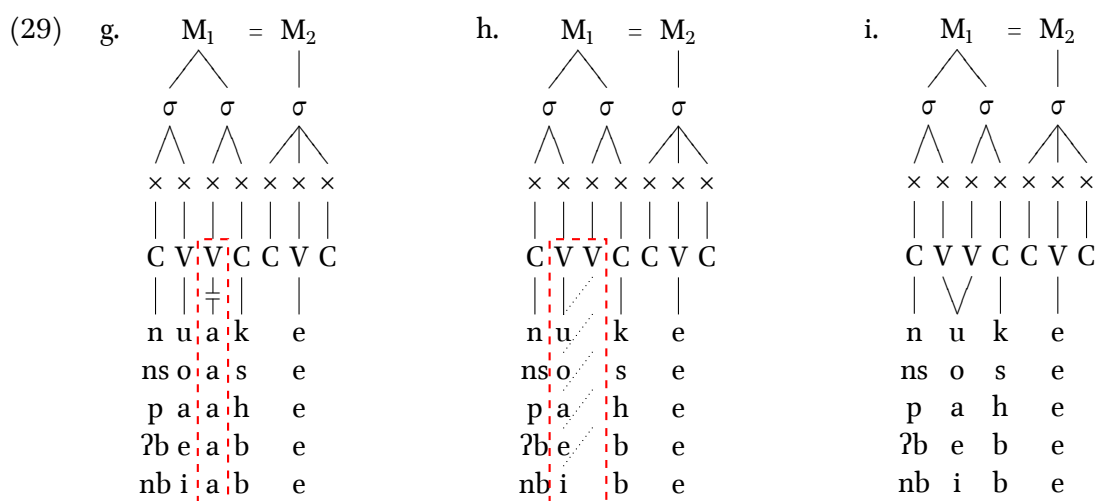
nuka + =e ‘grief’, *n-sosa* + =e ‘buys’, *paha* + =e ‘country’, *?beba* + =e ‘palm leaves’, *n-biba* + =e ‘massages’



Because this empty C-slot is shared between both the host and the enclitic, metathesis is then triggered in (29d) to resolve the fuzzy border. The final C-slot of the final consonant cluster then de-links in (29e), to produce a crisp edge in (29f).



The features of the vowel /a/ then de-link in (29g). This is due to the general rule which affects all instances of /a/ after metathesis (§4.5.2.3), and *not* due to the rule of vowel assimilation after consonant insertion discussed in §5.4 above. This produces an empty V-slot in (29h) into which the previous V-slot spreads, producing the output in (29i).



Metathesis before vowel initial enclitics operates at the consonant-vowel tier. It is blind to the contents of the C-slots and V-slots. Thus, that the C-slot shared between the clitic hosts and enclitic is empty in (29) is irrelevant, or unseen, by the constraint requiring a crisp edge.

Nonetheless, metathesis is still somewhat successful in creating a crisp edge. A word such as *nuuk=e*, in which the clitic host ends in a surface consonant, arguably has a greater phonological separation between host and enclitic than potential **nuka=e* in which the host ends in a surface vowel. Insertion of /gw/ in such examples happens primarily to break up the underlying sequence of three vowels. However, it also provides the enclitic with an onset consonant.

5.5.1 Clitic Hosts with Final /Va/

After stems which end in $Va\#$, /gw/ is inserted, but vowel assimilation does not take place. Examples are given in (30) below. Most such examples in my corpus involve the phrasal enclitics $=en$ INCEPTIVE and $=ah$ 'just'.

(30) $Va+=V \rightarrow Vagw=V$

<i>mria</i>	+	<i>=en</i>	→	<i>na-mriagw=en</i>	'fertile, lush'
<i>tea</i>	+	<i>=en</i>	→	<i>n-teagw=en</i>	'arrived'
<i>haa</i>	+	<i>=en</i>	→	<i>haagw=en</i>	'four'
<i>tua</i>	+	<i>=e</i>	→	<i>na-tuagw=e</i>	'occupies it'

The reason /gw/ is inserted after /Va/ at clitic boundaries is not due to spreading of vowel features as would usually occur in this environment; after all, according to my analysis /a/ is a featureless vowel. Instead, /gw/ is inserted to break up the disallowed sequence of three vowels. I analyse /gw/ as the default word medial consonant in a similar way to /ʔ/ being the default word initial consonant (§3.8.1).

Given the data from the M-forms of VVCV# forms, such as *aunu* → *aun* 'spear' and *kauna?* → *kaun* 'snake; creature' in which the sequence of three vowels created after metathesis is resolved by deletion of the final vowel (§4.2.5), we might expect the underlying sequence of three vowels in examples such as (30) to be similarly resolved by deletion. Such deletion does not occur here because at clitic boundaries a better solution is available; consonant insertion.

If consonant insertion is a better solution, the question then becomes why such insertion does not occur in examples such as *aunu* → **auun* → *aun* 'spear'. This is probably due to the vowel sequence in such examples occurring morpheme internally. Insertion is permitted at morpheme edges, but not morpheme internally. This is consistent with the data from vowel epenthesis in Amarasi in which epenthesis only ever occurs word initially before consonant clusters and never word internally between such clusters (§3.8.2).

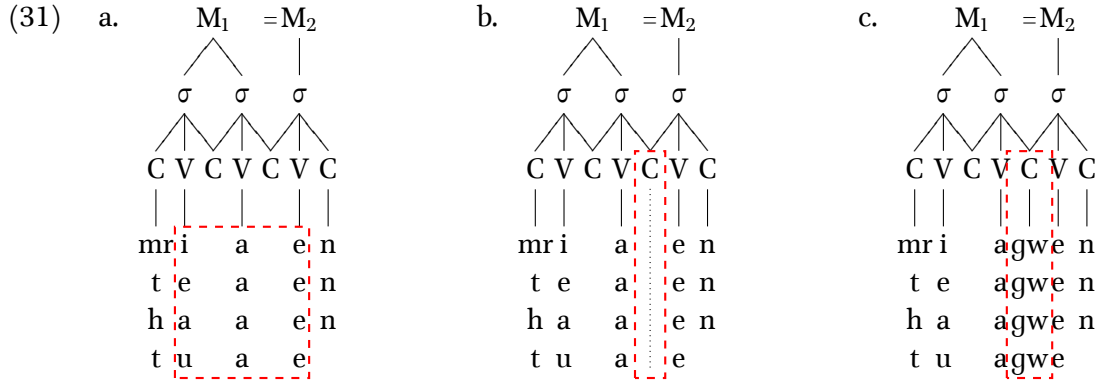
That consonant insertion (rather than vowel deletion) occurs at clitic boundaries in the examples in (30) also provides evidence that clitics and clitic hosts are the head of separate syntactic phrases, as proposed in §5.2 beginning on page 195. This evidence comes from the fact that across phrase boundaries epenthesis is the preferred way to resolve a cluster of three consonants (§4.3.2), while within a single phrase consonant deletion is the preferred strategy for resolving a cluster of three consonants (§4.3.1).⁷

The analysis of /gw/ insertion after /Va/ is illustrated in (31) below for each of the examples in (30) above. (Prefixes are not shown to reduce clutter.) In (31a) each form has a sequence of three vowels. Because such a sequence is not permitted, and because it is not

⁷ In the language of Optimality Theory, the constraint MAX outranks DEP across phrase boundaries, but within phrases DEP outranks MAX.

morpheme internal, consonant insertion occurs to resolve it. Because the features of /a/ are insufficient to produce a consonant, the default word medial consonant /gw/ is inserted.

mr̥ia + =en ‘fertile’, *tea* + =en ‘arrive’, *haa* + =en ‘four’, *tua* + =e ‘occupy’



Insertion of /gw/ in (31) occurs primarily to resolve a disallowed sequence of three vowels. However, it also has the added benefit of providing the enclitic with an onset consonant. The consonant /gw/ is inserted because it is the default word medial consonant.

5.5.2 Fo'asa' Consonant Insertion

Evidence in favour of analysing /gw/ as the default word medial consonant comes from the variety of Amarasi spoken in Fo'asa' hamlet, one of the four hamlets unified to form the village of Nekmese' (§1.2).⁸ In Fo'asa', when a vowel initial enclitic is attached to a vowel final stem, a velar obstruent /g/ (without [w]) is inserted. Metathesis also occurs, but does not trigger vowel assimilation. Examples of Fo'asa' consonant insertion are given in (32) below.

(32) Consonant Insertion in Fo'asa'

	Fo'asa'	Koro'oto	gloss
<i>umi</i> + =e →	<i>uimg=e</i>	<i>uumɔ̃=e</i>	‘the house’
<i>peti</i> + =e →	<i>peitg=e</i>	<i>peetɔ̃=e</i>	‘the box’
<i>n-rari</i> + =e →	<i>n-rairg=e</i>	<i>n-raarɔ̃=e</i>	‘finishes it’
<i>n-soʔi</i> + =e →	<i>n-soiʔg=e</i>	<i>n-sooʔɔ̃=e</i>	‘counts it’
<i>fee</i> + =e →	<i>feeg=e</i>	<i>feeɔ̃=e</i>	‘the wife’
<i>n-moʔe</i> + =e →	<i>n-moeʔg=e</i>	<i>n-mooʔɔ̃=e</i>	‘does it’
<i>na-ʔura</i> + =en →	<i>na-ʔuurg=en</i>	<i>na-ʔuur=en</i>	‘it’s started raining’
<i>hau</i> + =i →	<i>haug=i</i>	<i>haagw=i</i>	‘the tree’
<i>nenō</i> + =es →	<i>neonjg=es</i>	<i>neenjgw=es</i>	‘one day’

In present day Nekmese' this “Fo'asa' ge” also occurs in the speech of Koro'oto' residents, particularly in certain set phrases, such as the phrase used to take leave, given in (33)

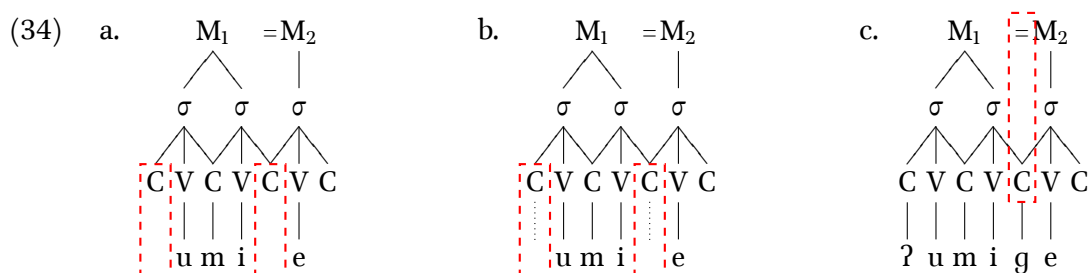
⁸ The Amarasi spoken in Fo'asa' is identified as a variety of Kotos Amarasi.

below. (The Fo'asa' variant of this phrase seems particularly common amongst the younger generation.)

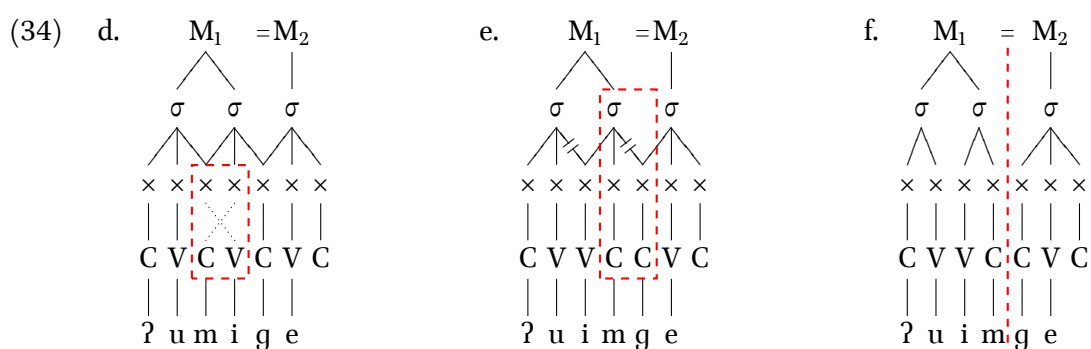
- (33) Koro'oto: *Au ?faandɛ=en, tua.*
 Fo'asa': *Au ?faiŋg=en, tua.*
 Au ?fani=en tua
 1SG 1SG-return \M=INCEP ADDR
 'I'm going to go back (home) now.'

The process of consonant insertion for Fo'asa' *umi* → *uimg=e* 'house' is illustrated in (34) below. In (34a) each morpheme begins with an empty C-slot. As a result, consonants are inserted in (34b). In (34c) the glottal stop is selected to fill the first empty C-slot as this is the default word initial consonant. The velar obstruent is selected to fill the second empty C-slot, as this is the default word medial C-slot.

Fo'asa' hamlet *umi* → *uimg=e* 'the house'



Metathesis then occurs in (34d) to produce a crisp edge between the host and the enclitic. This is achieved in (34f). Because the inserted consonant was not produced by feature spread, no features are shared across an intervening consonant and the vowel does not de-link.



Consonant insertion in Fo'asa' hamlet is different from Koro'oto hamlet in two ways. Firstly, in Fo'asa' the default word medial consonant is the velar obstruent /g/ while in Koro'oto the default word medial consonant is the rounded velar obstruent /gw/.

Secondly, in Koro'oto hamlet word medial consonant insertion is conditioned by the quality of the previous vowel. In Fo'asa' hamlet, the quality of the previous vowel plays no

role, and instead the default word medial consonant is inserted. This in turn means that vowel assimilation is not triggered by metathesis.

5.6 The Plural Enclitic

The plural enclitic has a number of allomorphs and variant forms, partly depending on the shape of the host to which it attaches. Unexpected insertion of the consonant /gw/ also occurs after this enclitic when it attaches to stem which ends in a vowel sequence. This insertion can be analysed as conditioned by an underlying/historic form *=nu*.

The allomorphy of the plural enclitic for verbs and nouns is similar, though not identical. This allomorphy is summarised in Table 5.3. It marks plurals for nouns and for verbs it marks that one or more of the core verbal arguments (subject or object) is plural.

Table 5.3: Plural Enclitic Allomorphy

Stem	Nominals	Verbs
...C#	<i>=ein/=eni, (=enu/=uun)</i>	<i>=ein/=eni, (=enu/=uun)</i>
...CV#	<i>=n</i>	<i>=n</i>
...VV#	<i>=n=gwein, (=nu)</i>	<i>=n</i>

After consonant final verbs and nouns, the plural enclitic usually has the form *=ein* with the U-form *=eni*. M-form *=ein* is usually realised as [ɪn], and U-form *=eni* as [ɛni]. The choice between the U-form and M-form of this enclitic is discourse driven (Chapter 7) and the M-form is the default form (§7.1.1). CVC# final stems undergo metathesis before this enclitic. Examples of pluralised consonant final verbs and nouns are given in (35) below.

(35) {PL} → *=ein* /C#_

<i>anah</i>	→	<i>aanh=ein</i>	‘children’
<i>kaes muti?</i>	→	<i>kaes muti?=ein</i>	‘Europeans’
<i>eno?</i>	→	<i>eon?=ein</i>	‘doors’
<i>tua-f</i>	→	<i>tua-f=ein</i>	‘people’
<i>kuan</i>	→	<i>kuan=ein</i>	‘villages’
<i>n-fesat</i>	→	<i>n-feest=ein</i>	‘(they) throw a party’
<i>na-barab</i>	→	<i>na-baarb=ein</i>	‘(they) prepare’
<i>n-?onen</i>	→	<i>n-?oenn=ein</i>	‘(they) pray’
<i>na-tuin</i>	→	<i>na-tuin=ein</i>	‘(they) follow’

This enclitic also has the variant forms *=uun* and *=enu*, of which the form *=uun* is probably the M-form of *=enu*. These forms are rare in my data. There are eleven attestations of *=uun* in my corpus and three attestations of *=enu*. This is compared with 160 attestations of *=ein* and nineteen attestations of *=eni*. Examples of the forms *=uun* and *=enu* are given in (36) below. The clitic hosts shown in (36) also co-occur with with the plural enclitic *=ein*.

(36) {PL} → =uun ~ =enu /C#_

<i>abas</i>	→	<i>aabs=uun</i>	‘threads’
<i>na-ʔkoroʔ</i>	→	<i>na-ʔkoroʔ=uun</i>	‘(they) hide’
<i>faifanaʔ</i>	→	<i>faifanaʔ=enu</i>	‘piglets’
<i>kana-k</i>	→	<i>kaan-k=enu</i>	‘their names’

After stems which end in CV the plural enclitic usually takes the form =*n*. Examples are given in (37) below.⁹

(37) {PL} → =n /CV#_

<i>kase</i>	→	<i>kase=n</i>	‘foreigners’
<i>hutu</i>	→	<i>hutu=n</i>	‘head-lice’
<i>kbiti</i>	→	<i>kbiti=n</i>	‘scorpions’
<i>koro</i>	→	<i>koro=n</i>	‘birds’
<i>tuni</i>	→	<i>tuni=n</i>	‘eels’
<i>n-moʔe</i>	→	<i>n-moʔe=n</i>	‘(they) do/make’
<i>na-tona</i>	→	<i>na-tona=n</i>	‘(they) tell’
<i>n-eki</i>	→	<i>n-eki=n</i>	‘(they) bring’
<i>na-hana</i>	→	<i>na-hana=n</i>	‘(they) cook’

Similarly, after verbs which end in a vowel sequence, the plural enclitic also has the form =*n*. A number of examples are given in (38) below.

(38) {PL} → =n Verb, /VV#_

<i>n-sii</i>	→	<i>n-sii=n</i>	‘(they) sing’
<i>n-murai</i>	→	<i>n-murai=n</i>	‘(they) start’
<i>n-tui</i>	→	<i>n-tui=n</i>	‘(they) write’
<i>n-kae</i>	→	<i>n-kae=n</i>	‘(they) cry’
<i>n-nao</i>	→	<i>n-nao=n</i>	‘(they) go’
<i>na-niu</i>	→	<i>na-niu=n</i>	‘(they) bathe’
<i>na-mnau</i>	→	<i>na-mnau=n</i>	‘(they) remember’
<i>n-poi</i>	→	<i>n-poi=n</i>	‘(they) exit/go out’

After nominals which end in a vowel sequence, the plural enclitic usually has the form [ŋgwm]. This is analysable as =*n=gwein*; a combination of =*n* + =*ein* with insertion of intervening /gw/. Examples are given in (39) below.¹⁰ Note particularly the occurrence of the loanword *pentua* ‘church elder’ (from Malay *penatua*). Such a double occurrence of =*n* and =*ein* can also occasionally occur on CV# final stems, discussed on page 217 below.

⁹ I have encountered one vowel final stem with the enclitic =*ein* attached. This is the verb *ʔbaʔe* ‘play’ which is attested once in my corpus and once in the Amarasi Bible translation as *na-ʔbaʔeʔe=ein*. This verb is also exceptional in not otherwise taking M-forms. There are also three other vowel final stems occurring with the enclitic =*ein* in the Amarasi Bible translation: *na-ʔtaʔi* ‘trembles’ + =*ein* → <*na'tai'jein*> (one example), *koʔu* ‘big’ + =*ein* → <*kou'guin*> (five examples) and *na-ʔseʔ-seʔo* ‘whispers’ → <*na'se'-seo'guin*> (two examples).

¹⁰ In the Baikeno variety of Uab Meto the plural enclitic has the form =*mbini* after words which end in a vowel sequence, i.e. *biʔgaembini* ‘cows’. Baikeno inserts /b/ in other environments in which Amarasi inserts /gw/.

(39) {PL} → =n=gwein Nominal, /VV#_

<i>bifee</i>	→	<i>bifee=n=gwein</i>	‘women’
<i>bidʒae</i>	→	<i>bidʒae=n=gwein</i>	‘cows’
<i>oe</i>	→	<i>oe=n=gwein</i>	‘kinds of water’
<i>pentua</i>	→	<i>pentua=n=gwein</i>	‘church elders’
<i>too</i>	→	<i>too=n=gwein</i>	‘citizens’
<i>hau</i>	→	<i>hau=n=gwein</i>	‘trees’

The noun *kfiuu* ‘star’ forms an exception and has the plural *kfiuu=n* ‘stars’. In this case the singular *kfiuu* ‘star’ is a back formation, with the final plural /n/ being inherited from Proto-Malayo-Polynesian *bituqən.¹¹ Similarly, the loan-word *partei* ‘friend’ (from Dutch *partij* [partɛi] ‘party, faction, side’) has been attested pluralised with the allomorph =n; thus *partei=n* ‘friends’ (Ora 2016a:3).

I have also encountered two examples of the form =nu being used to pluralise nouns ending in a vowel sequence. This form is probably connected with the variant plural enclitic =enu which occurs after consonant final stems (see example (36) above). These two examples are given in (40) and (41) below.¹²

(40) *hit t-hormaat hau=nu!*

IPI IPI-honour tree=PL

‘We’re giving honour to the trees!’ (Joke made when ducking to avoid colliding with branches of trees while riding in the back of a truck.) Observation 06/10/14

(41) *in nui-f=ein humaʔ meseʔ n-ok au=nu.*

3SG bone-0GEN=PL kind one 3-with 1SG=PL

Ma in sisi-n humaʔ meseʔ n-ok au sisi-k.

and 3SG flesh-3SG.GEN kind one 3-with 1SG flesh-3PL/1GEN

‘Her bones are the same kind as mine. And her flesh is the same kind as my flesh.’

‘This is now bone of my bones and flesh of my flesh.’

Genesis 2:23

This form =nu has the potential to partially explain the unexpected insertion of /gw/ found when another enclitic attaches to a VV# pluralised noun, seen in (39) and discussed in §5.6.1 below.

Finally, there are also a small number of examples in which a CV# final nominal stem is followed by =n and =ein. Although the data is limited, these examples appear to emphasise the group as a totality, i.e. all the individuals that could comprise that group. Examples are given in (42)–(44) below.¹³

¹¹ Current data indicates that not all speakers have re-analysed *kfiun* ‘star’ as *kfiu=n* ‘stars’.

¹² Example (41) is from the Amarasi Bible translation. This particular verse may be poetic speech.

¹³ Such examples may find a partial parallel in marginal English examples such as *feets* [fi:ts]. I have heard this form used by an adult native English speaker with reference to the feet of a number of different people.

Despite these examples, the allomorphs *=n* and *=ein* can still be described as mostly occurring in complementary environments; *=n* attaches to CV# final hosts which, with this new consonant, become C# final, thus allowing *=ein* to attach.¹⁴

- (42) *ahh, rari =te, n-ma-taeb* *n-ok* *ahh baroit=**n=ein*** *=ama*
 rari =te, n-ma-tabe *n-oka* *baroit=**n=ein*** *=ama*
 after.that 3-RECP-shake.hands 3-with bride/groom=**PL=PL** =and
 ‘After that he shook hands with each of the bride and groom and’ 130902-1, 3.28 ◀▶
- (43) *feʔe n-ʔoban naan rauk=**n=ein**,* *nopu nua mes ka= n-eku =f,*
 *feʔe n-ʔoban naan raku=**n=ein*** *nopu nua mes ka= n-eku =f,*
 earlier 3-furrow 2DEM sweet.potato=**PL=PL** hole two but NEG= 3-eat =NEG
 n-ʔoobn=ah.
 n-ʔobon=ah.
 3-furrow=just
 ‘Earlier it had dug up the sweet potatoes, there were two holes but it hadn’t eaten anything, it just dug around.’ 130914-2, 1.17 ◀▶
- (44) *ho m-fee areʔ kana=n hau fua-f* *maut he koor=**n=ein** bisa n-eku=n.*
 Ho m-fee areʔ kana=n hau fua-f *maut he koro=**n=ein** bisa n-eku=n.*
 2SG 1PX/2-give every name=**PL** tree fruit-0GEN let IRR bird=**PL=PL** can 3-eat=**PL**
 ‘you gave all kinds of fruit trees in order that all the different birds could eat’ (Ora 2016b:11)

However, these examples, as well as the different allomorphs found after VV# final nominals, indicates that *=n* and *=ein* may have come from different sources and may have originally have had different functions, and may still have different functions for some speakers. While there may be traces of these different functions in some of the synchronic data, in most cases, and for most speakers, they appear to have semantically merged and both mark plural.¹⁵

An analysis of *=n* and *=ein* as allomorphs of a single plural enclitic when attached to nominals seems to account for most of my current data in the simplest way.¹⁶ More data, perhaps from other varieties of Uab Meto, may lead me to revise my analysis and identify *=n* and *=ein* as separate semantically distinct allomorphs, each with a partially restricted phonological distribution.

¹⁴ The loan word *baroit* ‘groom, bride, wedding couple’ (from Dutch *bruid* [brœyt] ‘bride’) is consonant final.

¹⁵ The allomorph *=n* may have originally marked plurals with an emphasis on the group as a collection of individuals, thus paralleling the use of the quantifier *areʔ* ‘every, all’ while *=ein* marked plurals as a whole mass, thus paralleling the use of the quantifier *okeʔ* ‘all’.

¹⁶ The data for verbs is much more straightforward, with double plural marking unattested, the alternate allomorph *=nu* unattested and the form *=jgwein* also unattested. For verbs, *=n* and *=ein* can be straightforwardly analysed as allomorphs of a single enclitic.

5.6.1 Consonant Insertion after the Plural Enclitic

The plural enclitic can be followed by another enclitic. When it does so, insertion of /gw/ occurs after the allomorph =n for stems which end in a vowel sequence.

When the allomorph =ein is followed by an enclitic, consonant insertion does not usually occur between the two enclitics. There are 23 examples in my corpus, a selection of which are given in (45) below.

(45) =ein + =V → =ein=V (23 corpus examples)

<i>anah</i>	+	= <i>ein</i>	+	= <i>a</i>	→	<i>anh=ein=a</i>	‘the children’
<i>bare?</i>	+	= <i>ein</i>	+	= <i>e</i>	→	<i>baer?=ein=e</i>	‘the stuff’
<i>upu-?</i>	+	= <i>ein</i>	+	= <i>e</i>	→	<i>uup-?=ein=e</i>	‘the grandchildren’
<i>papa?</i>	+	= <i>ein</i>	+	= <i>i</i>	→	<i>paap?=ein=i</i>	‘the wounds’
<i>neka-m</i>	+	= <i>ein</i>	+	= <i>i</i>	→	<i>neek-m=ein=i</i>	‘your feelings’
<i>tua-k</i>	+	= <i>ein</i>	+	= <i>i</i>	→	<i>tua-k=ein=i</i>	‘their-selves’
<i>bae-f</i>	+	= <i>ein</i>	+	= <i>e</i>	→	<i>bae-f=ein=e</i>	‘the brothers-in-law/mates’

There is also one example in which /gw/ is inserted between =uun and a following enclitic in my corpus as well as one example in which it is inserted between =ein and a following enclitic. There are also two examples in the Amarasī Bible translation in which /gw/ is inserted between =ein and another enclitic. These four examples are given in (46) below. The two from my corpus precede those from the Bible translation.

(46) =ein + =V → =ein=gwV (three corpus examples)

<i>oe metan</i>	+	= <i>uun</i>	+	= <i>i</i>	→	<i>oe meetn=uungw=i</i>	‘the dirty (ones)’
<i>skora-m</i>	+	= <i>ein</i>	+	= <i>i</i>	→	<i>skoor-m=ein gw=i</i>	‘your schooling’
<i>anah</i>	+	= <i>ein</i>	+	= <i>a</i>	→	<i>anh=ein gw=a</i>	‘the children’
<i>a-toup noni?</i>	+	= <i>ein</i>	+	= <i>a</i>	→	<i>a-toup noin?=ein gw=a</i>	‘the disciples’

When the consonantal allomorph =n attaches to a CV# final stem and another enclitic follows, metathesis occurs, as would be expected for any CVC# final stem before an enclitic. Examples are given in (47) below.

(47) CV=n + =V → VC=n=V

<i>sepatu</i>	+	= <i>n</i>	+	= <i>i</i>	→	<i>sepa<i>ut</i>=n=i</i>	‘the shoes’
<i>hutu</i>	+	= <i>n</i>	+	= <i>an</i>	→	<i>hu<i>ut</i>=n=an</i>	‘the head-lice’
<i>kase</i>	+	= <i>n</i>	+	= <i>e</i>	→	<i>ka<i>es</i>=n=e</i>	‘the foreigners’
<i>koro</i>	+	= <i>n</i>	+	= <i>e</i>	→	<i>ko<i>or</i>=n=e</i>	‘the birds’
<i>n-toti</i>	+	= <i>n</i>	+	= <i>ah</i>	→	<i>n-to<i>it</i>=n=ah</i>	‘(they) just ask’
<i>n-hera</i>	+	= <i>n</i>	+	= <i>e</i>	→	<i>n-heer=n=e</i>	‘(they) pull it’
<i>n-fani</i>	+	= <i>n</i>	+	= <i>en</i>	→	<i>n-fai<i>n</i>=n=en</i>	‘(they’ve) now returned’
<i>na-hini</i>	+	= <i>n</i>	+	= <i>i</i>	→	<i>na-hi<i>n</i>=n=en</i>	‘(they) now know’

When a stem ending in a vowel sequence is pluralised, the allomorph *=n* occurs and /gw/ is usually inserted after it at clitic boundaries. This is the case for both the verbal and nominal uses of *=n*. Verbal examples are given in (48) below, and nominal examples in (49).

(48) $VV + =n + =V \rightarrow VV=n=gwV$

<i>n-sii</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>nsii=n=gwen</i>	‘(they’ve) now sung’
<i>n-murai</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>n-murai=n=gwen</i>	‘(they’ve) now started’
<i>n-tui</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>n-tui=n=gwen</i>	‘(they’ve) now written’
<i>n-kae</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>n-kae=n=gwen</i>	‘(they’ve) now cried’
<i>n-tea</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>n-tea=n=gwen</i>	‘(they’ve) now arrived’
<i>na-bua</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>na-bua=n=gwen</i>	‘(they’ve) now gathered’
<i>n-nao</i>	+	<i>=n</i>	+	<i>=en</i>	→	<i>nao=n=gwen</i>	‘(they’ve) now gone’
<i>n-poi</i>	+	<i>=n</i>	+	<i>=ah</i>	→	<i>n-poi=n=gwah</i>	‘(they) just went out’

(49) $VV + =n + =V \rightarrow VV=n=gwV$

<i>oe=n</i>	+	<i>=an</i>	→	<i>oe=n=gwan</i>	‘the kinds of water’
<i>mei=n</i>	+	<i>=e</i>	→	<i>mei=n=gwe</i>	‘the tables’
<i>too=n</i>	+	<i>=i</i>	→	<i>too=n=gwi</i>	‘the citizens’

Such examples are ungrammatical without consonant insertion. Two examples are **n-sii=n=en* ‘sung’ and **n-kae=n=en* ‘cried’. This creates near-minimal pairs between forms in which a final /n/ is part of the root and ones in which it is the plural enclitic. Thus, *n-sii=n + =en → n-sii=n=gwen* ‘sung’ can be compared with *n-pina + =en → n-piin=en* ‘blazed’. Similarly, among nouns insertion of /gw/ occurs after plural *=n*, but not after the 3SG.GEN suffix *-n*. Thus *too=n=gwe* ‘citizen=PL=3DET’ (‘the citizens’) can be compared with *ao=n=e* ‘body-3SG.GEN=3DET’ (‘someone’s body’).

There are indications that for verbs insertion of /gw/ may only occur before the enclitics *=en* and *=ah*. There are less than half a dozen examples in my corpus in which plural *=n* occurs attached to a verb and a clitic other than *=en* or *=ah* is attached. Three of these examples are given in (50) below, which shows that insertion of /gw/ does not occur after *=n* and before the pronoun *=e* or the discourse marker *=i*.

(50) $VV + =n + =e/=i \rightarrow VV=n=e/=i$

<i>na-ʔ-rau=n</i>		+	<i>=i</i>	→	<i>na-ʔ-rau=n=i</i>	‘made these ones bite’
3-TR-bite=PL			1DET			
<i>m-foe-foe=n</i>		+	<i>=i</i>	→	<i>m-foe-foe=n=i</i>	‘(we’ve) worked hard’
1PX/2-FRD~move=PL			1DET			
<i>n-nao=n</i>		+	<i>=e</i>	→	<i>n-nao=n=e</i>	‘went to him/her’
3-go=PL			3SG.ACC			

When *=ein* attaches to a numeral which ends in a vowel sequence, a glottal stop occurs between the clitic host and enclitic. There are two examples in my corpus, given in (51)

below. When both a numeral and enclitic occur, the numeral also has an exceptional syntactic position, occurring as an attributive nominal modifier rather than as the head of a number phrase (§6.5.1.1).

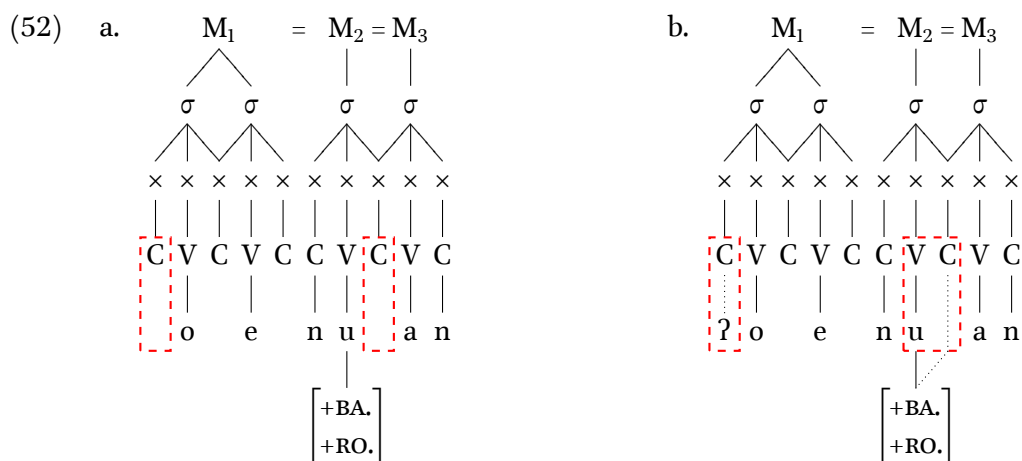
(51) $VV + =ein \rightarrow VV=?ein$

haa + *=ein* → *haa=?ein* ‘those four’
nua + *=ein* → *nua=?ein* ‘those two’

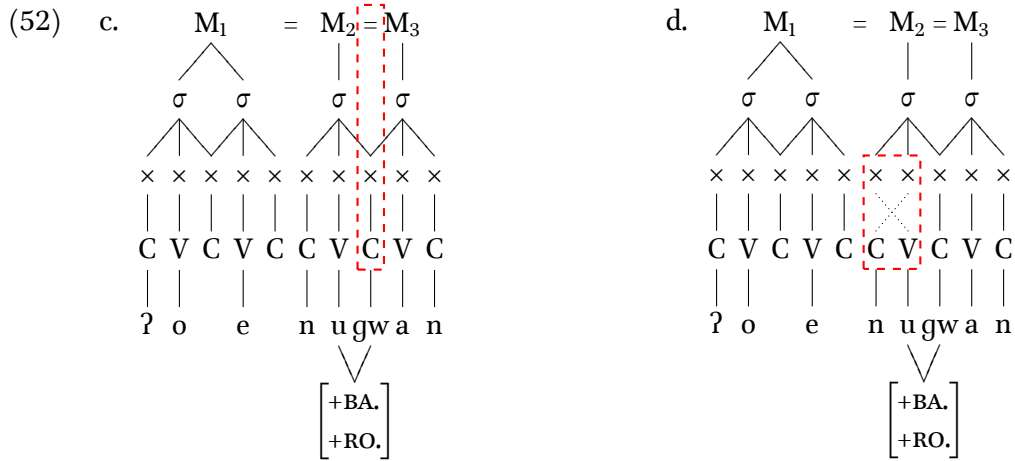
5.6.2 Analysis of /gw/ Insertion after $VV=n$

The insertion of /gw/ after the plural enclitic =n can be analysed by positing that this form of the clitic results from metathesis of underlying (or historic) =nu. While extremely rare in my data (both attestations are given on page 216) this form *is* attested without a following enclitic. I propose that this is (or was) the allomorph of this enclitic taken by words which end in a vowel sequence.

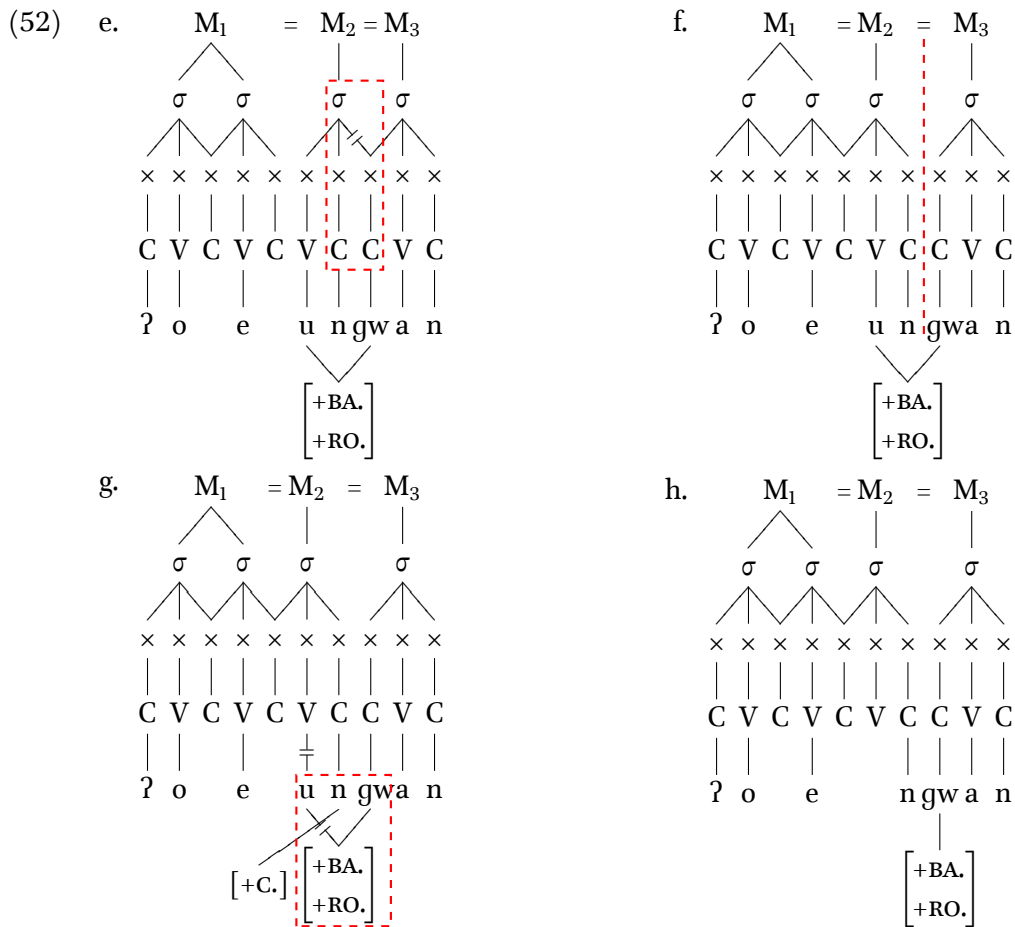
The full analysis is illustrated in (52) below for the word *oe* ‘water’ + =nu PL + =an 2DET → *oe=n=gwan* ‘the kinds of water’. The underlying/historic form of this word before metathesis and consonant insertion is given in (52a). The first morpheme and the third morpheme both begin with an initial empty C-slot. The glottal stop is inserted word initially and word medially the features [+BACK,+ROUND] of the vowel /u/ spread in (52b).



This produces the consonant /gw/ in (52c). There is also a fuzzy border between the second morpheme (=nu) and third morpheme (=an) in (52c). Because of this, metathesis occurs in (52d). Metathesis affects the clitic host, which in this case is also an enclitic; =nu.



Metathesis produces a final consonant cluster in (52e). To resolve this cluster, the final consonant de-links. This produces a crisp edge at the second clitic boundary in (52f). After metathesis, the features of the inserted consonant /gw/ and the conditioning vowel are shared across an intervening consonant, as shown in (52g). To resolve the crossed lines, the vowel features de-link yielding the attested output in (52h).

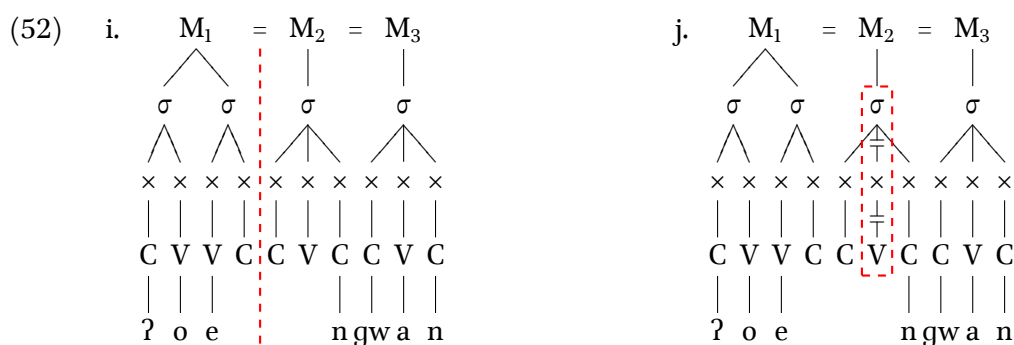


There are a number of issues still to be resolved in the underlying structure of (52h). At this point, it is unclear exactly what happens as there are no further surface changes to the word. However, given the way other morphemes behave, I offer one potential pathway by which the problematic underlying structures in (52h) are resolved.

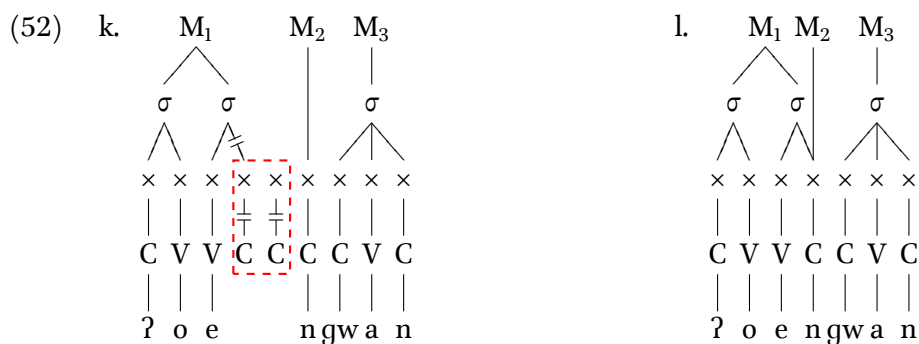
Firstly, given the new syllable structure, the second morpheme (plural enclitic) now begins with an empty C-slot. The features of the previous vowel should spread to fill this C-slot, but in this case such spreading would produce a cluster of three consonants; **oedʒɲɠwan*. Because of this, spreading is blocked.

Secondly, there is also now a fuzzy border between the first morpheme (*oe*) and the enclitic =*n*. To resolve this, metathesis occurs. This yields the structure in (52i) with a crisp edge between the first morpheme and the second morpheme.

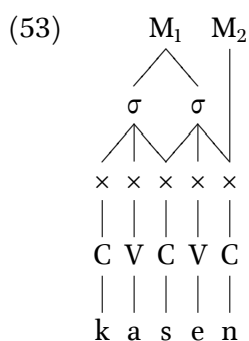
Thirdly, while Amarasi allows empty C-slots it does not allow empty V-slots. However, the empty V-slot in (52i) cannot be filled by the previous vowel as this vowel cannot spread across the intervening C-slot(s). Because this V-slot cannot be filled, it de-links in (52j), and given that it is the nucleus for its syllable, this syllable is also lost.



This results in a cluster of four C-slots in (52k). The final C-slot probably does not get deleted because it is the onset to the final syllable. The penultimate C-slot is probably protected from deletion because it is the only realisation of the second morpheme. Thus, the stranded C-slot and the coda C-slot of the second syllable are deleted. This produces the final output *oe=n-gwan* ‘the kinds of water’ in (52l).



Under this analysis it is only stems ending in a surface vowel sequence which take (or took) the allomorph *=nu*. When another enclitic is then added, this results in the entire process illustrated in (52a)–(52l) above. Stems ending in CV# on the other hand, take the allomorph *=n*, which simply fills the final C-slot. The proposed structure of *kase=n* ‘foreigners’ is given in (53) below.



When another enclitic is added, such words then behave as a CVC# final stem and undergo expected metathesis; i.e. *kase=n + =e* → *kaes=n=e* ‘foreigners’. If another variety of Uab Meto has the plural form *=nu* for CV final stems (i.e. **kase=nu*) this would be comparative support in favour of my analysis of consonant insertion after the plural enclitic for stems which end in a vowel sequence.

The remaining piece of the puzzle is the observation that in the vast majority of my data nouns (but not verbs) which end in a surface vowel sequence are pluralised with a double marking of the plural; *=n=gwein*. The examples from page 216 are repeated in (54) below.

(54) {PL} → *=n=gwein* Nominal, /VV#_

<i>bifée</i>	→	<i>bifée=n=gwein</i>	‘women’
<i>bidžae</i>	→	<i>bidžae=n=gwein</i>	‘cows’
<i>oe</i>	→	<i>oe=n=gwein</i>	‘kinds of water’
<i>pentua</i>	→	<i>pentua=n=gwein</i>	‘church elders’
<i>too</i>	→	<i>too=n=gwein</i>	‘citizens’
<i>hau</i>	→	<i>hau=n=gwein</i>	‘trees’

The insertion of /gw/ before the second plural enclitic can be accounted for by positing that the first plural enclitic is/was *=nu*, as illustrated in (52) above. However, the reason that words ending in a vowel sequence nearly always take double plural marking is unclear. Because this ‘double plural marking’ is almost obligatory in this environment I transcribe the plural enclitic after nouns which end in a vowel sequence as *=ngwein* in the rest of this thesis,

5.7 Consonant Insertion after Consonant Insertion

Exceptional insertion of /gw/ also occurs when an enclitic attaches to an enclitic which has already triggered insertion of /dž/. Examples in this section are illustrated with the enclitics

=*e* ‘3DET/3SG.ACC’ and =*en* ‘INCEP’.

When no consonant is inserted before =*e*, or /*gw*/ is inserted, /*dʒ*/ occurs before a second enclitic. This is expected after the vowel /*e*/. Examples are given in (55) below.¹⁷

(55) =*e* + =*en* → =*edʒ*=*en*

<i>na-sopu</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>na-soopgw=edʒ=en</i>	‘finished it’
<i>buku</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>buukgw=edʒ=en</i>	‘the book (already)’
<i>mepu</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>meepgw=edʒ=en</i>	‘the work (already)’
<i>na-kratiʔ</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>na-kraitʔ=edʒ=en</i>	‘destroyed it’
<i>n-porin</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>n-poirn=edʒ=en</i>	‘threw it’
<i>n-isa</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>n-iis=edʒ=en</i>	‘defeated him’
<i>ʔsobeʔ</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>ʔsoebʔ=edʒ=en</i>	‘the hat (already)’

However, when /*dʒ*/ is inserted before =*en*, /*gw*/ is inserted before any following enclitic. Examples are extremely scarce, with four occurring in Ora (2016c) and nine occurring in the Amarasi Bible translation, totalling only five unique examples. These examples are given in (56) below.

(56) *dʒ*=*e* + =*en* → *dʒ*=*egw*=*en*

<i>oe</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>oodʒ=egw=en</i>	‘the water (already)’
<i>ʔ-piri</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>ʔ-piirdʒ=egw=en</i>	‘(I’ve) chosen him’
<i>n-moʔe</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>n-mooʔdʒ=egw=en</i>	‘(s/he’s) made it’
<i>ʔ-eki</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>ʔ-ekdʒ=egw=en</i>	‘(I’ve) brought him’
<i>n-rari</i>	+	= <i>e</i>	+	= <i>en</i>	→	<i>n-raardʒ=egw=en</i>	‘finished it’

When asked, native speakers reject forms with two insertions of /*dʒ*/ such as **oodʒ=edʒ=en* ‘the water already’ or **n-raardʒ=edʒ=en*. (There is, however, a single example in my corpus: *n-heekʒ=edʒ=en* ‘caught it already’.) Insertion of /*gw*/ after insertion of /*dʒ*/ is probably a case of dissimilation. After /*dʒ*/ has been inserted at the first clitic boundary, insertion of a second /*dʒ*/ is blocked. Because of this, the default word medial consonant /*gw*/ is inserted at the second clitic boundary.

Another putative case of dissimilatory consonant insertion occurs when the inceptive enclitic =*en* occurs attached to the Indonesian loanword *estiga* ‘Ph.D., doctoral degree’.¹⁸ In this case the consonant /*dʒ*/ is inserted, apparently due to the presence of /*g*/ in the clitic host. (I heard this phrase not infrequently during my fieldwork after explaining I was learning Amarasi for my Ph.D.) It is given in (57) below.

(57) *estiga=dʒenʔ*

Ph.D=INCEP

‘(You’re) now doing a Ph.D.’

observation

¹⁷ There are also two examples in my corpus of ...*gw=idʒ=en*. Elicitation shows that insertion of /*gw*/ before =*en* and after ...*gw=i* is ungrammatical; i.e. ...**gw=igw=en*.

¹⁸ The phrase *estiga* is borrowed from Indonesian S3, an abbreviation of *sarjana tiga* ‘third bachelors/scholar’.

5.8 Summary

M-forms before vowel initial enclitics can be analysed as phonologically conditioned. When a vowel initial enclitic is added to a stem this triggers a number of phonological processes. Of these processes the main ones are: metathesis, consonant insertion and vowel assimilation. The nine unique surface phonotactic shapes with their corresponding M-forms before vowel initial enclitics are summarised in Table 5.4 below.

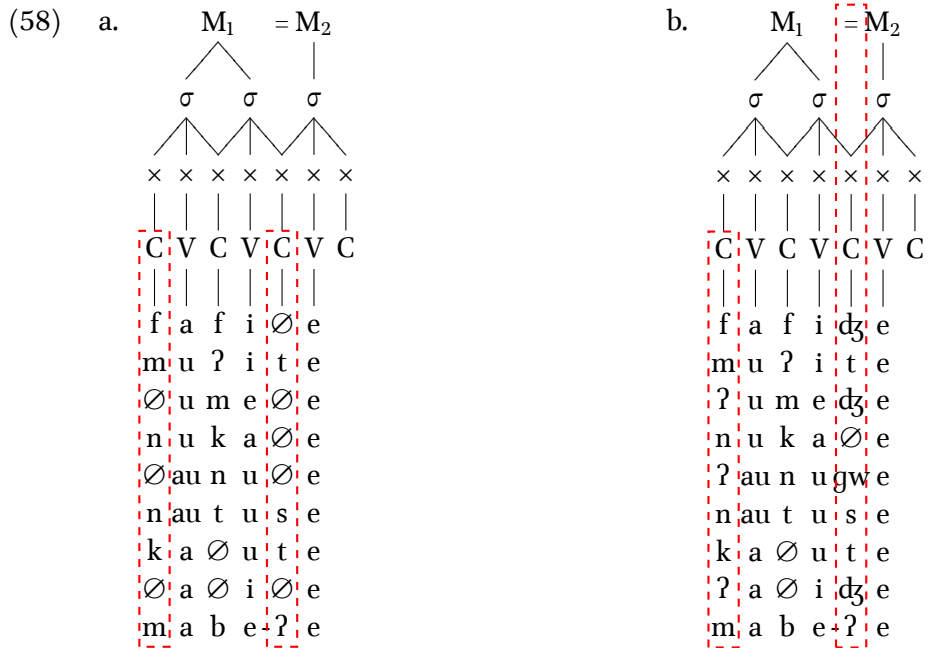
The way in which the M-form is derived from the U-form before a vowel initial enclitic is identical in each instance, with phonological processes, such as vowel deletion, occurring to resolve disallowed phonotactic structures created through metathesis.

Table 5.4: Amarasi M-forms before Enclitics

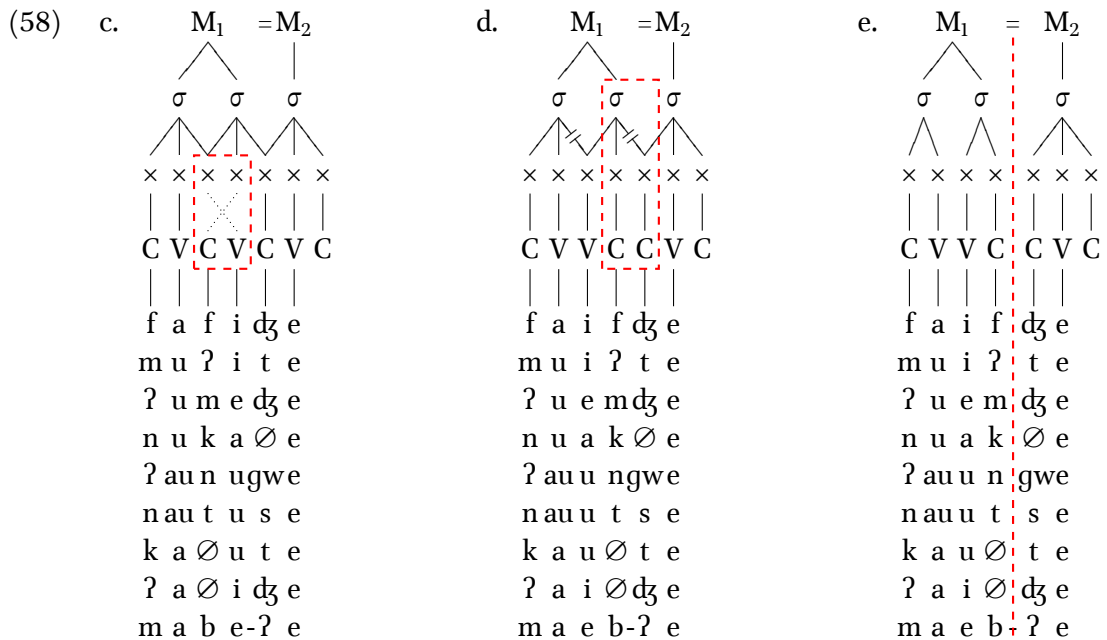
	U-form	M-form	U-form	M-form	gloss
1.	$V_{1\alpha}C_1V_{2\beta}$	$\rightarrow V_{1\alpha}V_{\alpha}C_1C_{\beta}$	<i>fafi</i>	\rightarrow <i>faafɬ=</i>	'pig'
2.	$V_1C_1V_2C_2$	$\rightarrow V_1V_2C_1C_2$	<i>muʔit</i>	\rightarrow <i>muiʔt=</i>	'animal'
3.	$V_{1\alpha[+HIGH]}C_1V_{2\beta[+MID]}$	$\rightarrow V_{1\alpha}V_{\alpha}C_1C_{\beta}$	<i>ume</i>	\rightarrow <i>uumɬ=</i>	'house'
4.	$V_{1\alpha}C_1a_2(C_2)$	$\rightarrow V_{1\alpha}V_{\alpha}C_1(C_2)$	<i>nuka</i>	\rightarrow <i>nuuk=</i>	'grief'
5.	$V_1V_2C_1V_{3\alpha}$	$\rightarrow V_1V_2C_1C_{\alpha}$	<i>aunu</i>	\rightarrow <i>aungw=</i>	'spear'
6.	$V_1V_2C_1V_3C_2$	$\rightarrow V_1V_2C_1C_2$	<i>nautus</i>	\rightarrow <i>nauts=</i>	'beetle'
7.	$V_1V_2C_1$	$\rightarrow V_1V_2C_1$	<i>kaut</i>	\rightarrow <i>kaut=</i>	'papaya'
8.	$V_{1\alpha}V_{2\beta}$	$\rightarrow V_{1\alpha}V_{\alpha}C_{\beta}$	<i>ai</i>	\rightarrow <i>aaɬ=</i>	'fire'
9.	$V_1C_1V_2-ʔ$	$\rightarrow V_1V_2C_1$	<i>mabe-ʔ</i>	\rightarrow <i>maeb=</i>	'time'

The complete analysis I have proposed in this chapter is illustrated in (58) below for each of the nine structures given in Table 5.4. Example (58a) shows the underlying forms of the phonological words (clitic host and enclitic) before consonant insertion or metathesis have occurred.

The first process is consonant insertion (§5.3). Consonant insertion occurs because morphemes require an initial consonant. When the clitic host does not have a specified final consonant, the previous vowel spreads to fill the empty onset C-slot of the enclitic. This produces the consonant /dʒ/ after front vowels and the consonant /gw/ after back vowels. When the final vowel is /a/, no consonant is inserted. Word initially, the default consonant /ʔ/ is inserted. Consonant insertion is illustrated in (58b).

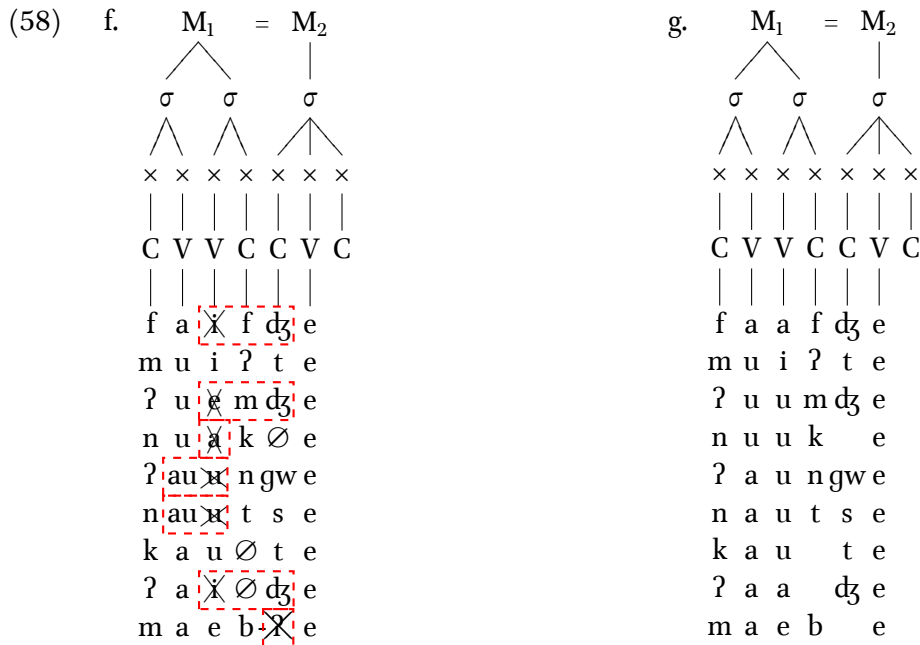


The next process is metathesis (§5.2). Metathesis occurs before enclitics because clitic hosts and enclitics should be phonologically separate. Metathesis creates a morpheme and syllable final consonant cluster in (58d) which is resolved by de-linking the final C-slot from this syllable. Because this C-slot was ambisyllabic, it remains linked to the following syllable; that of the enclitic. This results in a crisp edge, as illustrated in (58e).



The final processes are those of vowel assimilation (§4.2.3). Vowels which conditioned insertion of a consonant are deleted. This is because after metathesis they share features with

the inserted consonant across another C-slot. Any stem final instances of /a/ are also deleted after metathesis, this is due to a derived environment effect after which /a/ obligatorily assimilates after metathesis (§4.2.3.2). Previous vowels then spread into the newly empty V-slots. Any U-form suffixes are also deleted as they are now attached to an M-form. The final results after all these processes have applied is given in (58g).



In one environment Amarasi metathesis is phonologically conditioned. It occurs to create a phonological boundary between the final syllable of clitic hosts and the first syllable of enclitics. Clitic hosts and enclitics should be phonologically separate because each is an independent syntactic head. This metathesis is thus syntactically driven, but phonologically conditioned.

However, as discussed in Chapter 2, just because *some* instances of metathesis in a language are phonologically conditioned does not mean *all* instances of metathesis in that language are phonologically conditioned. In addition to phonologically conditioned metathesis, Amarasi also has instances of metathesis which cannot be accounted for purely by reference to phonology. Amarasi also has two kinds of morphological metathesis: metathesis marking syntactic structures (Chapter 6) and metathesis marking discourse structures (Chapter 7).

Chapter 6

Syntactically Driven Metathesis

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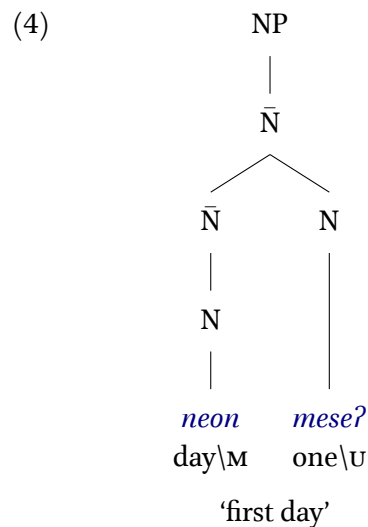
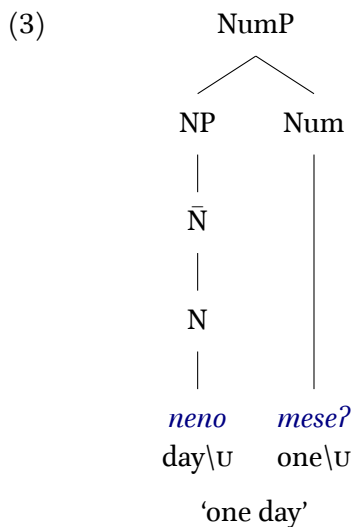
6.1 Introduction

In this chapter I describe and analyse the function of syntactic metathesis in Amarasi. Syntactic metathesis is a morphological device used to mark the presence of an attributive modifier. A metathesised word is a construct form used to signal the presence of a dependent modifier (§2.5.2.1). A syntactic M-form (metathesised form) canonically occurs in a parallel and complementary relationship with another U-form (unmetathesised form), the latter of which syntactically completes the former.

An example of the syntactic function of metathesis can be seen by comparing examples (1) and (2) below. Each consists of the noun *neno* ‘day’ followed by the numeral *mese?* ‘one’. When the head nominal occurs in the U-form, the numeral is the head of a number phrase and has a cardinal meaning. However, when the head nominal occurs in the M-form, the numeral occurs within the noun phrase and has an ordinal meaning.

(1) $n\epsilon n\omicron$ $'m\epsilon s\epsilon?$
 [_{NP} *neno*] [_{Num} *mese?*]
 day\U one\U
 ‘one day’ \blacktriangleleft

(2) $n\epsilon.\omicron n$ $'m\epsilon s\epsilon?$
 [_{NP} *neon mese?*]
 day\M one\U
 ‘first day (i.e. Monday)’ \blacktriangleleft

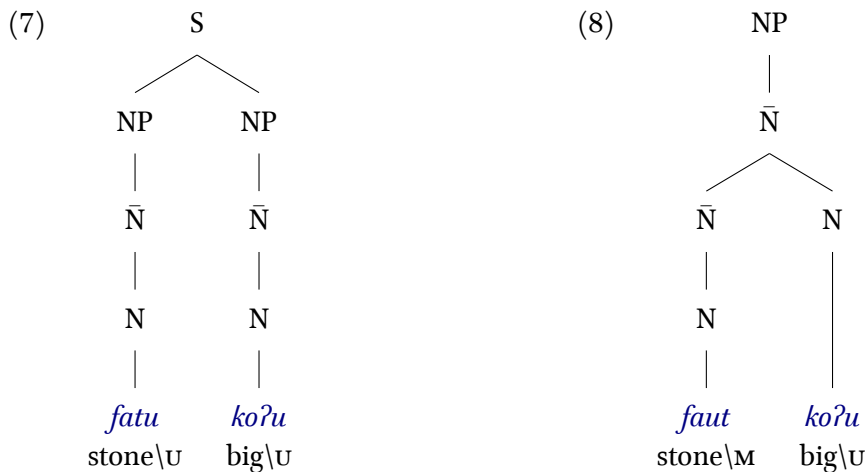


Each of the phrases in (1) and (2) has identical intonation and stress, as can be heard for with the accompanying audio files. Neither do the vowels of the M-form collapse into a

single phonetic syllable. The *only* phonetic difference between each of these phrases is the order of the final consonant and vowel of the head nominal; metathesis.

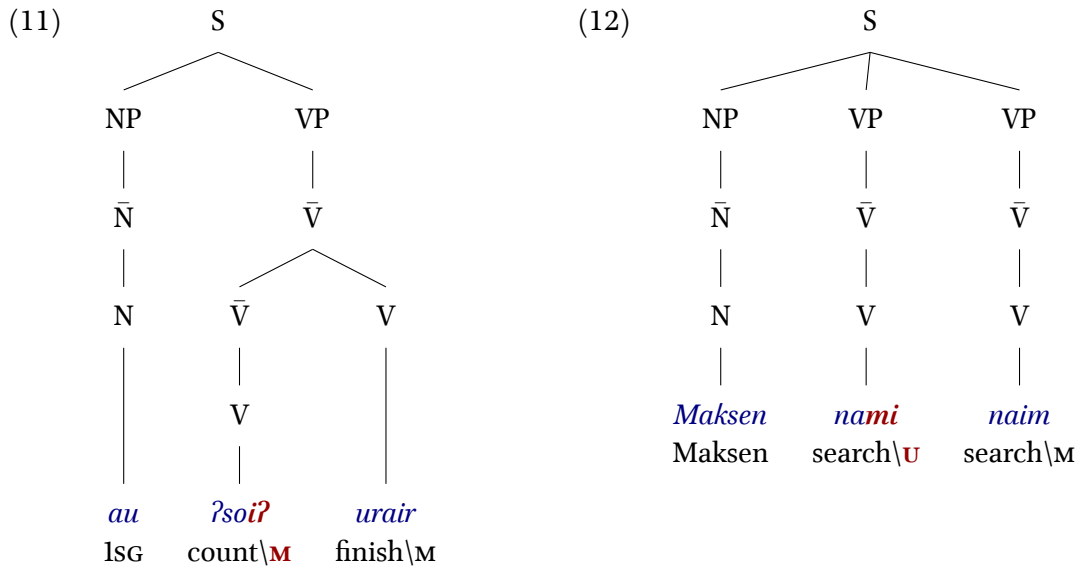
Another example of the syntactic function of metathesis can be seen by comparing examples (5) and (6) below. Example (5) with an initial U-form is an equative clause (§6.6) with two nominals as subject and predicate, while example (6) with an initial M-form consists of a single nominal phrase with the second nominal functioning attributively as a dependent modifier. Each of these phrases also has identical stress and intonation, with the difference in syntactic structure signalled by the metathesis alone.

- (5) [NP *fatu*] [NP *koʔu*]
stone\U big\U
‘Stones are big.’
- (6) [NP *faut koʔu*]
stone\M big\U
‘(a) big stone’

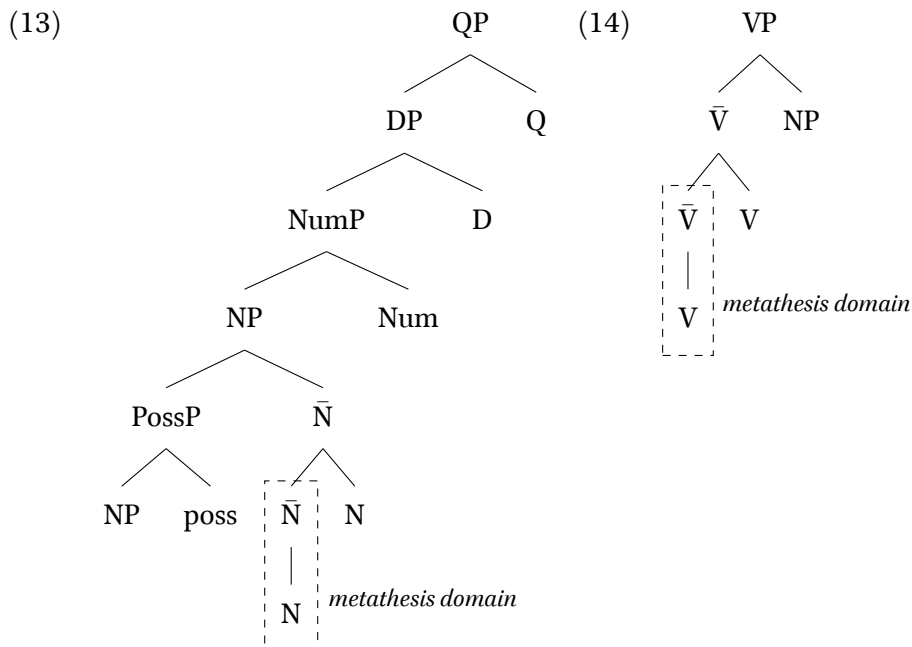


Similarly, within the verb phrase metathesis marks the presence of a modifying verb and thus marks a serial verb construction. Compare examples (9) and (10) below. Example (9) contains two adjacent verbs with the first in the M-form, thus both verbs belong to a single verb phrase and are a serial verb construction describing a single event. Example (10), on the other hand, has two adjacent verbs with the first in the U-form, and each verb is the head of its own verb phrase and describes two separate events.

- (9) *saap au* [VP *ʔ-soiʔ* *u-rair.*]
saap au ʔ-soʔi u-rari
because 1SG 1SG-count\M 1SG-finish\M
‘Because I’d finished counting’ 130825-6, 0.36 🔊
- (10) *Maksen* [VP *n-ami*] [VP *n-aim*] *n-ak suuk na-hine =t,*
Maksen n-ami n-aim n-ak suuk na-hine =te
M. 3-search\U 3-search\M 3-say rather 3-know\U =SET
‘Maksen searched and searched, he said that when he knew ...’ 130925-1, 3.32 🔊



Under the syntactic analysis I propose, metathesis is restricted to the domain of \bar{X} (X-bar); \bar{N} within the nominal phrase and \bar{V} within a phonotactically restricted subset of verb phrases. Whenever a word of the same word class as the head occurs within \bar{X} , the head occurs in the M-form. Each non final word in \bar{X} is in the M-form with the final word of \bar{X} in the U-form. The maximal structure of the extended nominal in Amarasi is given in (13) and the structure of the verb phrase in (14) with the domain of metathesis indicated.



Attributive modification is a phenomenon which typically occurs in syntax but it can also occur in morphology. In this chapter I analyse attribution within the syntax. (The possibility

of analysing attribution within the morphology is discussed in §6.3.4.) In Amarasi, the marking of modification is a functional requirement which impacts on the surface realisation. An M-form is the morphological marking of a syntactic relationship between two nominals or two verbs.

Most of this chapter is devoted to a discussion of the extended nominal phrase in which M-forms are more obviously and thoroughly constrained by syntax. I begin in §6.2 by discussing the syntactic and morphological criteria which allow us to identify a word class of nominals in Amarasi. There is no morpho-syntactic basis in Amarasi for distinguishing between a class of adjectives and nouns in Amarasi.

In §6.3 I discuss the structure of attributive phrases which trigger metathesis on the head nominal. In §6.4 I show that possession does not trigger metathesis on the head nominal. In §6.5 I show that modifiers which are not nominals do not induce metathesis on the head nominal. Such modifiers include numerals, demonstratives and quantifiers. In §6.6 I discuss the structure of equative clauses which involve two nominal phrases but do not trigger M-forms. I conclude in §6.7 by discussing the structure of the verb phrase and serial verb constructions in which non-final verbs usually occur in the M-form.

6.2 The Nominal Word Class

Content words (non-functors) in Amarasi fall into two major word classes: nominals and verbs. Some roots are specified as nominal roots, some roots are specified as verbal roots and some roots are precategoryal (Donohue 2008), being specified as neither nominal nor verbal. Table 6.1 lists the most salient morphosyntactic criteria which allow us to distinguish between nominals and verbs in Amarasi.

Table 6.1: Amarasi Word Classes[†]

	agr-	<i>a...-t</i>	<i>-b</i>	<i>ma(k)-</i>	C#→∅	SUBJ/OBJ	=DET	=Num
Nominal	–	–	–	–	✓	✓	✓	✓
precategoryal	✓	✓	✓	✓	✓	✓	✓	✓
Verb	✓	✓	✓	✓	–	–	–	–

[†] agr-: take verbal agreement prefixes (§3.6.1.1), *a...-t*: can be nominalised with the circumfix *a...-t* (§3.6.2.3), *-b*: can take the transitive suffix *-b* (§3.6.3.3), *ma(k)-*: can take the reciprocal prefix *ma(k)-* (§3.6.1.2), C#→∅ final consonant can be deleted to derive verbs (§6.2.1), SUBJ/OBJ: can be the subject or object of a verb, =DET: can take definiteness marking determiners (§6.2.3), =Num: can take number enclitics (§6.5.1.1).

In this section I discuss the four morphosyntactic criteria in Table 6.1 which allow us to identify a nominal word class: verbal derivation (§6.2.1), verbal arguments (§6.2.2), determiner modification (§6.2.3) and number enclitic modification (§6.2.4).

There is no morphosyntactic basis for distinguishing separate classes of nouns and adjectives. All differences in the behaviour of these two categories are straightforwardly explained by their semantics. For instance, only adjective-like nominals have been attested modified by *besi* ‘very’. This can be explained by the fact that some nominals, such as *reʔuf* ‘bad’, are gradable, while other nominals, such as *fatu* ‘stone’, are not gradable in Amarasī.

When it is necessary to distinguish between these semantic categories, I call nominals which refer to things ‘thing nominals’ and nominals which describe such things ‘property nominals’. Many nominals do not belong clearly to either of these semantic categories. Three such examples are *mnanuʔ* ‘long/length, deep/depth’ *kase* ‘foreign(er)’ and *anaʔ* ‘small, baby’.

6.2.1 Base for Verbal Derivation

Amarasī has a morphological process of subtraction which derives a verb from a nominal. Under this process the final consonant of a nominal root is deleted. Verbs derived by this process are usually intransitive. Examples of verbs derived from nominals by word final consonant deletion are given in (15) below. Verbs are listed with the 3SG prefix *na-/n-*.

Comparison of the Amarasī forms with Proto-Malayo-Polynesian reconstructions (when available), reveals that the nominal forms with a final consonant are usually more conservative than the verbal forms, as the final consonant of the nominal form is a retention from Proto-Malayo-Polynesian. Two examples are *quzan > *uran* ‘rain’ → *na-ʔura* ‘rains’ and *ma-dinʔiŋ > *mainikin* ‘cold’ → *n-mainiki* ‘is cold’. Such examples show that the deleted consonants are not synchronically suffixes.¹

(15) ...VC# Nominal → ...V# Verb

‘rain’	<i>uran</i>	→	<i>na-ʔura</i>	‘rains’
‘cold’	<i>mainikin</i>	→	<i>n-mainiki</i>	‘is cold’
‘sea snail’	<i>kbatus</i>	→	<i>na-kbatu</i>	‘gathers sea snails’
‘digging stick’	<i>ʔsuak</i>	→	<i>na-ʔsua</i>	‘digs with a digging stick’
‘umbrella’	<i>tenuk</i>	→	<i>n-tenu</i>	‘shades’
‘sarong’	<i>tais</i>	→	<i>na-tai</i>	‘(s/he) clothes s.o.’
‘dry’	<i>metoʔ</i>	→	<i>n-meto</i>	‘is dry’
‘aged, old’	<i>mnasiʔ</i>	→	<i>na-mnasi</i>	‘becomes old’
‘bad’	<i>reʔuf</i>	→	<i>n-reʔu</i>	‘is broken/bad/rotten/ruined’

6.2.2 Subject and Object

Nominal phrases are eligible to be the subject or object of a verb. Amarasī word order is subject verb object (SVO). Any extended nominal phrase can be a subject or object in Amarasī

¹ In some other examples the deleted consonant may be a historic suffix, though is not usually analysable as an affix in the modern language.

while there are no examples of verbs as objects or subjects in my entire corpus. Two examples of a nominal as the subject of a clause are given in (16) below.

- (16) [SUBJ *be?i*] *na-suna* =te, [SUBJ *na?i*] *n-sapi ?so- ?panu ?sono?*
 PM 3-spin.thread =SET PF 3-shave coconut.shell spoon
 ‘While the grandmothers were spinning thread, the grandfathers would cut
 coconut shells into spoons.’ 120715-3, 0.33 ◀

Two examples of a nominal phrase with a single nominal in post-verbal position as the object of the clause are given in (17) and (18) below.

- (17) *n-naa?* [OBJ *benas*] *he n-nao =t, a?i-...*
 3-hold machete IRR 3-go =SET yesterday
 ‘He was holding a machete to go, yesterday..’ 130914-2, 0.46 ◀
- (18) *neni nima =te, hai m-piir* [OBJ *bupati*]
 day five =SET 1PX 1PX/2-elect regent
 ‘After five days we’ll elect a regent.’ 130902-1, 4.32 ◀

When the object nominal has already been introduced in the discourse and/or is a known participant, it is preceded by *re?*.² Such uses of *re?* are glossed GVN.OBJ ‘given object’.

Two examples of topical objects preceded by *re?* are given in (19) and (20) below, each of which is extracted from a history of the village of *Koro’oto*. In example (19) the topical participant is introduced as a subject in (19a). It is repeated as subject in (19b) and when it is an object in (19c) it is preceded by *re?*.

- (19) How the hamlet of Koro’oto got its name: 160326 ◀
- a. *neot=es =ate, sin n-took na-mfa~faun =ate koorgw=es, a|n-kae.*
 time=one =SET 3PL 3-sit 3-INTNS~many =SET bird=one 3-cry
 ‘One time while they were all sitting together a bird cried.’ 4.16
- b. *koru ia n-kae =t n-ak: “koor’oot, koor’oot, koor’oot.”*
 bird IDEM 3-cry =SET 3-say koor’oot koor’oot koor’oot
 ‘This bird cried out: “koor’oot, koor’oot, koor’oot”’ 4.25
- c. *sin hai be?i na?i =sin n-aim* [OBJ *re?* *koru ia.*]
 3PL 1PX PM PF =ASSOC.PL 3-look.for GVN.OBJ bird this
 ‘Those ancestors of ours looked for this bird.’ 4.31

In example (20) below the object of the prepositional verb *n-bi* is *Koor’oot* ‘Koro’oto’ which has long since been established as a highly topical participant in this story.

- (20) *na, jadi noki-noki =te, na-tua n-bi* [OBJ *re?* *Koor’oot*] *sero ?roo.*
 well so eventually =SET 3-live 3-RL.LOC GVN.OBJ K. rather long
 ‘Well, eventually they’d been living in Koro’oto rather a while.’ 160326, 10.06 ◀

² The other functions of *re?* are as a general purpose relativiser, (glossed REL) and to re-introduce participants into the discourse (glossed REINT). In Koro’oto village *re?* has the optional alternate form *ne?*.

Nominal phrases containing only a property nominal can also be verbal arguments. Two examples of such nominal phrases as the object of a verb are given in (21) and (22) below.³

- (21) *a|n-mo?e ma n-poodz=en a|n-bi* [OBJ *meto?*]
 3-make and 3-exit-INCEP 3-RL.LOC dry
 ‘He made and went out onto a dry place.’ 120715-4, 0.45 🔊
- (22) *baisenu-t =ma ronaen n-eu* [OBJ *muti?* =*ma mnatu?*]
 look.up-NML =and greeting 3-DAT white\U and gold
et muit ma-hine-? =ma mnatu? neee.
 IPFV.LOC white\M PROP-know-PROP =and gold PAUSE
 ‘Greetings and honour to (those like) silver and gold, wise silver and gold’ (figurative for ‘wise and honoured dignitaries’.) 140726, 0.00 🔊

Other parts of the extended nominal phrase including numbers, demonstratives and quantifiers can also be the subject and object of a verb. Examples are given in §6.5.

6.2.2.1 Pronominal Subjects and Objects

Pronouns are a subclass of nominals in Amarasi. They can be distinguished from other nominals as they inflect for case: nominative or accusative. Nominative pronouns are given in Table 6.2 and accusative pronouns in Table 6.3. Nominative pronouns are used for subjects, and accusative pronouns for objects.⁴

Table 6.2: Nominative Pronouns

	SG	PL
1	<i>au</i>	<i>hai</i>
1,2		<i>hit</i>
2	<i>ho</i>	<i>hi</i>
3	<i>in</i> [†]	<i>sin</i>
0		<i>hit</i>

[†] Ro'is has *hin*.

Table 6.3: Accusative Pronouns

	SG	PL
1	<i>=kau</i>	<i>=kai</i>
1,2		<i>=kit</i>
2	<i>=ko</i>	<i>=ki</i>
3	<i>=e</i>	<i>=sin</i>
0		<i>=kit</i>

Examples of nominative pronouns as the subject are given in (23)–(25) below. Verbs agree with the subject in person and number. Two examples of an accusative pronoun as the object of a verb are given in (26) and (27) below.

- (23) *au he u-toon n-ok kuan Nekmese?*
 1SG IRR 1SG-tell 3-with village N.
 ‘I want to talk about Nekmese’ village.’ 120715-1, 0.30 🔊

³ There is no morphosyntactic basis for separating the verbs *n-bi* RL.LOC (realis locative) and *n-eu* DAT (dative) from the verbal word class.

⁴ Accusative pronouns have a number of additional functions. They also mark benefactives as well as being the second element in a pronominal equative clause (§6.6).

- (24) *ho mu-mnau fatu Brao=n kona? hiut?*
 2SG 2SG-remember stone Br.=PL hole seven
 ‘Do you remember (the story of) the Brao stones’ seven holes?’ 120715-4, 3.05 🔊
- (25) *hai m-nao mi-tuin =sin mama~mama =sin n-bi=n Ponain.*
 1PX 1PX/2-go 1PX/2PL-follow =3PL FRD~mum =ASSOC.PL 3-RL.LOC=PL P.
 ‘We went and followed those women in Ponain.’ 130902-1, 1.18 🔊
- (26) *mama na-tuina? =kau =ma,*
 mum 3-follow =1SG.ACC =and
 ‘Mum agreed with me and...’ 130907-4, 2.32 🔊
- (27) *erteedz=i n-poo? =kai =ma hai m-fena =m*
 neighbourhood.head=1DET 3-wake =1PX.ACC =and 1PX 1PX/2-rise =and
 ‘The neighbourhood head woke us up and we got up and...’ 130902-1, 3.38 🔊

The third person singular accusative pronoun is the vowel initial enclitic *=e*. Examples are given in (28) and (29) below. This enclitic is also a nominal determiner (§6.2.3, §6.5.2), marking the definiteness and topicality of a nominal phrase (see §6.2.3.1 for more details).

- (28) *na-sae-b=e =m n-eekdz=e n-nao n-bi Alor.*
 3-rise-TR=3SG.ACC =and 3-take=3SG.ACC 3-go 3-RL.LOC A.
 ‘(They) picked him up and took him to Alor.’ 130907-3, 10.29 🔊
- (29) *oras ia au ?-oop?=e n-fain et au kuan.*
 time 1DEM 1SG 1SG-pour=3SG.ACC 3-again IPFV.LOC 1SG village
 ‘Now I’m just pouring it back into my (own) village.’ 130825-6, 3.33 🔊

One syntactic test which allows us to identify a word class of nominals in Amarasi is that nominals can be the subject or object of a verb.

6.2.3 Determiners

Another syntactic criterion which nominals fulfil is that they can be followed by a determiner. The Amarasi determiners are given in Table 6.4 below. They have the same four person values present in the genitive suffixes (§3.6.3.1, §6.4.2), pronouns (§6.2.2.1) and verbal agreement prefixes (§3.6.1.1).

Table 6.4: Amarasi Determiners

Form	Gloss	Use
<i>=i</i>	1DET	definite referent near/relevant to speaker
<i>=an</i>	2DET	definite referent near/relevant to addressee
<i>=e</i>	3DET	definite referent near/relevant to a third person
<i>=a</i>	0DET	definite referent near/relevant to no one (a kind of obviative)

All these determiners are vowel initial enclitics, and the stem to which they attach undergoes phonologically conditioned metathesis, as discussed in Chapter 5. (Such phonologically conditioned M-forms are glossed ‘ \bar{M} ’.) These enclitics occur after definite topical nominals, discussed further in §6.2.3.1 below.

The enclitic =*e* can also attach to a verb to mark a third person singular pronominal object. Similarly, the enclitic =*i* can attach to a phrase to raise the discourse prominence of that phrase. The enclitics =*an* ‘2DET’ and =*a* ‘0DET’ have only been attested attached to a nominal phrase. An example of each is given in (30) and (31) below.

- (30) *Meok Seran aanh=an nai? sekaagw=en?*
 M. S. child=0DET Mr. who=INCEP
 ‘Who is Meok Seran’s son, then?’ 130825-6, 6.31 ◀
- (31) *atoni-? in, n-pairoir in mui?t=a =t in n-hae jadi*
 man-U 3SG 3-prepare 3SG animal=0DET =SET 3SG 3-tired so
 ‘Someone prepares his animal (and then) he’s tired, so ...’ 120923-1, 7.15 ◀

Property nominals can also take any of the nominal determiners given in Table 6.4. Examples are given in (32) and (33) below.


- (32) *ho m-aitɕ=e berarti of ho m-ait mu-fani? mapuut?=e.*
 2SG 1PX/2-take=3SG.ACC mean later 2SG 1PX/2-take 2SG-repeat hot=3DET
 ‘(If) you take it, it means that later you’ll burn repeatedly.’ (*lit.* ‘take repeatedly the hot/heat’) 120923-1, 12.22 ◀
- (33) *n-poi n-bi meot?=e onai =te ...*
 3-exit 3-RL.LOC dry=3DET like.that =SET
 ‘Having gone out onto the land like that ...’ 120715-4, 0.47 ◀

6.2.3.1 Function of Determiners

Determiners in Amarasi occur attached to singular referents which are known definite information. They have the same four person values found in other Amarasi paradigms, and naturally pattern with equivalent pronouns, as illustrated in examples (34)–(37) below.

- | | |
|--|--|
| (34) <i>au nisi-k=i</i>
au nisi-k=i
1SG tooth\̄M-3PL/1GEN=1DET
‘my tooth’ | (35) <i>ho nisi-m=an</i>
ho nisi-m=an
2SG tooth\̄M-1PX/2GEN=2DET
‘your tooth’ |
| (36) <i>in nisi-n=e</i>
in nisi-n=e
3SG tooth\̄M-3SG.GEN=3DET
‘his tooth’ | (37) <i>in nisi-n=a</i>
in nisi-n=a
3SG tooth\̄M-3SG.GEN=0DET
‘someone’s tooth’ |

The use of these determiners to mark known definite nominals is illustrated in (38) below. The discourse of (38) is structured such that each clause (with the exception of the first) is paralleled by the following clause. The first part of each pair (38b, 38d, 38f) introduces a new participant into the discourse, with this participant then repeated marked with a determiner in the second part of each pair (38c, 38e, 38g).


- (38) How Moo'-hitu made the world: 120715-4 
- a. *naʔ n-sanu n-fani kreʔo~kreʔo =ma*
 then 3-descend\U 3-back\U FRD~slow =and
 'Then (he) went back down slowly and'
- b. *n-fani n-bi in [bara-n.]_{NEW-i}*
 3-return\U 3-RL.LOC 3SG place\U-3SG.GEN
 'went back to his place.' 0.37
- c. *n-fani n-bi in [baar-n=i.]_{OLD-i}*
 return\U 3-RL.LOC 3SG place\M-3SG.GEN=**1DET**
 'went back to his place.'
- d. *in [baar-n=e]_{OLD-i} et oodʒ=e [nana-n.]_{NEW-j}*
 3SG place\M-3SG.GEN=**3DET** IPFV.LOC water\M-3DET inside\U-3SG.GEN
 'His place was in the water.' 0.40
- e. *n-bi~bi oodʒ=e [naan-n=e]_{OLD-j} onai =te,*
 3-FRD~RL.LOC water\M-3DET inside\M-3SG.GEN=**3DET** and.then
 'Having been in the water for a while,' 0.43
- f. *a|n-moʔe =ma n-poodʒ=en a|n-bi [metoʔ.]_{NEW-k}*
 3-make\U =and 3-exit\M-INCEP 3-RL.LOC dry\U
 '(he) made and went out onto dry land.' 0.45
- g. *n-poi n-bi [meotʔ=e]_{OLD-k} onai =te,*
 3-exit 3-RL.LOC dry\M-3DET and.then
 'Having gone out onto the dry land,'
- h. *in ka= n-muiʔ =fa [bare]_{NEW-l} he na-tua =m*
 3SG NEG= 3-have\M =NEG place\U IRR 3-settle =ma
 'he didn't have a place to live and, ...' 0.47

The choice between different determiners is extremely subtle and serves to signal different levels of discourse prominence among definite participants. In (38) above the second mentions of *nana-n* 'inside' in (38e) and *metoʔ* 'dry' in (38g) each occur with the third person determiner =*e*. Each of these nouns is also only mentioned twice in this extract.

This is in contrast to *bara-n* 'place', which on its second mention in (38) occurs with the first person determiner =*i*. This noun is also the only noun which occurs three times in this extract with its third mention in (38d) occurring with the third person determiner =*e*. (Note also that the same noun occurs in (38h), though in this instance with a different referent.)⁵

⁵ The final vowel of *bare* 'place' is irregularly /a/ when a genitive suffix is attached; i.e. *bara-n* place-3SG.GEN.

The first person determiner raises the discourse prominence of the participant it is attached to and signals that this participant is slightly more important than other participants. Such subtleties are further illustrated in (39) below, in which a single participant occurs with *=i* 1DET on its first mention and *=an* 2DET on its second mention.

- (39) Asking for the name of someone: 130825-6 
- a. *ho feat-f=i bi sekau?*
 2SG mZ\M-KIN.GEN=1DET Ms. who
 ‘Who is your sister?’ 2.06
- b. *au aanh=i nai? Lukas feedz=an?*
 1SG child\M=1DET Mr. L. wife=2DET
 ‘My son Lukas’s wife?’ 2.09



By changing from the first person determiner in (39a) to the second person determiner *=an* in (39b) the speaker moves this participant from his own ‘space’ to the ‘space’ of the addressee; it is knowledge the speaker wants to know but which the addressee is presumed to have access to.

6.2.4 Number Enclitics

Another characteristic of Amarasi nominals is that they can be modified by either of the number enclitics given in Table 6.5 below. The syntactic structure of these number enclitics is discussed in §6.5.1.1. Examples of a nominal followed by a number enclitic are given in (40)–(42) below. The plural enclitic allomorph *=ein* is used after consonant final stems and *=n* after vowel final stems (§5.6).

Table 6.5: Amarasi Number Enclitics

Form	Gloss	Use
<i>=ein, =n</i>	PL	plural
<i>=es</i>	one	indefinite singular; the numeral one (1)

- (40) *sbaek?=es na-fua, sbaek?=es a|msa? na-fua.*
 branch=one 3-fruit branch=one also 3-fruit
 ‘One branch grew fruit, the other branch also grew fruit.’ 130822-1, 0.56 
- (41) *a|n-tui hi kaan-m=ein n-bi ean?=ein ehh?*
 3-write 2PL name-1PX/2GEN=PL 3-RL.LOC door=PL Q
 ‘Were your names were written on the doors?’ 130825-7, 0.38 
- (42) *a|m-kius m-iit koro=n re? na-tpene=n et neengw=e tnana-n.*
 1PX/2-see 1PX/2-try bird=PL REL 3-fly=PL IPFV.LOC sky=3DET middle-3SG.GEN
 ‘Look at the birds which fly in the sky.’ Matthew 6:26

Examples of property nominals which are the head of a nominal phrase modified by a number enclitic are rare. This is probably due to the fact that property nominals do not usually have a countable meaning. Three examples from the Amarasī Bible translation are given in (43)–(45) below. In examples (43) and (44) the nominal modified by *=ein* is a property nominal derived from a verbal root with the property circumfix *ma-...-?* (§3.6.2.2).

- (43) *ma are? kana=n rasi re? ka= ma-hini-? =fa oras ia, of*
 And every name=PL matter REL NEG= PROP-know-PROP =NEG time IDEM later
ma-hiin-?=ein.
 PROP-know-PROP=PL
 ‘And each matter which is not known now will later be known.’ Luke 8:17
- (44) *na-tuin baer?=ein naan sin ka= ma-?oos-?=ein =fa.*
 3-because thing=PL 2DEM 3PL NEG= PROP-price-PROP=PL =NEG
 ‘Because those things have no value.’ Genesis 33:11
- (45) *rari =t niti mnaut nua=?ein naan sin ma?feen-k=ein sekel bo?=es.*
 finish =SET bracelet gold two=PL 2DEM 3PL heavy-3PL/1GEN=PL shekel ten=one
 ‘Then those two gold bracelets weighed ten shekels.’ (*lit.* ‘their heavinesses were’)
 Genesis 24:22

The plural enclitic *=ein/=n* also occurs with verbs. When it does so it marks that one of the arguments is plural.

6.2.4.1 The Polyfunctional Form *es*

The form *es* has a number of functions in Amarasī, not all of which are as an enclitic. Most of these uses are derived from or extensions of original Proto-Malayo-Polynesian *əsa ‘one’.

Firstly, this form can occur as a number enclitic attached to a noun phrase. When it does so, it has a range of uses which range between the numeral ‘one (1)’ and a more semantically bleached indefinite marker. Two examples in which the numeral meaning of this enclitic is not prominent are given in (46) and (47) below.

- (46) *fee mnais?=es nema =ma n-ak:*
 old.woman=**one** 3\come =and 3-say
 ‘An old woman came and said:...’ 120715-3, 0.46 🔊
- (47) a. *nai? Soan re? ia in am-neem-n=i na-?ko,*
 Mr. S. REINT IDEM 3SG NML-come-3SG.GEN=1DET 3-ABL
 b. *paah kuan=**es** kaan-n=e Kuatunis.*
 country village=**one** name-3SG.GEN=3DET K.
 ‘Now this Soan had his origin in a village called Kuatunis.’ 130821-1, 3.47 🔊

Two examples in which the numeral function of *=es* is more prominent are given in (48) and (49) below.

- (48) *oka =t tua-f nua n-fain nai =t, tua-f=es na-maika? n-ok*
 after.that person-0GEN two 3-return and.then person-0GEN=**one** 3-stay 3-with
=kit funan nua, of hi es m-oka=n.
 =1PL.ACC moon two later 2PL one 1PX/2-with=PL
 ‘After that two of the people will go back and then one person will stay with us for
 two months, later you’ll be the ones with him.’ 130821-1, 1.17 ◀

- (49) *taa?ɕ=es=i muti?.*
 branch=**one**=1DET white
 ‘One of these branches was white.’ 130823-2, 0.49 ◀

The form *es* also has a number of non-enclitic uses as an independent word. None of these uses trigger M-forms. One of these uses is as the head of noun phrase with the meaning ‘one’, as in examples (50) and (51) below. In such uses *es* selects a single referent out of a range of possible referents.

- (50) a. *es et a|?Taka?, ?Taka?.*
 one IPFV.LOC 'T. 'T.
 ‘One (of them) was at 'Taka', (that one is) 'Taka'.’ 120715-1, 0.44 ◀
- b. *es et Kotos, Koor?oto.*
 one IPFV.LOC K. K.
 ‘One (of them) was at Kotos, (that one is) Koro'oto.’ 0.47
- (51) *es a|n-poi n-teni?.*
 one 3-exit 3-again
 ‘One (of them) came out again.’ 130906-1, 3.15 ◀

Probably as an extension of this use, *es* is used in a contrastive focus construction in which it introduces participants who are in contrast with other participants of the discourse. Often this contrast is implicit, and indeed in many instances the contrast function is semantically bleached and *es* functions as a copula or relativiser. Four examples are given in (52)–(54) below.

- (52) *jadi, in na?i in be?i es n-na-kona? re? fatu Braon.*
 so 3SG PF 3SG PM one 3-hole REL stone Br.
 ‘So, his ancestors were the ones who made the holes in the Braon stones.’ 120715-4,
 4.07 ◀
- (53) *au es a-na~nao-t. au es a-tok~took sidan.*
 1SG one NML-INTNS~go-NML 1SG one NML-INTNS~sit meeting
 ‘I was the one who went (*lit.* goer). I was the one who attended the meetings (*lit.*
 meeting sitter).’ 130907-3, 8.40 ◀
- (54) *au es a-meup umi.*
 1SG one NML-work house
 ‘I’m the one building the house.’ (*lit.* ‘house worker’) Obs. 13/09/2014, p.96

When *es* is used as a copula, it has the optional plural form *esan*, when the subject is plural. This form is almost certainly derived from a historic U-form **esa*, with the plural consonantal enclitic allomorph =*n* attached.⁶ Two examples of plural *esan* are given in (55) and (56) below.

- (55) *in naʔi in beʔi esa=n reʔ ma-keen uun.*
 3SG PF 3SG PM one=PL REL PROP-weapon earlier
 ‘His ancestors were the ones who were at war.’ 120715-4, 3.57 ◀
- (56) *na, uab=ein esa=n reʔ ia.*
 well speech=PL one=PL REINT IDEM
 ‘Well, these are the things I wanted to say.’
 (*lit.* ‘Speeches are the ones who are here.’) 130905-1, 1.18 ◀

Finally, there is a homophonous word *es* which is a locative marker. This *es* is probably not cognate with the numeral *es*, and is instead related to the locative *et*. There does not appear to be any semantic contrast between these two forms. Both forms are an imperfective or progressive locative, which mark a location where the subject was/is, but from which it later moved/will move. The form *et* is more common in my corpus with 79 attestations compared to eight attestations of locative *es*.⁷ Two examples of locative *es* are given in (57) and (58) below.

- (57) *aan moonɕ=es es nana-f ia, feʔ munif.*
 child male=one IPFV.LOC inside-0GEN IDEM still young
 ‘A young man currently inside here, (he’s) still young.’ 130821-1, 0.38 ◀
- (58) *m-aamɕ=e =t, m-iit=e es meeʔ*
 IPX/2-look.for=3SG.ACC =SET IPX/2-see=3SG.ACC IPFV.LOC where
 ‘When you look for him, where will you find him?’ 130925-1, 1.24 ◀

To summarise, the form *es* has a number of functions. When it is a number enclitic it functions as the numeral ‘one’ or as an indefinite marker and it triggers M-forms. In other situations it is an independent word and does not trigger M-forms.

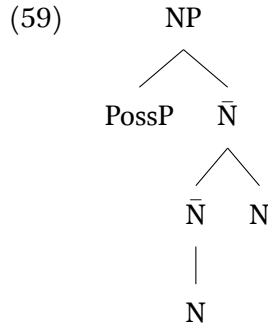
6.3 Attributive Modification

Having established the formal criteria by which we can identify a word class of nominals, I now discuss the structure of the Amarasi nominal phrase and the use of syntactic M-forms. The structure of the Amarasi nominal phrase is given in (59) below, following the conventions of a version of X-bar theory (Bresnan et al. 2016). The specifier of the nominal phrase can

⁶ The forms *et* IPFV.LOC and *a-bit-t* ‘NML-RL.LOC-NML’ = ‘inhabitant’ similarly have plural forms *etan* and *abitān* respectively. See §4.2.5.1 for more discussion.

⁷ In other varieties of Uab Meto, including Amfo’an and Baikeno, the form *es* is more common.

be filled by a possessive phrase (§6.4.3) and the adjunct position can be filled by another nominal. Non-final nominals below the level of \bar{N} obligatorily occur in the M-form.



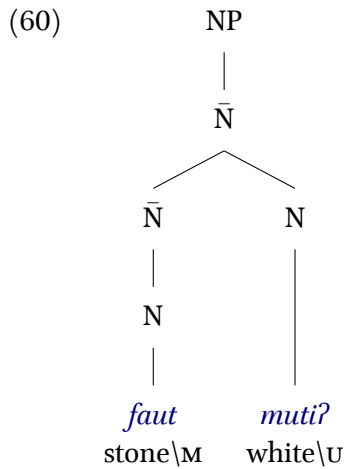
After a discussion of the basic facts of attributive nominal phrases I discuss a number of specific cases. Most phrases involving loans (§6.3.1) and proper nouns (§6.3.2) behave identically to other nominal phrases and provide additional evidence that the use of M-forms is a productive process in Amarasí. Nominal phrases with a conventionalised meaning are discussed in §6.3.4.

The use of M-forms before ordinal numbers and the use of U-forms before cardinal numbers (§6.3.3) provides strong evidence that M-forms in attributive phrases cannot be analysed as phonologically conditioned. I conclude my discussion of attributive modification with a discussion of phrases with more than one nominal modifier (§6.3.5).

Table 6.6: Attributive Nominal Phrases

N_1	+	N_2		Phrase				
<i>fatu</i>	+	<i>muti?</i>	→	<i>faut muti?</i>	‘stone’	+	‘white’	→ ‘white stone’
<i>afu</i>	+	<i>me?e</i>	→	<i>aufme?e</i>	‘earth’	+	‘red’	→ ‘red earth’
<i>atoni-?</i>	+	<i>reko</i>	→	<i>atoin reko</i>	‘man’	+	‘good’	→ ‘good man’
<i>bare</i>	+	<i>ko?u</i>	→	<i>baer ko?u</i>	‘place’	+	‘big’	→ ‘big place’
<i>bruuk</i>	+	<i>oe metan</i>	→	<i>bruu oe metan</i>	‘pants’	+	‘dirty’	→ ‘dirty pants’
<i>kase</i>	+	<i>muti?</i>	→	<i>kaes muti?</i>	‘foreign’	+	‘white’	→ ‘European’
<i>rasi</i>	+	<i>re?uf</i>	→	<i>rais re?uf</i>	‘matter’	+	‘bad’	→ ‘evil matter’
<i>ri?ana?</i>	+	<i>munif</i>	→	<i>ri?aan munif</i>	‘child’	+	‘young’	→ ‘(a) young child’
<i>anah</i>	+	<i>mone</i>	→	<i>aan mone</i>	‘child’	+	‘male’	→ ‘son’
<i>baba-f</i>	+	<i>mone</i>	→	<i>baab mone</i>	‘FZ/MB’	+	‘male’	→ ‘MB’
<i>kaut</i>	+	<i>sufa?</i>	→	<i>kau sufa?</i>	‘papaya’	+	‘blossom’	→ ‘papaya blossom’
<i>mata-f</i>	+	<i>tei</i>	→	<i>maat tei</i>	‘eye’	+	‘faeces’	→ ‘rheum’
<i>manus</i>	+	<i>fua-f</i>	→	<i>maun fua-f</i>	‘betel’	+	‘fruit’	→ ‘betel pepper’
<i>utan</i>	+	<i>kaut</i>	→	<i>uut kaut</i>	‘vegetable’	+	‘papaya’	→ ‘papaya leaves’

A number of attributive nominal phrases extracted from my corpus are given in Table 6.6 above. The syntactic structure of one of these, *faut muti?* ‘white stone’, is given in (60) below.



The use of attributive nominal phrases is highly productive in Amarasi and speakers freely innovate new ones in a similar way to the use of adjective and noun phrases in English. Such examples show that the use of M-forms in attributive nominal phrases in Amarasi is a productive morphological process.

One example is given in (61) below. In (61a) the speaker introduces the nominal *tani* ‘rope’, what kind of rope is then specified in (61b) with the complex nominal *tain tuni*; it is a rope made from a gewang palm.

- (61) Making a magical sign to protect one’s garden from theft: 120923-2 🔊
- a. *ya, n-pake ?soko?. n-heer tani.*
 yes 3-use sign 3-pull rope\U
 ‘Yes, (he) uses a sign. Ties a rope.’ 1.37
- b. *na-tuu? tain tuni, tua, =ma*
 na-tu?u tani tuni tua =ma
 3-make.knot rope\M gewang.palm\U ADDR =and
 ‘(He) ties up a rope made from gewang palm (leaves) and ...’ 1.39

Another two examples are given in (62) below which is part of a story about a kind of curse: the *biku* curse. In (62a) we find the nominal phrase *rais biku* ‘the matter of *biku*’. This nominal is elaborated on in (62b) by the compound *moa? biku*, ‘the doing/practice of *biku*’.

- (62) Casting the *biku* curse: 120923-1 🔊
- a. *in n-nao n-ok re? rais biku re? ia,*
 in n-nao n-ok re? rasi biku re? ia
 3SG 3-go 3-with GVN.OBJ matter\M curse\U REINT IDEM
 ‘He went along with this matter of cursing (people),’ 0.53
- b. *moa? biikgw=i*
 mo?e biku=i
 deed\M curse\M=IDET
 ‘the practice of cursing.’ 0.55

6.3.1 Loan Nominals

More evidence that the use of M-forms is productive in Amarasi comes from the behaviour of loanwords. When one or more parts of an attributive phrase is a loanword, the first nominal usually takes the expected M-form according to the normal rules discussed in Chapter 4.

Two examples of nominal phrases involving assimilated loans are given in (63) and (64) below. In (63) the second part of the phrase *rais pirsai-t* ‘matters of belief’ is a loan from Malay *percaya* ‘believe’ (ultimately from Sanskrit *pratyeti*). Similarly in (64) the second part of the nominal phrase *amnaah bubur* ‘porridge eater’ is a loan from Malay *bubur* ‘porridge’.

- (63) *hai mi-noni?* *n-ok, a|n-ma-toom* *n-ok* *hit rais* *pirsai-t.*
 hai mi-noni? n-ok n-ma-toma n-oka hit rasi pirsai-t
 1PX 1PX/2PL-learn 3-with 3-RECP-about 3-with 1PI matter\M believe-NML
 ‘We learnt about matters to do with (our) belief.’ 130921-1, 1.35 ◀
- (64) *au ka= a-mnaah bubur* *=kau* *=fa!*
 au ka= a-mnaha-t bubur =kau =fa
 1SG NEG= NML-eat\M porridge\U =1SG.ACC =NEG
 ‘I don’t usually eat porridge!’ (*lit.* ‘I’m not a porridge eater!’) 130825-6, 17.02 ◀

In (65) below both elements of the nominal phrase *oot dinas* ‘work car’ are loans with *oto* from Dutch *auto* ‘car’ and *dinas* being a loan from Malay *dinas* ‘service, official’ (ultimately from Dutch *dienst*). The nominal *dinas* is furthermore a phonologically unassimilated loan, as Amarasi does not have the phoneme /d/. Nonetheless, the first nominal of this nominal phrase occurs in the expected M-form and the second nominal also occurs in the M-form with consonant-vowel metathesis as expected before enclitics (see Chapter 5).

- (65) *in n-ek in oot diins=i* *=m na-sae-ba?* *=kau.*
 in n-eki in oto dinas=i =ma na-sae-ba? =kau
 3SG 3-bring 3SG car\M service\M=1DET =and 3\TR-go.up-TR =1SG.ACC
 ‘He brought his work car and picked me up.’ 130825-6, 13.28 ◀

In (66) the entire nominal phrase *kapaal desa* ‘village head’ is a loan from Malay *kepala desa*. Nonetheless, the first part is in the M-form, resulting in metathesised *kapaal* from *kapala*. Furthermore, neither part of this nominal phrase has been phonologically assimilated with both of the non-native consonants /l/ and /d/ remaining unchanged.⁸

- (66) *natun niim on kapaal desa* *n-ok* *in a|staaf=ein=e.*
 natun nima on kapala desa n-ok in staaf=ein=e
 thousand five IRR.LOC head\M village\U 3-with 3SG staff=PL=3DET
 ‘Five thousand (goes) to the village head and his staff.’ 130926-1, 0.45 ◀

⁸ The phonemes /d/ and /l/ are assimilated as /r/ in naturalised loans (§3.2.2.3).

Similarly in (67) below the nominal phrase *baas Indonesia* ‘Indonesian language’ is a loan from Kupang Malay *basa Indonesia*. Nonetheless the first part of the nominal phrase surfaces in Amarasi in the expected M-form with final consonant-vowel metathesis of putative underlying *basa*.

- (67) *kaah, on re? nati? =te, sin n-nena =ha Uisneno in kaibn=i, n-eki =ha*
 kaah on re? nati? =te sin n-nena =ha Uisneno in kabin=i n-eki =ha
 NEG like normal =SET 3PL 3-hear =only God 3SG word=IDET 3-use =only
uab, baas Indonesia.
 uaba basa Indonesia
 speech\M language\M Indonesia
 ‘Unlike normal, when they just hear God’s word in Indonesian.’ 130920-1, 4.20 ◀

6.3.1.1 Loans without M-forms

Although many loan words are treated the same as native vocabulary when they occur in an attributive nominal phrase, there are some loanwords for which this is not the case. Notably, consonant final loanwords do not have M-forms in attributive phrases.

One example is given in (68) below with the nominal phrase *tukan hau* ‘carpenter’, in which the first nominal occurs in an apparent U-form rather than expected **tuuk hau*. Amarasi *tukan* is borrowed from Malay *tukang* [tukanj] ‘artisan’. I have an additional five examples of the form *tukan* as the first nominal in an attributive phrase in my corpus, three of *tukan hau* as in example (68), and two of *tukan besi* ‘blacksmith’ (cf. Malay *tukang besi*).⁹

- (68) *na, au u-teenb=i, au ?-ak of ai? he ?-bi*
 na au u-tenab=i au ?-ak of ai? he ?-bi
 well 1SG 1SG-think=IDET 1SG 1SG-say sure or IRR 1SG-RL.LOC
skoor tuukn=i, tukan hau
 skora tukan=i tukan hau
 school\M artisan\M=IDET artisan wood
 ‘Well, I thought I would surely be at the artisan school, carpentry.’ 130907-3, 1.23 ◀

Despite the fact that consonant final loan nominals are not attested with M-forms before attributive modifiers, they *are* attested with M-forms before vowel initial enclitics. One example has already been given in (68) in which the form *tuukn=i* ← *tukan* + *=i* occurs.

⁹ Another example is the nominal *skora* ~ *skoor* ‘school’. There is variation in as to whether the root is \sqrt{skora} from which the M-form *skoor* is regularly derived, or whether the root is consonant final \sqrt{skoor} for which no M-form can be derived (the expected M-form would be **skoo*). Such variation is even found in the speech of single speakers. This may be a case of borrowing from different sources; Dutch *school* /sɔ:l/ > *skoor* and Portuguese *escola* /eskɔla/ > *skora*. The form *skora* could be via intermediate Malay which has *sekolah* /səkɔlah/. The verbal equivalent of this nominal normally has the U-form *na-skora* ‘(s/he) studies’ and the M-form *na-skoor*. These forms could be borrowing from the Dutch verb *scholen* [sɔ:lə].

This provides evidence that the metathesis before vowel initial enclitics is a different kind of metathesis to metathesis in nominal attributive phrases. In Chapter 5 I analysed metathesis before vowel initial enclitics as an automatic phonologically conditioned process. This phonological process applies to all words without regard to whether they are loans or not. Morphological metathesis, on the other hand, has phonotactic restrictions on the kinds of loans it applies to. Consonant final loan nominals do not usually undergo morphological metathesis. This phonotactic restriction also occurs among verbs in Amarasi. As discussed in §6.7.1, consonant final verbs followed by an attributive modifier usually occur in the U-form.

6.3.2 Proper Names

Combinations of two personal names, typically a first name and a family/clan name, are usually treated as an attributive nominal phrase with the first name occurring in the M-form. One example is given in (69a) below, in which the name *Tefa?* occurs in the M-form before *Unus*, and in the U-form when no following modifier occurs.

- (69) a. *oke? =te re? a-tupa-s re? ia n-teek=e =t n-ak:*
oke? =te re? a-tupa-s re? ia n-teka=e =te n-ak
 after.that REL NML-sleep-NML REINT IDEM 3-call=3SG.ACC =SET 3-say
 ‘After that the one who is asleep (dead) here they called her.’ 130821-1, 6.03 ◀
- b. *bi Teef Unus, ai? bi Tefa?*
bi Tefa? Unus ai? bi Tefa?
 Ms. T.\M U.\U or Ms. T.\U
 ‘Tefa’ Unus or (just) Tefa!’

In example (70a) below, the first time the person is mentioned only his first name is given. When the speaker clarifies who exactly this *Tinus* is by supplying a clan name, the first name occurs in the M-form.

- (70) a. *re? au u-toon ia =t, nai? Tinus a|n-palaŋ nua.*
re? au u-tona ia =te nai? Tinus n-palaŋ nua
 REL ISG ISG-tell IDEM =SET Mr. T.\U 3-crossbeam two
 ‘I told (him) this. Tinus trapped two (cows).’ 130925-1, 2.02 ◀
- b. *Tiun Nuban n-palaŋ nua.*
Tinus Nuban n-palaŋ nua
 T.\M N.\U 3-crossbeam two
 ‘Tinus Nuban trapped two.’ 2.04

A similar example is given in (71) below, in which the name *Da?i* ‘David’ occurs in the U-form when on its own, but in the M-form when the family name of the referent follows.

- (71) a. *n-ok nai? Manase, nai? Da?i*
 n-ok nai? Manase nai? Da?i
 3-with Mr. M. Mr. D.\U
 ‘With Manasseh, (and) David,’ 130907-5, 0.21 
- b. *Dai? Saebeis?=i n-ok nai? Manase Bani.*
 Da?i Saebeis?=i n-ok nai? Manase Bani
 D.\M S.\M=1DET 3-with Mr. M. B.\U
 ‘David Saebeis’ with Manasseh Bani.’ 0.29

Note, however, that in example (71b) the name *Manase* ‘Manasseh’, does *not* occur in the M-form when the family name *Bani* follows. A search of my corpus reveals many other instances in which a first name followed by a family name does not occur in the expected M-form. A selection of other examples include: *Paulus Ora?*, *Harun Bani* and *Saul Bani*. In most such instances, the first name is a non-nativised Biblical name.¹⁰

6.3.3 Ordinal Numbers

Cardinal numbers take U-forms in Amarasi, while there is one set of ordinal number which induce M-forms on the head noun. Nonetheless, both kinds of phrases have identical stress patterns. This fact precludes an analysis of Amarasi M-forms as phonologically conditioned by stress as has been proposed for both Rotuman (§2.4.1) and Leti (§2.4.2).

Table 6.7: Amarasi Numerals

No.	Cardinal	Ordinal [†]	Ordinal [‡]
1	<i>=es, mese?</i>	<i>mese?</i>	
2	<i>nua</i>	<i>nua?</i>	<i>no=nua-n</i>
3	<i>tenu</i>	<i>tenu?</i>	<i>no=tenu-n</i>
4	<i>haa</i>	<i>haa?</i>	<i>no=haa-n</i>
5	<i>nima</i>	<i>nima?</i>	<i>no=nima-n</i>
6	<i>nee</i>	<i>ne?e</i>	<i>no=ne?e-n</i>
7	<i>hitu</i>	<i>hitu?</i>	<i>no=hitu-n</i>
8	<i>fanu</i>	<i>fanu?</i>	<i>no=fanu-n</i>
9	<i>seo</i>	<i>se?o</i>	<i>no=seo-n</i>
10	<i>bo?=es</i>	<i>bo?</i>	<i>no=bo?</i>

[†] Used for weekdays and months of the year (take M-forms).

[‡] Used for more general purposes (take U-forms).

Amarasi has two sets of ordinal numbers. One set is used specifically for days of the week and months of the year, while the other set is used in other instances. The ordinal

¹⁰ While the name *Da?i* in (71a) is Biblical, it *is* (semi-)nativised. The form <Da'i> /da?i/ is associated with Timor and has its origins on Rote island. It is perceived by Amarasi speakers to be a Timorese name. The Indonesian (but non-Timorese) form of the name *David* is *Daud*.

numbers used for days of the week and months of the year are mostly formed from the cardinal numbers through addition of a glottal stop, either as a suffix or as an infix and obligatorily occur with M-forms. The general purpose ordinal numbers take a proclitic *no*= ‘ORD’ and a suffix *-n* and occur with U-forms. The Amarasi cardinal and ordinal numbers are given in Table 6.7.

The ordinal numbers used for counting days and months are nominals and thus induce M-forms on the preceding nominal. Four examples of an attributive ordinal number are given in (72) and (73) below. Phrasal stress is indicated in each example with an acute accent. In both instances phrasal stress falls on the penultimate or final vowel of each intonation group.

- (72) [nɛɛn hɛʔ ɛfi nɛ t̥é: || am ferdi ka n-óke f]
nean haa-ʔ afi naa =te, aam Ferdi ka= n-oka =f.
 neno haa-ʔ afi naa =te ama Ferdi ka= n-oka =fa
 day\M four-ORD yesterday =SET F\M F. NEG= 3-with\U =NEG
 ‘Thursday (4th day), yesterday, father Ferdi didn’t join (us).’ 130920-1, 2.11 ◀▶

- (73) [fɔn hit̥ʊ fɔn fanʊ kɛ t̥ fɔn séʔɛ]
fuun hitu-ʔ, fuun fanu-ʔ kah =t fuun se<ʔ>a.
 funan hitu-ʔ funan fanu-ʔ kah =te funan se<ʔ>o
 moon\M seven\U-ORD moon\M eight-ORD NEG =SET moon\M nine<ORD>
 ‘July (or) August, if not September.’ (*lit.* ‘seventh moon, eighth moon if not ninth moon.’) 120715-2, 0.37 ◀▶

Cardinal numbers do not induce M-forms on the nominal they follow. Two textual examples of a U-form nominal followed by a cardinal numeral are given in (74) and (75) below. As in examples (72) and (73) above, phrasal stress falls on the final or penultimate vowel of the intonation group.







- (74) [hɛj mɾɛs sin nɛnʊ hɛ́]
hai m-rees =sin neno haa.
 1PX 1PX/2-read\M =3PL day\U four
 ‘We read them for four days.’ 130920-1, 3.29 ◀▶
- (75) [t̥ʊɛfɛs namajkɛ nɔk kit fɔnɛn nʊɛ =m
tua-f=es na-maikaʔ n-ok =kit funan nua =m
 tua-f=es na-maikaʔ n-oka =kit funan nua =ma
 person-0GEN=one 3-stay 3-with =1PL.ACC moon\U two =and
 of hi ɛs mʊkɛn]
of hi ɛs m-oka=n.
 of hi ɛs m-oka=n
 later 2PL one 1PX/2-with=PL
 ‘One person is staying with us for two months and later you’ll be with the ones with him.’ 130821-1, 1.18 ◀▶

The different behaviour of nominals followed by ordinal and cardinal numbers provides some of the most unambiguous evidence that metathesis before attributive modifiers in Amarasī cannot be analysed as a purely phonological phenomenon conditioned by the placement of phrasal stress.

The examples in (72)–(75) above all have very similar stress patterns. The penultimate or final phonemic syllable of each intonation group bears stress, and yet M-forms occur before ordinal numbers and U-forms before cardinal numbers.

As discussed previously in §4.5.3.1, this behaviour is shown even more explicitly, by the nominal *nenō* ‘day’ followed by each of the cardinal and ordinal numbers 1–6, as given in Table 6.8. The placement of stress in each example is identical and the only phonological difference between each pair of phrases is metathesis of the final syllable of the nominal *nenō* ‘day’, and (when applicable) the presence of a glottal stop to form an ordinal number.

Table 6.8: Amarasī Nominals and Numerals

Cardinal	Ordinal
<i>nenō mese?</i> [nɛnɔ'mɛsɛʔ]  ‘1 day’	<i>neon mese?</i> [nɛ.ɔn'mɛsɛʔ]  ‘Monday’
<i>nenō nua</i> [nɛnɔ'nɔ.ɐ]  ‘2 days’	<i>neon nua-ʔ</i> [nɛ.ɔ'nɔ.ɐʔ]  ‘Tuesday’
<i>nenō teun</i> [†] [nɛnɔ'tɛ.ɔn]  ‘3 days’	<i>neon tenu-ʔ</i> [nɛ.ɔn'tɛnɔʔ]  ‘Wednesday’
<i>nenō haa</i> [nɛnɔ'ha:]  ‘4 days’	<i>neon haa-ʔ</i> [nɛ.ɔn'haʔ]  ‘Thursday’
<i>nenō niim</i> [nɛnɔ'ni:m]  ‘5 days’	<i>neon nima-ʔ</i> [nɛ.ɔ'n:i:mɐʔ]  ‘Friday’
<i>nenō nee</i> [nɛnɔ'ne:]  ‘6 days’	<i>neon ne(ʔ)e</i> [nɛ.ɔ'n:ɛʔɛ]  ‘Saturday’ [‡]

[†] The default form for cardinal numerals is the M-form (Chapter 7).

[‡] The normal phrase for Sunday is *nenō krei* ‘day + Church’. The phrase *neon hitu-ʔ* ‘seventh day’ occurs twice in the Amarasī Bible translation in Genesis 2.

While different phrasal stress patterns may have contributed to the diachronic development of Amarasī metathesis, this analysis is no longer possible for the synchronic data. Metathesis is a morphological device used to signal the presence of an attributive modifier. Syntactic structures for the nominal and numeral phrases *nenō mese?* ‘one day’ and *neon mese?* ‘Monday’ from Table 6.8 are given in (76) and (77) below.

- (76) [NP *nenō*] [NumP *mese?*]
 day\U one\U
 ‘one day’
- (77) [NP *neon mese?*]
 day\M one\U
 ‘first day (i.e. Monday)’

6.3.4 Lexicalised Attribution

A nominal phrase can have a conventionalised, lexicalised meaning. A sample of such nominal phrases is given in Table 6.9 below. In all such examples the first nominal takes the expected M-form in the same way as other nominal phrases.

Table 6.9: Lexicalised Nominal Phrases

N ₁	+	N ₂	→	Phrase				
<i>anin</i>	+	<i>nautus</i>	→	<i>ain nautus</i>	‘wind’	+	‘beetle’	→ ‘cyclone’
<i>fafi</i>	+	<i>tai-f</i>	→	<i>faif taif</i>	‘pig’	+	‘guts’	→ ‘sea anemone’
<i>kbiti</i>	+	<i>oe</i>	→	<i>kbiit oe</i>	‘scorpion’	+	‘water’	→ ‘pseudo-scorpion’
<i>knaa?</i>	+	<i>kase</i>	→	<i>knaa kase</i>	‘bean’	+	‘foreign’	→ ‘peanuts’
<i>knafo</i>	+	<i>oe</i>	→	<i>knafoe</i>	‘mouse’	+	‘water’	→ ‘mole cricket’
<i>koro</i>	+	<i>maka?</i>	→	<i>koor maka?</i>	‘bird’	+	‘rice’	→ ‘sparrow’
<i>?bibi</i>	+	<i>kase</i>	→	<i>?biib kase</i>	‘goat’	+	‘foreign’	→ ‘sheep’
<i>okam</i>	+	<i>asu</i>	→	<i>ook asu</i>	‘gourd’	+	‘dog’	→ ‘choko, chayote’
<i>mone</i>	+	<i>fe?u</i>	→	<i>moen fe?u</i>	‘male’	+	‘new’	→ ‘son-in-law’ [†]
<i>paha</i>	+	<i>meto?</i>	→	<i>paah meto?</i>	‘country’	+	‘dry’	→ ‘Timor’
<i>tais</i>	+	<i>muti?</i>	→	<i>tai muti?</i>	‘sarong’	+	‘white’	→ ‘sarong for man’ [‡]
<i>uaba</i>	+	<i>meto?</i>	→	<i>uab meto?</i>	‘speech’	+	‘dry’	→ ‘Uab Meto’
<i>utan</i>	+	<i>muti?</i>	→	<i>uut muti?</i>	‘vegetable’	+	‘white’	→ ‘bok choy’ [§]
<i>me?e</i>	+	<i>mainuki?</i>	→	<i>mee? mainuki?</i>	‘red’	+	‘unripe’	→ ‘pink’

[†] *moen fe?u* means both ‘son-in-law’ (DH) and ‘opposite sex sibling’s son’ (ZS [m.s.], BS [w.s.]).

[‡] Specifically, a traditional Amarasi sarong for men. While the middle part of *tai muti?* is indeed white, the dominant colour is maroon.

[§] A calque from Malay *sayur putih*. An older (now archaic) Amarasi term for bok choy is *uut rariis*. Speakers cannot identify a meaning for *rariis* by itself.

One possible analysis of such phrases would be to propose that they are instances of compounding, with the entire phrase consisting of only a single nominal. This analysis is shown in (78a) below, for *koor maka?* ‘sparrow’. Alternately, such phrases can be analysed as consisting of two independent nominals, as shown in (78b).

- (78) a. [_{NP} [_N *koor* *maka?*]]
 bird\M rice\U
 ‘sparrow’
- b. [_{NP} [_N *koor*] [_N *maka?*]]
 bird\M rice\U
 ‘sparrow’

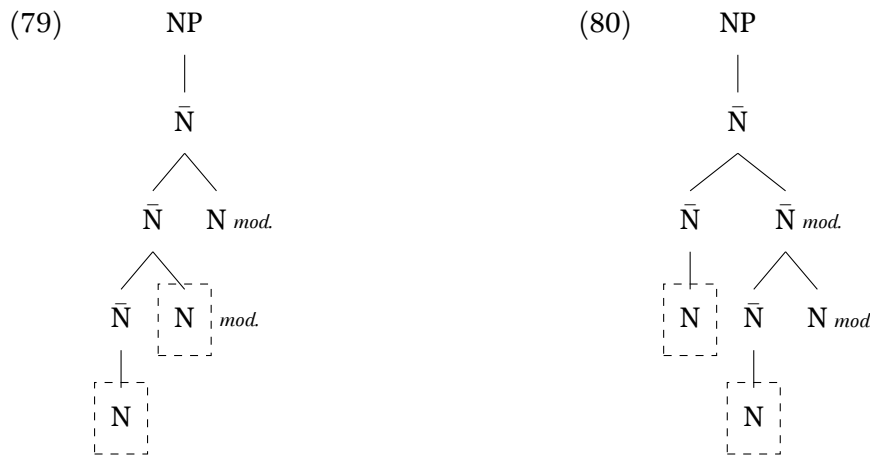
Apart from the conventionalised meaning of such phrases, there is very little evidence that they have a different syntactic status to nominal phrases with a compositional meaning.

One possible piece of evidence in favour of a compounding analysis is the fact that there are some modern day nominals which appear to have been formed historically through combination of two nominals with subsequent reduction or attrition in the phonological shape of the first nominal. Three possible examples are *biɕʌe* ‘cow’ + *kase* ‘foreign’ > **biɕʌe kase* > *biɕʌkase?* ~ *bikase?* ‘horse’ (with unexplained final glottal stop), *ri?it* ‘younger sibling’ + *ana?* ‘small; baby’ > **rii? ana?* > *ri?ana?* ‘child’, *naiso?o* ‘onion’ + *muti?* ‘white’ > **naisoo? muti?* > *naisoo muti?* ‘garlic’.¹¹

¹¹ The term *naisoo muti?* ‘garlic’ is a calque on Malay *bawang putih*. An older Amarasi term is *karpeo*.

6.3.5 Multiple Modifiers

It is possible for a nominal phrase to contain multiple attributive modifiers. This can occur in two ways. Firstly, the head nominal can be modified by two modifiers, as shown in (79) below, or the attributive modifier can itself consist of a modified nominal, as shown in (80) below. The syntactic head(s) which occur in the M-form are indicated by a box. For each kind of structure both the first and second nominals occur in the M-form as expected.



Examples of nominals followed by multiple modifiers are given in Table 6.10. Each of these nominals has the structure $[[[N_1]N_2]N_3]$ with an attributive phrase modified by a third nominal. This structure corresponds to the tree given in (79) above. Of these, the first two have a partially compositional meaning while the third has a lexicalised meaning.

Table 6.10: Nominals with Multiple Attributive Modifiers: $[[[N_1]N_2]N_3]$

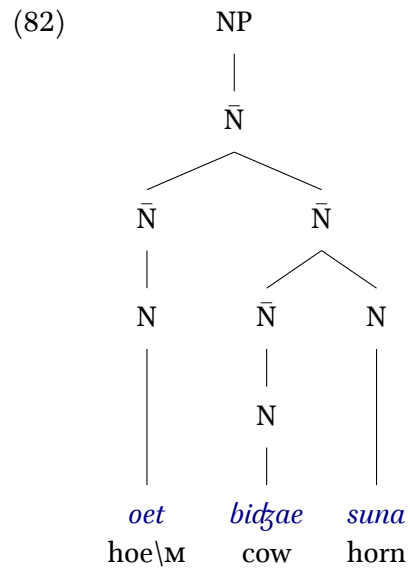
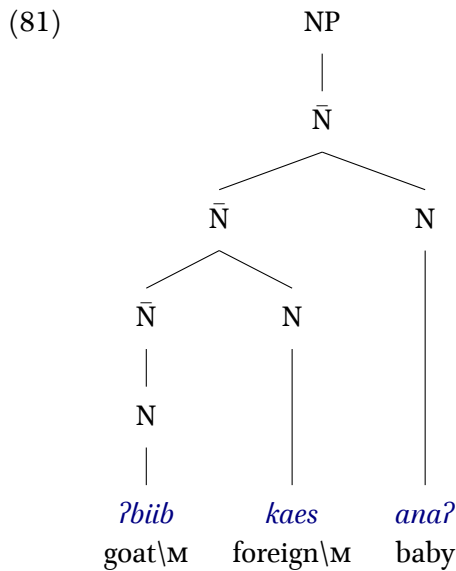
$[[[N_1]$	$N_2]$	$N_3]$			
<i>utan</i>	+ <i>kaut</i>	+ <i>sufa?</i>	→	<i>uut kau sufa?</i>	'papaya blossom vegetable papaya blossom as a vegetable'
<i>?bibi</i>	+ <i>kase</i>	+ <i>ana?</i>	→	<i>?biib kaes ana?</i>	'lamb' goat foreign baby
<i>koro</i>	+ <i>kae</i>	+ <i>muti?</i>	→	<i>koor kae muti?</i>	'Yellow-crested Cockatoo' bird cry white

A number of nominal phrases with the structure $[N_1[[N_2]N_3]]$ are given in Table 6.11 below. In such phrases the second two nominals form a phrase which modifies the first nominal, thus corresponding to tree (80) above. All of the nominal phrases in Table 6.11 have a lexicalised meaning.

The structure of two of these nominal phrases with multiple modifiers are given in (81) and (82) below to illustrate their differing structures. The structure of *?biib kaes ana?* 'lamb' is given in (81) and that of *oet biɕʒae suna* 'pickaxe' in (82).

Table 6.11: Nominals with Multiple Attributive Modifiers: $[N_1[[N_2]N_3]]$

$[N_1$	+	$[[N_2]$	+	$N_3]]$	→		
<i>ote?</i> hoe		<i>biɕae</i> cow		<i>suna</i> horn		<i>oet biɕae suna</i>	'pickaxe'
<i>unus</i> chilli		<i>fua-f</i> fruit		<i>koʔu</i> big		<i>uun fua koʔu</i>	'Holland chilli'
<i>simah</i> katydid		<i>tai-f</i> belly		<i>boko</i> curved		<i>siim tai boko</i>	'k.o. large green katydid'
<i>unus</i> chilli		<i>fua-f</i> fruit		<i>mnutuʔ</i> fine		<i>uun fua mnutuʔ</i>	'bird's eye chilli'
<i>kaunaʔ</i> creature		<i>fee</i> wife		<i>mnasiʔ</i> old		<i>kaun fee mnasiʔ</i>	'woodlouse'



The largest attributive nominal phrase in my dictionary is *anah* 'child' + *mone* 'male' + *a-heti-t* 'NML-stop-NML + *susu* 'milk' → *aan moen aheit susu* 'youngest son', literally 'male child (who) stopped the milk'. This nominal phrase has the structure $[[[aan] [moen]] [[aheit] [susu]]]$, with the second nominal modifying the first, the fourth modifying the third and the final attributive phrase modifying the first attributive phrase.

As with attributive phrases consisting of two nominals, the use of multiple modifiers is highly productive in Amarasi. Two textual examples of the structure $[[[N_1]N_2]N_3]$, with a single nominal modified by multiple modifiers are given in (83) and (84) below.

- (83) *au ʔ-sao neʔ riʔaanʔ=e, aan feat koʔu.*
 au ʔ-sao neʔ riʔanʔa=e anah fetu koʔu
 ISG ISG-marry GVN.OBJ child\N̄=3DET child\M female\M big\U
 'I married the daughter, the eldest daughter.'

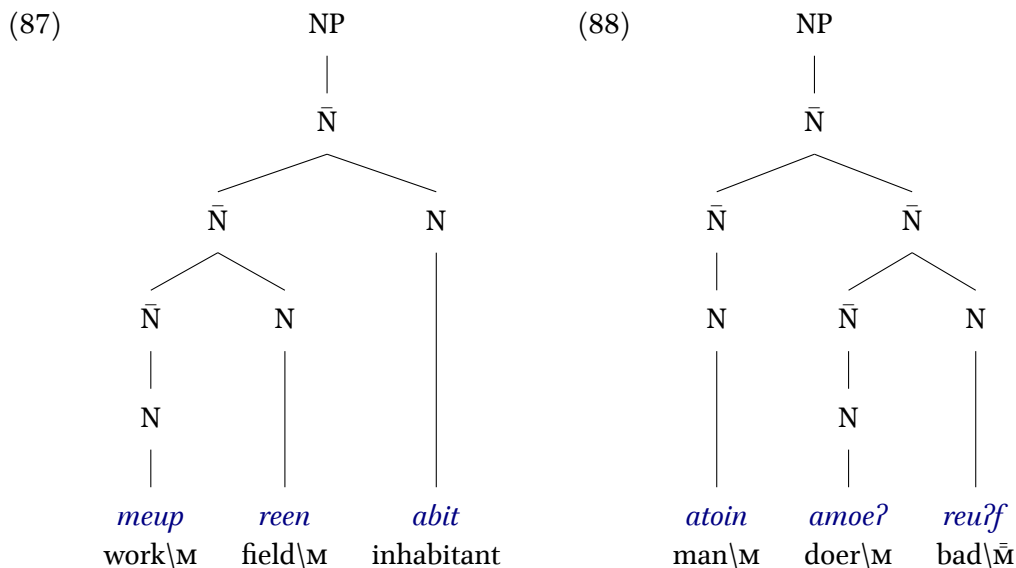
130907-3, 12.15 ◀▶

- (84) *au he u-toon n-ok meup reen a-bi-t, n-bi Nekmese?*
 au he u-tona n-ok mepu rene a-bi-t n-bi Nekmese?
 1SG IRR 1SG-tell 3-with work\M field\M NML-RL.LOC-NML 3-RL.LOC N.
 ‘I want to talk about how an inhabitant of Nekmese’ farms.’ (*lit.* ‘inhabitant field work’)
 120715-2, 0.25 ◀▶

Two textual examples of the structure $[N_1[[N_2]N_3]]$, where a nominal modified by another nominal in turn modifies another nominal, are given in (85) and (86) below.

- (85) *n-naka?fatu=n n-bi re? rais moa? reu?f=i.*
 n-naka?fatu=n n-bi re? rasi mo?e re?uf=i
 n-stubborn=PL 3-RL.LOC GVN.OBJ matter\M deed\M bad\M=1DET
 ‘They’re stubborn in the matter of this evil practice.’ 120923-1, 0.47 ◀▶
- (86) *ta-tenab on re? hit atoin a-moe? reu?f=i =te,*
 ta-tenab on re? hit atoni a-mo?e-t re?uf=i =te
 0-think like 1PI man\M NML-do\M bad\M=1DET =SET
 ‘When you think like (this) you’re a person who is an evildoer.’ 120923-2, 6.47 ◀▶

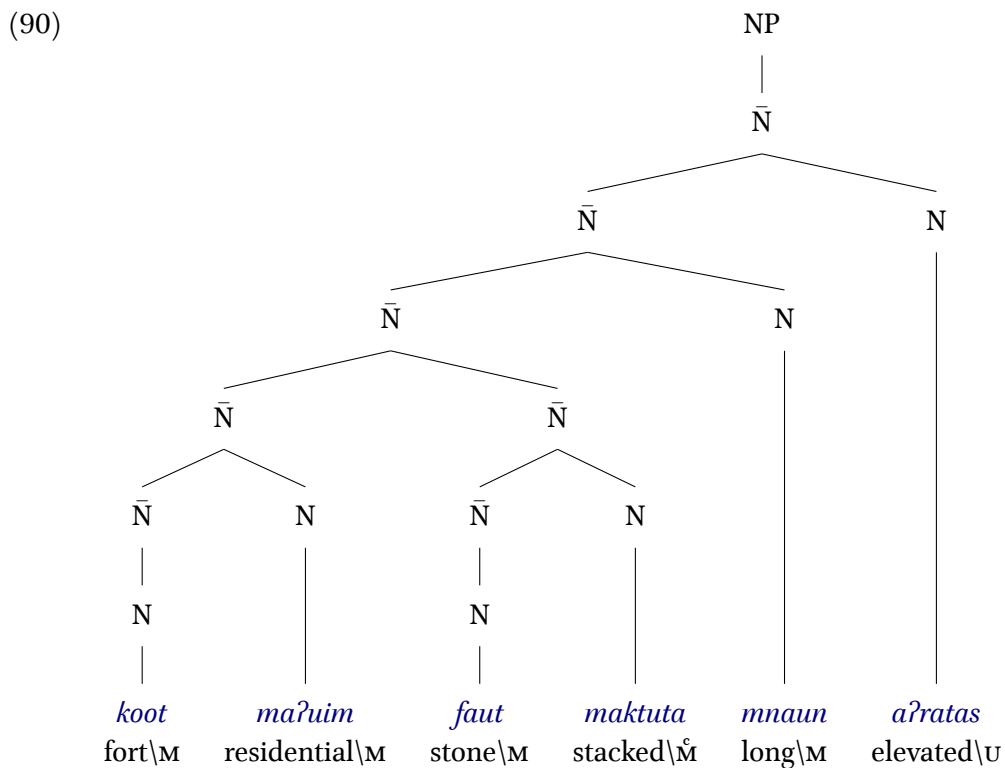
The structure of the nominal phrase *meup reen abit* in (84) above is given in (87). Similarly, the structure of the phrase *atoin amoe? reu?f=i* in (86) is given in (88). (Metathesis of the final nominal in this phrase is induced by the following enclitic, see Chapter 5)



The longest string of attributive nominals I have so far encountered occurs in the Amarasī Bible translation. This is in Genesis 11:5 in the description of the tower of Babel. This passage is given in (89) below, with the structure of the nominal phrase given in (90). In this example six nominals occur in a single nominal phrase.

- (89) *onai =m Uisneno n-saun neem ma n-noon kota =ma*
onai =ma Uisneno n-sanu nema ma n-noon kota =ma
 and.so God 3-descend 3\come and 3-walk.around city\U =and
koot ma-ʔuim faut ma-ktuta mnaun a-ʔrata-s
kota ma-ʔumi-ʔ fatu ma-ktuta? mnanu? a-ʔrata-s
 fort\M PROP-house\M stone\M PROP-stack\M long\M NML-elevate\U-NML
re? mansian=ein naan na-feen-ʔ=e.
 re? mansian=ein naan na-fena-ʔ=e.
 REL human=PL 2DEM 3\TR-rise-TR=3SG.ACC

‘Then God came down and walked around (in) the city and the high, tall residential fort (made from) stacked stones which those humans were building.’ Genesis 11:5



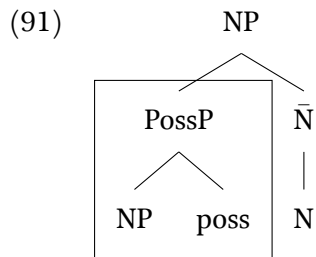
6.3.6 Summary

M-forms are used in the nominal phrase in Amarasí for all non-final nominals below the level of \bar{N} . M-forms are a construct form which mark the presence of a dependent modifier.

In §6.4–§6.6 below I discuss nominal structures in which M-forms conditioned by syntax do not occur. These structures include possession (§6.4), modifiers which are not nominals (§6.5) and equative clauses (§6.6).

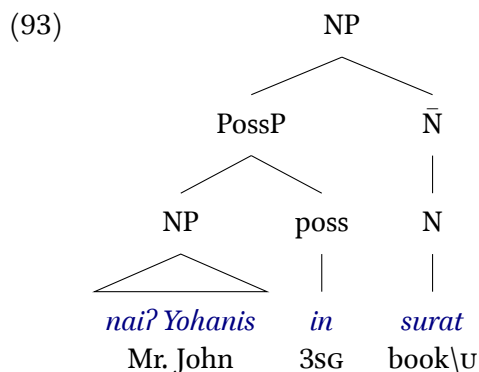
6.4 Possession

In Amarasī the possessor precedes the thing possessed, with an optional possessive pronoun occurring between the two. Possessive phrases do not induce M-forms on either the possessor or the possessed nominal. I analyse the possessive phrase as occurring as the specifier of the nominal phrase, as indicated in (91) below.



A simple case of possession is given in (92) below, with the syntactic structure of the nominal phrase given in (93).

- (92) *nai? Yohanis in surat re?, a-hunu-t*
 Mr. Y. 3SG paper\U REL NML-firstNML
 'John's first book/letter which is the first.' 130921-1, 0.50 🔊



After a brief discussion of the details of possession in Amarasī, including the use of determiner enclitics to mark the thing possessed (§6.4.1) and genitive suffixes (§6.4.2), I discuss the syntactic structure of possession in more detail in §6.4.3.

6.4.1 Possessum Determiners

When the thing possessed is not indicated by a full nominal phrase, it can be referenced by one of the enclitic determiners *=i*, *=an*, *=e* or *=a*. These determiners attach directly to the pronoun indexing the possessor. (See §6.5.2 for the syntactic position of these determiners.) This enclitics induce M-forms on the host, as expected for all clitic hosts before vowel initial enclitics (Chapter 5). Two examples are given in (94) and (95) below.

- (94) *bait hogw=i n-moni =t, bait ho on ne? au.*
 baiti ho=i n-moni =te baiti ho on ne? au
 actual 2SG\M=1DET 3-live =SET actual 2SG like 1SG
 ‘Actually, while yours is alive it’s like me.’ 130909-6, 2.54 ◀
- (95) *ehh, n-fain=n=en aa? Nai? Rius iindz=an a|n-fani?*
 n-fani=n=en aa nai? Rius ini=an n-fani
 3-return=PL=INCEP Q Mr. R. 3SG\M=2DET 3-return
 ‘So they’ve returned now? Has Lius’s (child) returned?’ 130909-6, 3.23 ◀

As can be seen in example (95), the third singular pronoun *in* takes the M-form *iindz* before vowel initial enclitics. This provides more evidence that this pronoun has/had the U-form *ini*, as discussed in §4.2.5.1.

When the thing possessed is plural, the plural enclitic *=n* (§5.6) occurs attached to the pronoun and before the enclitic. When the pronoun ends in a vowel sequence, insertion of *gw* takes place after *=n* as is usual when this allomorph attached to a stem ending in a vowel sequence (§5.6.1). Examples are given in (96) and (97) below.

- (96) *Aba? iin-n=e =m es uum ?-ait wanteks.*
 Aba? ini=n=ee =ma es uma ?-aiti wanteks
 A. 3SG\M=PL=3DET =and one 1/2SG\come 1SG-take dye
 ‘Aba’s (children), and I came and took these textile dyes.’ 130914-1, 2.41 ◀
- (97) *mui?t=ein re? ia batuur au=n=gwa.*
 mu?it=ein re? ia true au=n=a
 animal=PL REINT IDEM true 1SG=PL=0DET
 ‘These animals are really mine.’ Genesis 31:43

Alternately, when the thing possessed is plural, the definite plural enclitic *=ein* can index it. As discussed in §5.6 this enclitic has the form *=ngwein* after vowel sequences. Two examples are given in (98) and (99) below.

- (98) *ho=ngwein na-tuina? =kau, n-ak “hau, t-fee=n=e =sin he n-euk*
 ho=ein na-tuina? =kau n-al hau t-fee=n=e =sin he n-eku
 2SG=PL 3-follow =1SG.ACC 3-say yes 1PI-give=PL=3SG.ACC =3PL IRR 3-eat
 ‘Yours followed me, thinking: Yes, let’s give it to them to eat.’ 130914-3, 1.51 ◀
- (99) *?-ak “hei, ho kartu =sin a|n-mate=n, bai? Kus, au=ngwein n-moni=n.*
 ?-ak hei ho kartu =sin n-mate=n, ba?i Kus, au=ein n-moni=n
 1SG-say hey 2SG card =ASSOC.PL 3-die=PL PF K. 1SG=PL 3-live=PL
 ‘I said: “Hey, your cards have died, Kus. Mine are still alive.’ 130825-6, 7.34 ◀

6.4.2 Genitive Suffixes

There is a sub-class of nominals in Amarasi which take a genitive suffix when they are possessed. These genitive suffixes agree with the person and number of the possessor. They are given in Table 6.12. A fuller discussion of the form of genitive suffixes is given in §3.6.3.1.

Table 6.12: Amarasi Genitive Suffixes

	SG	PL
1	<i>-k</i>	<i>-m</i>
1,2		<i>-k[†]</i>
2	<i>-m</i>	<i>-m</i>
3	<i>-n</i>	<i>-k[†]</i>
0		<i>-f</i>

[†] In Ro'is the 1PI and 3PL forms are *-r*.

Most nominals which take genitive suffixes are in a part-whole relationship with the possessor. Such nominals are typically body parts. Three examples of possessed ‘parts’ with a genitive suffix are given in (100)–(102) below.

- (100) *es a|n-teni?, mnees kiro niim denan, faafɬɬ=e in eku-n.*
 one 3-again rice kilo five with pig=3DET **3SG** neck-**3SG.GEN**
 ‘The next one, is five kilos of rice with the pig’s neck.’ 130823-5, 0.26 ◀
- (101) *papa, ho kaan-m=i sekau, papa?*
 dad **2SG** name-**1PX/2GEN**=1DET who dad
 ‘What is your name, dad?’ 120923-1, 0.01 ◀
- (102) *ho mu-ʔtuta? au tas=i n-bi au fuuf-k=i.*
 2SG 2SG-put 1SG bag=1DET 3-RL.LOC **1SG** fontanelle-**3PL/1GEN**=1DET
 ‘Put my bag above my head.’ 130825-6, 19.04 ◀

In example (102) above there are two possessive constructions; *au tas=i* ‘my bag’ and *au fuuf-k=i* ‘my fontanelle’. In the first instance the thing possessed does not take any genitive suffix, while in the second instance it is a body part and does take a genitive suffix.

Genitive suffixes also occur on possessed property nominals. Three examples are given in (103)–(105) below.

- (103) *nait, in ma-hiin-n=i hai m-nao m-ʔurus nai? Robe*
 like.this 3SG PROP-know-3SG.GEN=1DET 1PX 1PX/2-go 1PX/2-arrange Mr. R.
n-bi nehh, mee?
 3-RL.LOC um where
 ‘Like that, he knew (*lit.* had knowledge) that we were going to arrange Robe at, err, where?’ 130825-6, 11.35 ◀

- (104) *in mapuut-n=i kaah=en n-eu hit be?i na?i =sin.*
 3SG hot-3SG.GEN=1DET very 3-DAT 1PI PM PF =ASSOC.PL
 ‘He was very cruel (*lit.* hot) to our ancestors.’ Acts 7:19
- (105) *ho reok-m=i!*
 2SG good-1PX/2GEN=1DET
 ‘You’re too much!’ (cynical) Genesis 37:10

The property nominal *ma-hiin* ← *ma-hine-?* ‘wise, knowledgeable’ in (103) is derived from the verbal root \sqrt{hine} ‘to know’ through addition of the property circumfix *ma-...-?* (§3.6.2.2). The property nominal *maputu?* ‘hot’ in (104) likewise is related, at least historically, to the nominal *putu?* ‘charcoal’.

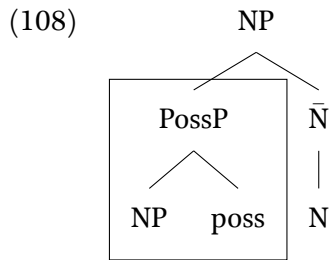
Another kind of nominal on which genitive suffixes occur are nominalised verbs. Four examples are given in (106) and (107) below which show a number of verbs nominalised with the prefix *?*, probably connected with the nominalising circumfix *?...-?* (§3.6.2.4).

- (106) *he mu-skoor m-ain =sin, mu-skoor m-ain sin oke?,*
 IRR 2SG-school 1PX/2-before =3PL 2SG-school 1PX/2-before sin all
ho ?-mui?-m=i saa??
 2SG NML-have-1PX/2GEN=1DET what
 ‘If you want to send them to school, send them all to school, (well) what (money) do you have?’ 130907-4, 0.36 ◀
- (107) *tangun jawab saap=idz=ah, hit a|?-moni-k, hit*
 responsibility because=1DET=just 1PI NML-live-3PL/1GEN 1PI
a|?-hake-k, hit a|?-nao-k et a|krei =ma prenatal.
 NML-stand-3PL/1GEN 1PI NML-go-3PL/1GEN IPFV.LOC church =and government
 ‘Just because of this responsibility, it was our life, our standing, our way in the Church and government.’ 130825-6, 1.27 ◀

Possessed kin relations also usually take genitive suffixes. Genitive suffixes for kin relations are drawn from a different paradigm than those for other nominals (§3.6.3.2). In the village of Koro'oto, where the bulk of my data was collected, possessed kin relations mostly occur with the suffix *-f* glossed ‘KIN.GEN’.

6.4.3 Syntax of Possession

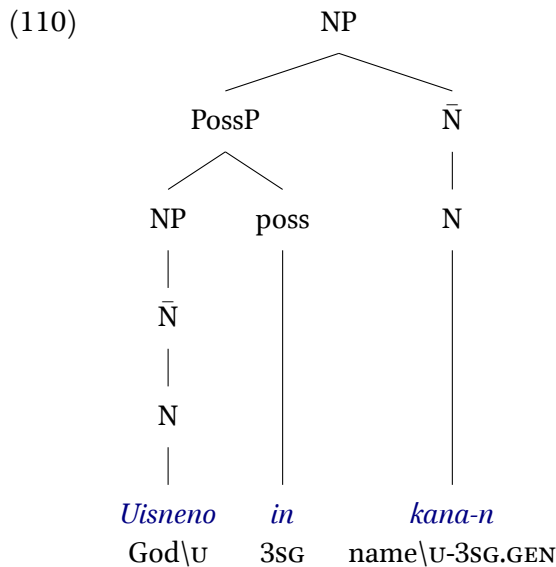
The possessive phrase forms the specifier of a nominal phrase. The possessive phrase consists of a nominal phrase and an optional third person singular possessive pronoun *in*. Possession does not induce M-forms on either the possessor or the thing possessed. The structure of the possessive phrase is indicated in (108) below.



Example (109) below contains a possessive phrase; *Uisneno in kana-n* ‘God’s name’. This is an example of a full nominal possessor with a possessive pronoun as well a genitive suffix on the thing possessed. The structure of this possessive phrase is given in (110) below.

- (109) *n-boʔis Uisneno in kana-n.*
 3-praise God\U 3SG name-3SG.GEN
 ‘(They) praised God’s name.’

130902-1, 1.34



Examples (111)–(113) below show three examples of NP possessors which are not followed by the pronoun *in*. Nonetheless, the fact that these are possessive phrases is shown clearly by the fact that in each instance the 3SG.GEN suffix *-n* occurs on the thing possessed.

- (111) *na-maikaʔ n-bi Smaraʔ tuna-n.*
 3-settle 3-RL.LOC Sm.\U top\U-3SG.GEN
 ‘He settled on top of Smara’ (name of a certain headland).’

120715-4, 0.57

- (112) *n-nao n-bi taasʔ=e noon-n=e =ma n-tee Oe-neet.*
 3-go 3-RL.LOC sea\M=3DET area\M=3SG.GEN=3DET =and 3-arrive O.

‘He went to the coast as far as Oe-neet.’

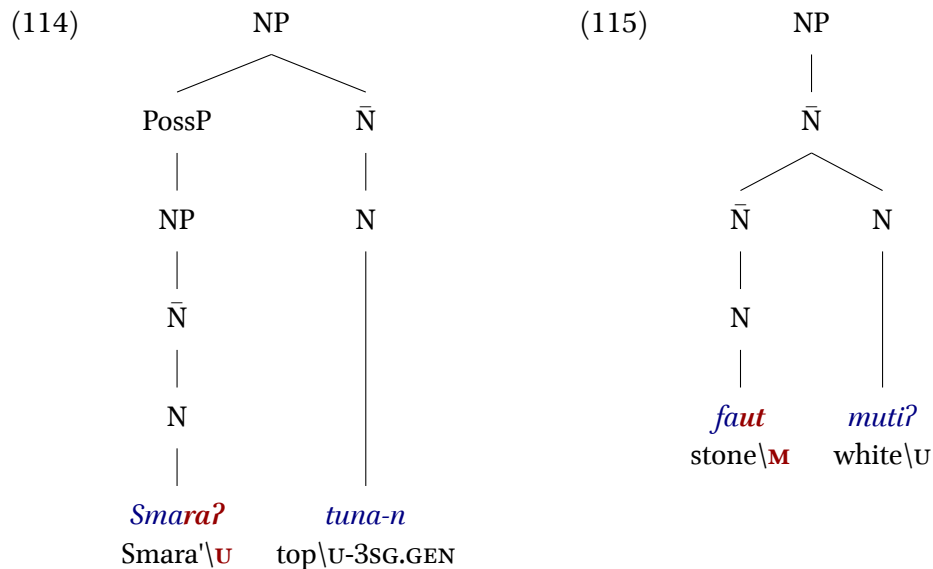
130821-1, 4.42

- (113) *ainaʔ tina-n!*
 mother\U vagina\U-3SG.GEN

‘F**k!’ (*lit.* ‘Mother’s vagina!’)

130825-7, 1.02

On the surface these phrases consist of two nominals; a structure identical to that of attributive modification. However, due to the different syntactic structure of possession, the first nominal does not occur in the M-form. The structure of the possessive phrase *Smara? tuna-n* ‘top of Smara’ is given in (114) and can be contrasted with that of an attributive nominal phrase, as given in (115) below.



As discussed in §6.4.2, only certain nominals in a part-whole relationship with the possessor take genitive suffixes. It is also possible for nominals which do not take genitive suffixes to be possessed by a nominal without an intervening possessive pronoun. Two examples are given in (116) and (117) below, each of which contains two possessive phrases.

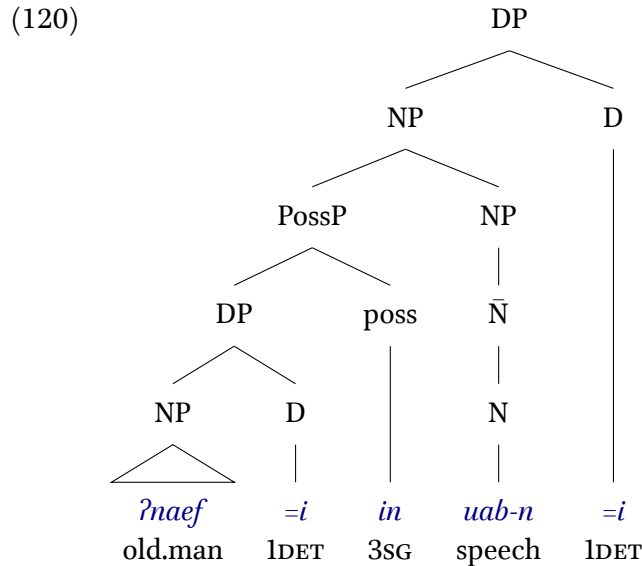
(116) *ho m-rea? atoni-? fu- roa-t=a fua-n =ate berarti naan*
 2SG 1PX/2-grab man\U-U plant-NML=0DET fruit-3SG.GEN =SET meaning 2DEM
 ‘You, you grabbed the fruit of a person’s plant, that means ...’ 120923-2, 6.21

(117) *Debri, Ornaaḡ=i, au aanh=i kabin.*
 D. O.=1DET 1SG child=1DET wedding
 ‘Debri Ornai, my child’s wedding.’ 130825-6, 8.37

These examples also show that the possessor can be filled by a determiner phrase (§6.5.2). Two additional examples of a determiner phrase as the possessor are given in (118) and (119) below. In each of these examples the possessive pronoun *in* also occurs. The structure of the possessive phrase of (119) is given in (120) below.

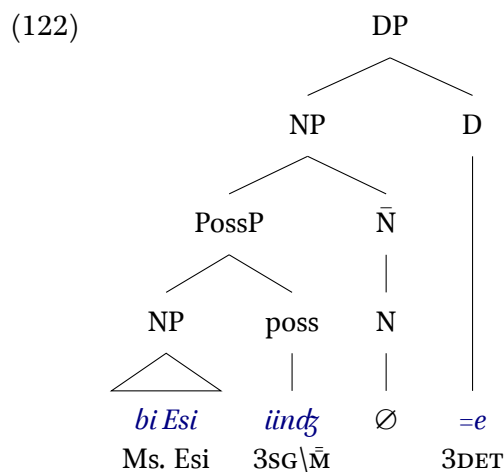
(118) *es a|n-teni?, mnees kiro niim denan, faafḡ=e in eku-n.*
 one 3-again rice kilo five with pig=3DET 3SG neck-3SG.GEN
 ‘The next one, is five kilos of rice with the pig’s neck.’ 130823-5, 0.26

- (119) *?naef=i in uab-n=i, au ka= ?-nikan =fa!*
 old.man=1DET 3SG speech-3SG.GEN=1DET 1SG NEG= 1SG-forget =NEG
 ‘What the old man said, I haven’t forgotten it!’ 130825-6, 15.28



When determiners are the only instantiation of the thing possessed (§6.4.1), we can analyse the head of the nominal phrase as being empty. One example is given in (121) below, with the structure of the extended nominal given in (122). (The possessive pronoun is in the M-form due to the following vowel initial enclitic, see Chapter 5.)

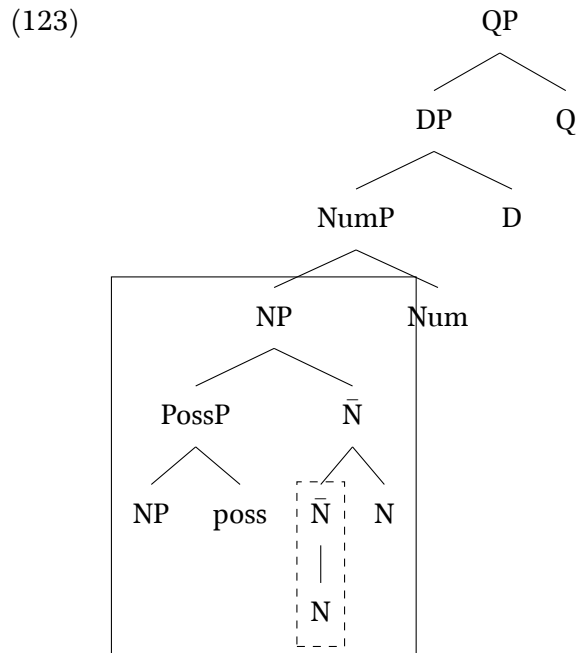
- (121) *bi Esi iindɔ̄=e msa? in n-tee Malesia.*
 bi Esi ini=e msa? in n-tea Malesia
 Ms. E. 3SG\M̄=3DET also 3SG 3-up.tp M.
 ‘Esi’s (daughter) has also gone to Malaysia.’ 130909-6, 3.26



Possession does not induce M-forms on either the possessor or the thing possessed. The evidence from possession shows us that only the head of a nominal phrase undergoes

metathesis, and that nominal metathesis is only sensitive to the presence of adjuncts and not specifiers.

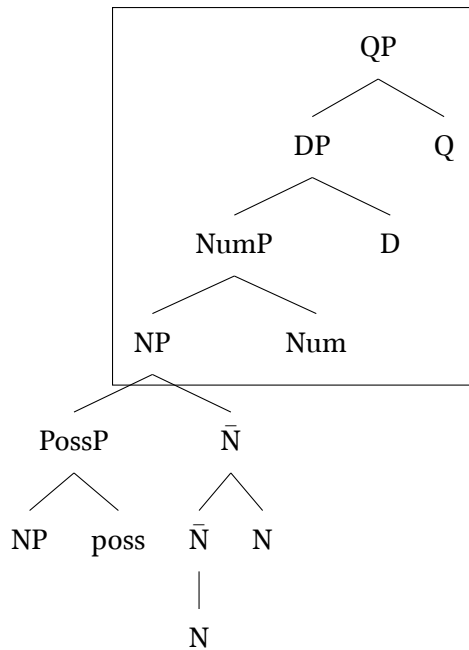
In the previous two sections I have described the structure of the NP node within the nominal phrase, as indicated in (123) below. I have shown that metathesis occurs below the level of \bar{N} to mark the presence of an attributive nominal. Metathesis does not occur below the level of PossP.



6.5 Modifiers which are not Nominals

In this section I discuss other nominal modifiers which are not themselves nominals. These include numerals (§6.5.1), demonstratives and determiners (§6.5.2), as well as quantifiers (§6.5.3). Nearly all of these modifiers occur after the (attributive) nominal phrase, and as a result syntactically conditioned M-forms do not usually occur before any of these modifiers. The position of these phrases within the extended nominal is shown in (124) below.

(124)



6.5.1 Number Phrase

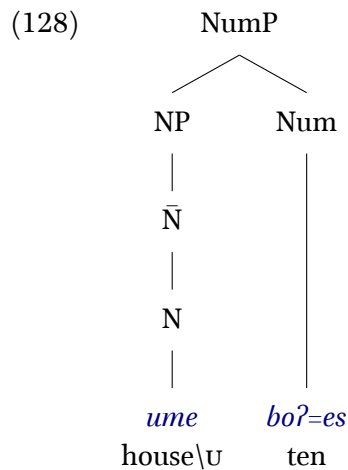
The number phrase occurs immediately after the nominal phrase and before the determiner phrase. The number phrase takes either a cardinal number or number enclitic as its head, and a nominal phrase as its specifier. Cardinal numbers follow the nominal they quantify and this nominal occurs in the U-form. This is straightforwardly explained by positing that numerals are the head of a numeral phrase which is outside the nominal phrase. The basic Amarasí cardinal numbers are given in Table 6.13.

Table 6.13: Amarasí Cardinal Numerals

1	<i>es, meseʔ</i>	‘one’	7	<i>hitu~hiut</i>	‘seven’
2	<i>nua</i>	‘two’	8	<i>fanu~faun</i>	‘eight’
3	<i>tenu~teun</i>	‘three’	9	<i>seo</i>	‘nine’
4	<i>haa</i>	‘four’	10	<i>boʔ</i>	‘ten’
5	<i>nima~niim</i>	‘five’	100	<i>natun</i>	‘hundred’
6	<i>nee</i>	‘six’	1,000	<i>nifun</i>	‘thousand’

Three examples of a cardinal numeral following nominal are given in (125)–(127) below. Nominals followed by a cardinal numeral are always in the U-form. The syntactic structure of the number phrase in (127) is given in (128). Cardinal numbers occur in the U-form or M-form according to the discourse structure of the clause (Chapter 7).

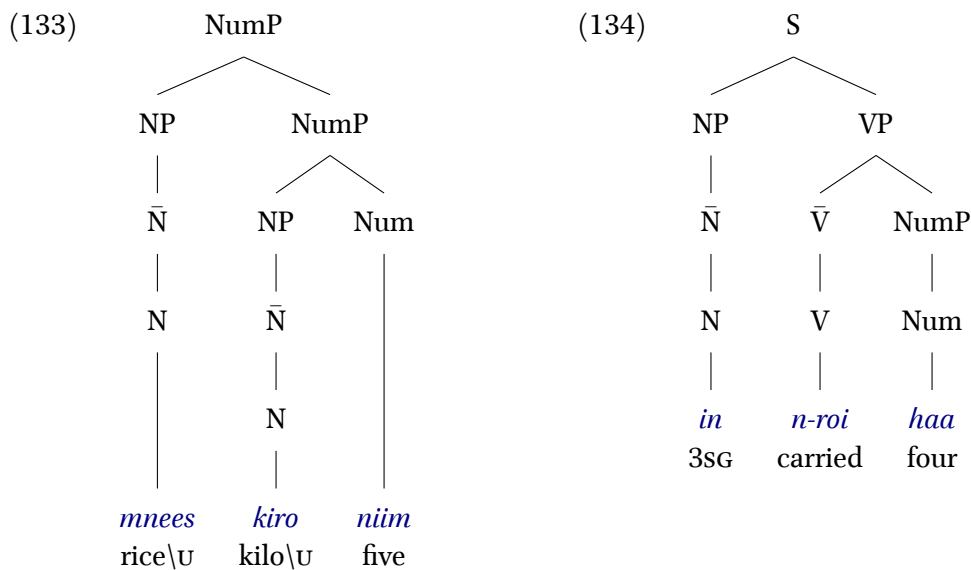
- (125) *n-fee naan toon teun.*
 n-fee naan toon tenu
 3-give 2DEM year\U three
 ‘That one has been given three years.’ 160326, 15.08
- (126) *saap n-ak nono? seo, a|n-poi na-raardɔ̄=o-k =te, oek?=en.*
 saap n-ak nono? seo, n-poi na-rari=o-k =te oke?=en
 since 3-say rod\U nine 3-exit 3-finish=REFL-3PL/1GEN =SET all=INCEP
 ‘Since there were nine rods, they’d all come out, it was done.’ 130906-1, 3.23
- (127) *?-meup ?-aan, nehh, ume, ume bo?=es. termasuk hit ume.*
 ?-mepu ?-ana ume ume bo?=es termasuk hit ume
 1SG-work 1SG-RES house house\U ten=one including 1PI house
 I worked on houses, ten houses, including our house.’ 130907-3, 3.41



A combination of a nominal and numeral can also occur as the head of a number phrase. Such nominal and numeral combinations indicate measurements. Examples are given in (129)–(132) below. The structure of the number phrase in (132) is shown in (133) below.

- (129) *uma ?-tee =ma ?-istarika bruuk pasan nima =m,*
 uma ?-tea =ma ?-istarika bruuk pasan nima =ma,
 1/2SG\come 1SG-arrive =and 1SG-iron pants\U set\U five =and
u-paan baru pasan nima =m.
 u-pana baru pasan nima =ma.
 1SG-fill shirt\U set\U five =and
 ‘I came and ironed five pairs of pants and packed five sets of shirts.’
 130825-6, 11.21
- (130) *?-ak “ehh, au rookgw=i ara nono? mese? =t,*
 1SG-ak au roko=i ara nono? mese? =te
 1SG-ak hey 1SG cigarette=IDET rest\U rod\U one =SET
 ‘I said: Hey, I’ve only got one cigarette left.’ (lit ‘one rod rest’) 130825-6, 12.54

- (131) *au u-hana mina? taus mese? mes*
 au u-hana mina? taus mese?, mes
 1SG 1SG-cook oil\U wok one but
 ‘I cooked a single wok of oil but ...’ 130825-6, 0.44
- (132) *es a|n-teni?, mnees kiro niim deŋan, faafɔ́=e in eku-n.*
 es n-teni? mneas kiro nima deŋan fafi=e in eku-n
 one 3-again rice\U kilo\U five with pig=3DET 3SG neck-3SG.GEN
 ‘The next one, is five kilos of rice with the pig’s neck.’ 130823-5, 0.26



Cardinal numerals can occur independently without any preceding nominal phrase. This provides evidence (apart from the use of U-forms) that numerals form the head of their own phrase. Two numerals as the object of a verb are given in (135) and (136) below. The structure of example (135) is given in (134) above.

- (135) *in n-roi haa.*
 3SG 3-carry four
 ‘He carried off four.’ 130925-1, 3.21
- (136) *n-reuk fanu =te, pa? Charles, pa? Graims a|n-koen=o-n neem.*
 3-hit eight =SET Mr. Ch. Mr. Gr. 3-depart=REFL-3SG.GEN 3\come
 ‘When it struck eight o’clock Mr. Charles, Mr. Grimes came.’ 130920-1, 0.51

When a pronoun is enumerated, a nominative form of the pronoun occurs before the numeral and an accusative form of the pronoun after the numeral. This is the same structure found in pronominal equative clauses (§6.6.1). Examples are given in (137) and (138) below.

- (137) *hai nua =kai m-mees.*
 1PX two =1PX.ACC 1PX/2-alone
 ‘The two of us are alone.’ 130909-6, 3.39 ◀
- (138) *hit teun =kit ka= neu ta-bee?dʒ=e =fa.*
 1PI three =1PL.ACC NEG=? 1PI-capable=3SG.ACC =NEG
 ‘The three of us are not going to be able to.’ Mark 16:3-4

6.5.1.1 Number Enclitics

The head of a number phrase can also be filled by one of the number enclitics *=ein/=n* ‘PL’ or *=es* ‘one’. Evidence that the number enclitics form a separate word class to nominal determiners comes from the fact that they can co-occur with nominal determiners.

Examples of each co-occurring with an enclitic are given in (139)–(142) below. This distribution is straightforwardly explained by positing that the number phrase occurs before the determiner phrase and that the number enclitics are the head of the former.

- (139) *?-fei kraan=es=i =ma ?-toro?, ohh.*
 1SG-open tap=**one=1DET** =and 1SG-catch.liquid
 ‘I turned on one of the taps and tested, ohh.’ 130825-8, 1.41 ◀
- (140) *taa?dʒ=es=i muti?.*
 branch=**one=1DET** white
 ‘One of the branches was white.’ 130823-2, 0.49 ◀
- (141) *in n-fee mainuan henati? in aanh=ein=a, in aet a-meup-t=eni*
 3SG 3-give opportunity IRR 3SG child=**PL=0DET** 3SG servant NML-work-NML=PL
 ‘He has given an opportunity to his children, his servants and workers,’ 130920-1, 4.45 ◀
- (142) *sin uup-?=ein=e, ho m-ok fauk et umi?*
 3PL CC-1/2KIN.GEN=**PL=3DET** 2SG 1PX/2-with how.many IPFV.LOC house
 ‘Those grandchildren, how many of them are with you at home?’ 130909-6, 3.16 ◀

It is possible for the numeral enclitic *=ein* to co-occur with a cardinal numeral. This is most common when the phrase is followed by a demonstrative. When both *=ein* and a numeral occur, *=ein* occurs as the head of the number phrase and the cardinal numeral occurs as an adjunct within the nominal phrase, thus inducing an M-form on the head nominal, as expected for an attributive modifier. Three examples are given in (143)–(145) below, with the structure of (145) given in (146).

- (143) *pauk noin hiut=ein naan in a?mouf-n=ii jema?at hiut.*
 paku noni hitu=ein naan, in ?mofu-n=ii jema?at hitu
 lamp\M silver\M seven=PL 2DEM 3SG meaning-3SG.GEN=1DET congregation seven
 ‘The meaning of those seven silver lamps is seven congregations.’ Revelation 1:20

- (144) *lantas, na-ʔko reʔ tua haa=ʔein reʔ ia,*
 lantas na-ʔko reʔ tua-f haa=ein reʔ ia
 forthwith 3-ABL REINT person\M four=PL REINT IDEM
sin na-honi n-teinʔ=ein =ama,
 sin na-honi n-teniʔ=ein =ma
 3PL 3-birth 3-again=PL =and

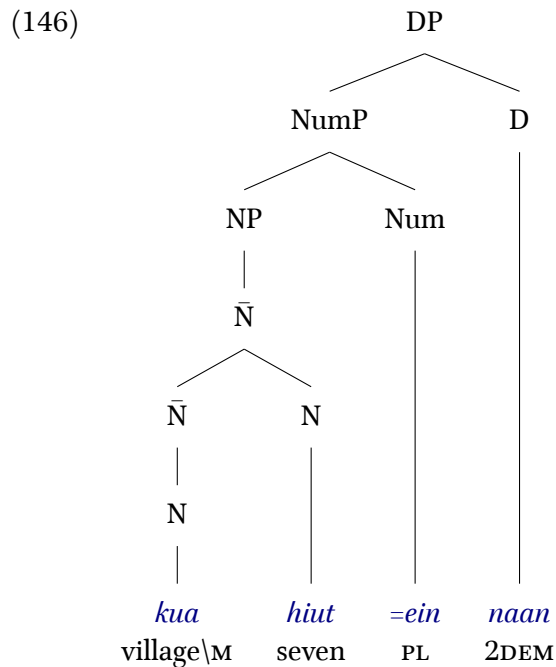
‘Then from these four people, they gave birth again.’

130821-1, 7.38 ◀

- (145) *kua hiut=ein naan, au ʔ-tea ʔ-rair =sin.*
 kuan hitu=ein naan au ʔ-tea ʔ-rari =sin
 village\M seven=PL 2DEM 1SG 1SG-up.to 1SG-finish =3PL

‘Those seven villages, I’ve already been to them.’

elicit. 15/03/2016 p.47



To summarise, nouns take the U-form before cardinal numerals as numerals are the head of their own phrase which is outside the nominal phrase. When the head of the numeral phrase is occupied by a number enclitic, any cardinal numeral is forced to occur within the nominal phrase, thus inducing metathesis on the head nominal.

6.5.2 Determiner Phrase

The head of the determiner phrase in Amarasi is filled by either a demonstrative or a determiner. Syntactically conditioned M-forms do not occur before the determiner phrase. The determiner phrase occurs after the number phrase and before the quantifier phrase. The Amarasi demonstratives and determiners are given in Table 6.14 below. They have the same

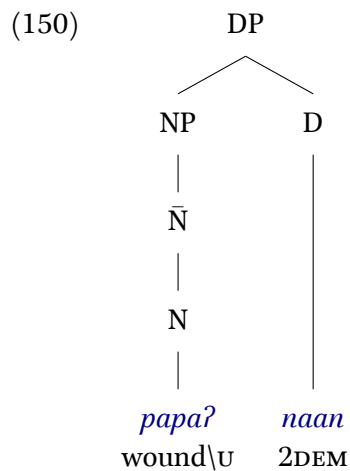
Table 6.14: Amarasi Demonstratives and Determiners

Pers.	DEM	DET	Function
1	<i>ia</i>	= <i>i</i>	'near' speaker
2	<i>nana</i> ~ <i>naan</i>	= <i>an</i>	'near' addressee
3	<i>nee</i>	= <i>e</i>	'near' third person
0	<i>naa</i>	= <i>a</i>	location 'near' no-one (obviative)

four person values present in the genitive suffixes (§3.6.3.1, §6.4.2), pronouns (§6.2.2.1) and verbal agreement prefixes (§3.6.1.1). Demonstratives and determiners do not co-occur.

Nouns preceding demonstratives occur in the U-form. Demonstratives have two main functions. Firstly, they can be used to introduce new participants into the discourse, as shown in (147) below. Secondly, they are used when the spatial, temporal or referential location of the previous nominal is in focus. This is shown in (148) and (149) below. The structure of the determiner phrase in (149) is given in (150) below.

- (147) *nenō naa paha ʔpina-n ia, a|n-kobub on bare meseʔ.*
 nenō naa paha ʔpina-n ia, n-kobub on bare meseʔ
 day\U 0DEM land below\U-3SG.GEN IDEM 3-pile IRR.LOC place one
 'In those days this world was piled up in one place.' 120715-4, 0.05 🔊
- (148) *nehh, baab Saraʔ n-nao et pani-n nee.*
 baba Saraʔ n-nao et pani-n nee
 MB/FZ S. 3-go IPFV.LOC across\U-3SG.GEN 3DEM
 Well, Aunt Sarah had gone across there.' 130906-1, 2.48 🔊
- (149) *of papaʔ naan na-papaʔ terus.*
 of papaʔ naan na-papaʔ terus
 sure wound\U 2DEM 3-wound constant
 That wound will surely not heal. (*lit.* be a wound constantly)' 120923-2, 5.03 🔊

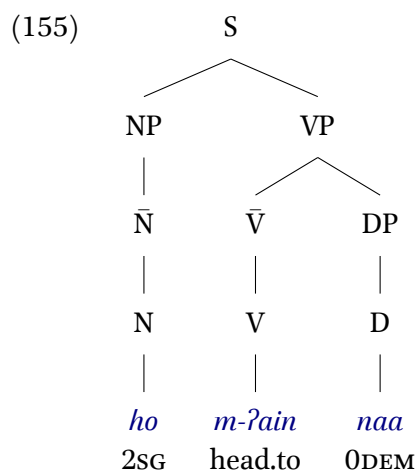


Nominals occur in the U-form before demonstratives because demonstratives are the head of their own phrase and do not occur inside the nominal phrase.

Independent evidence for this analysis comes from the fact that demonstratives frequently occur with no preceding nominal. This behaviour is very common in my corpus, with 67% (339/509) of demonstratives not following a nominal phrase.

Depending on the discourse pragmatics and syntactic structures of the entire sentence, an independent demonstrative is interpreted as a locational adjunct, as in (151) below or as a verbal object, as seen in (152)–(154) below. The structure of the first part of example (154b) is given in (155) below.

- (151) *ahirnya ahh, n-aim naan baardz=es =am na-maika? n-*
 in.the.end 3-look.for 2DEM place=one =and 3-settle
 ‘In the end, he looked there for a place and settled.’ 120715-4, 0.55
- (152) *hai ima m-tea ia, eh, n-reuk hitu n-kono kre?o.*
 1PX 1PX/2PL\come 1PX/2-arrive 1DEM 3-hit seven 3-past little
 ‘We arrived here a little bit after it struck seven o’clock.’ 130920-1, 0.45
- (153) *in na-maika? n-bi nee, a|n-sao nte-a|n-sao n-bi nee.*
 3SG 3-settle\U 3-RL.LOC 3DEM 3-marry 3-marry 3-RL.LOC 3DEM
 ‘He settled there and married again-, married there.’ 130821-1, 4.52
- (154) a. *sin ka= na-hini=n =fa n-eu ho m-nao on Jakarta.*
 3PL NEG= 3-know=PL =NEG 3-DAT 2SG 1PX/2-go IRR.LOC J.
 ‘They didn’t know you were going to Jakarta.’ 130825-6, 12.10
- b. *ho m-?ain naa, oo? Ho m-?ain =sin.*
 2SG 1PX/2-head.to\M 0DEM Q 2SG 1PX/2-head.to\M =3PL
 ‘You were heading over there, no? You were heading towards them.’ 12.13



Nouns take the U-form before demonstratives because demonstratives are the head of a determiner phrase, which in turn contains the nominal phrase. Demonstratives are thus not inside the nominal phrase, and thus outside the domain of metathesis.

6.5.3 Quantifier Phrase

Amarasi has two kinds of quantifiers: those which occur before the nominal phrase and those which occur after the nominal phrase. The post-nominal quantifiers are *oke?* ‘all’ and *fauk* ‘several, how many?’. The pre-nominal quantifiers are *baʔuk* ‘many, how many?’ and *are?* ‘every’. None of these quantifiers trigger M-forms.¹²

6.5.3.1 Post-nominal Quantifiers

Examples of post nominal *fauk* ‘several’ and *oke?* ‘all’ or their reduplicated variants are given in (156)–(159) below. The reduplicated variants of these quantifiers are extremely common.

- (156) a. *onai =m hai mi-rair surat fak~fauk=en ai? nai-*
 onai =ma hai mi-rari surat fak~fauk=en ai?
 and.so 1PX 1PX/2PL-finish paper\U INTNS~several=INCEP or
 ‘So we’ve now finished several books, or’ 130920-1, 4.53 ◀▶
- b. *?naka? fak~fauk=en.*
 ?naka? fak~fauk=en
 chapter\U INTNS~several=INCEP
 ‘several chapters’ 4.56
- (157) *oras hai m-took m-ok sin of neno fauk =ate,*
 oras hai m-toko m-oka sin of neno fauk =ate,
 time\U 1PX 1PX/2-sit\M 1PX/2-with 3PL later day\U several =SET
 ‘When we had stayed with them for several days,’ Acts 21:10
- (158) *bi Ripka na-honi? ri?aan koen. mone=n oke?.*
 bi Ripka na-honi? ri?ana? koen mone=n oke?.
 Ms. R. 3-birth child twin male\U=PL all
 ‘Rebecca gave birth to twins. (They were) both male.’ Genesis 25:24
- (159) *mi-sanut mui?t=ein naan ok~oke?!*
 mi-sanut mu?it=ein naan ok~oke?
 1PX/2PL-go.down animal=PL 2DEM INTNS~all\U
 ‘Put all the animals down there.’ Genesis 8:17

Most instances of *oke?* in my corpus are of the phrase *oke? =te* ‘all =SET’ which has the conventionalised meaning ‘after that’. The form *oke?* also frequently occurs not as a nominal quantifier but as an adverbial with the meaning ‘completely, finished’.

Neither of these quantifiers can float, instead they must follow the nominal phrase they modify. This is shown in (160) below, in which the phrase final quantifier in (160b) and pre-nominal quantifier in (160c) are both ungrammatical.

¹² The word *mfaun* ‘many, much’ is a nominal, and triggers M-forms as expected when used attributively.

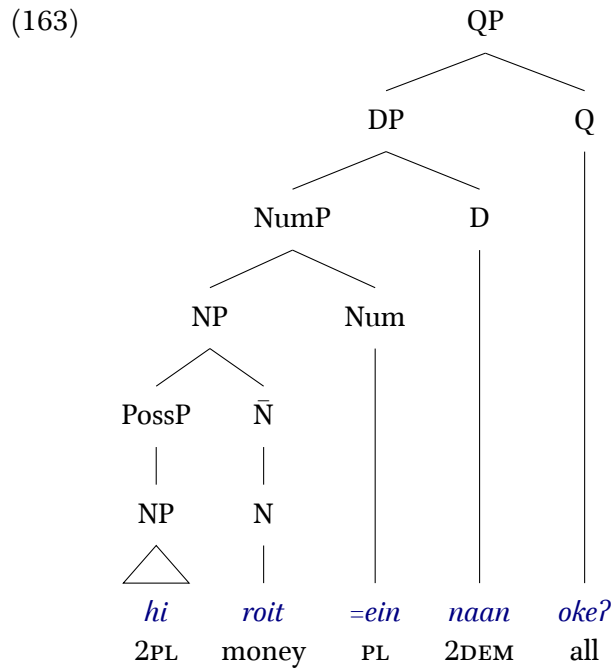
- (160) a. *au ?-tea ?-rair kuan fak~fauk=en.*
 au ?-tea ?-rari kuan fak~fauk=en.
 1SG 1SG-arrive 1SG-finish village\U INTNS~several=INCEP
- b. **au ?-tea ?-rair fak~fauk kuan=en*
 1SG 1SG-arrive 1SG-finish INTNS~several village=INCEP
- c. **au ?-tea ?-rair kuan=en fak~fauk*
 1SG 1SG-arrive 1SG-finish village=INCEP INTNS~several
 ‘I’ve already been to several villages.’ elicitation 15/03/2016 p.47

These post nominal modifiers rarely modify a nominal phrase already modified by a demonstrative or determiner. When they do, they occur after the demonstrative or determiner. Two examples are given in (162) and (161) below.

- (161) *rari=t hai mi-srain ain Lidia n-ok in uumɔ̃=e*
 then 1PX 1PX/2PL-baptize mother L. 3-with 3SG house=3DET
naan-n=e oke?
 inside-3SG.GEN-3DET all
 ‘Then we baptised Lidia with all her household.’ Acts 16:15

- (162) *neengw=es=i, au ?-toup u-rair hi roit=ein naan oke?*
 day=one=1DET 1SG 1SG-receive 1SG-finish 2PL money=PL 2DEM all
 ‘That day I received all that money of yours.’ Genesis 43:23

The extended nominal in example (162) above attests every possible nominal modifier with the exception of an attributive nominal. Its structure is given in (163) below.



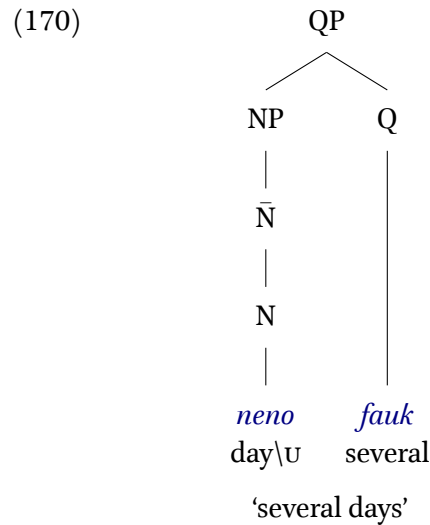
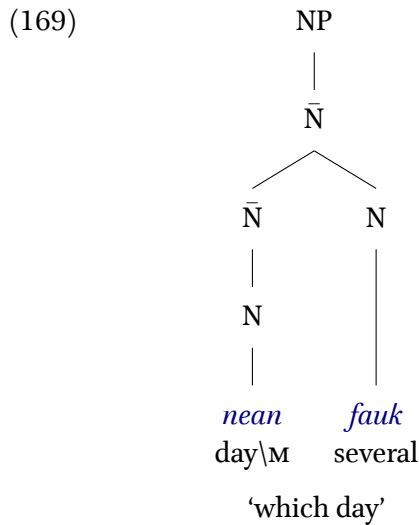
As with numerals and demonstratives, quantifiers can occur independent of a nominal phrase. Two examples of free standing *fauk* are given in (164) and (165) below. Similarly, two examples of independent *oke?* are given in (166) and (167), though in these examples *oke?* could be being used adverbially to mean ‘completely’.

- (164) *ofoni? n-poir?=e n-ak =am, “ho m-eik fauk ia.”*
 maybe 3-throw=3SG.ACC 3-say =and 2SG 1PX/2-bring several IDEM
 ‘Maybe he got rid of it saying: “You take some of these.”’ 130925-1, 3.47 ◀
- (165) *toon=es=i, ho m-seik fauk?*
 year=one=1DET 2SG 1PX/2-harvest.corn how.many
 ‘How much corn did you harvest last year?’ 130909-6, 0.52 ◀
- (166) *m-ak, hai nua =kai m-taikobi =m hai m-maet oke?.*
 1PX/2-say 1PX two =1PX.ACC 1PX/2-fall =and 1PX 1PX/2-die all
 ‘So the two of us fell and we both/completely died.’ 130909-6, 0.39 ◀
- (167) *are? paah=i n-he?e=n =kau oke? =m, hi ka= mi-hine =f.*
 every country=1DET 3-deride=PL =and =1SG.ACC all 2PL NEG= 1PX/2PL-know =NEG
 ‘The whole world derided me. / completely derided me. You don’t know (how it was).’
 130825-6, 0.08 ◀

In example (164) the quantifier *fauk* occurs before the demonstrative *ia*. In this instance the quantifier is the head of a nominal phrase. There is one other example of a quantifier within a nominal phrase in my data, this example is given in (168) below, in which the quantifier occurs as an attributive modifier with the head nominal taking the M-form as expected.

- (168) *nean fauk=i na-?uur?*
 neno fauk=i na-?ura
 day\M how.many=1DET 3-rain
 ‘Which day did it rain?’ 130909-6, 1.26 ◀

In (168) the quantifier is an attributive modifier ‘replacing’ the ordinal numeral which would occur here as the name of a day (§6.3.3). The phrase *nean fauk* ‘which day’ in (168) can be compared with the phrase *nenofauk* ‘several/how many days’ in examples such as (157). Syntactic trees showing the structure of each of these phrases are given in (169) and (170) respectively.



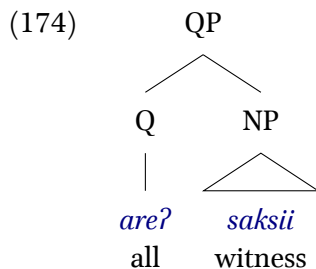
6.5.3.2 Pre-nominal Quantifiers

The quantifiers *baʔuk* ‘many, how many?’ and *areʔ* ‘all, every’ occur before the nominal phrase. Post-nominal *okeʔ* ‘all’ focusses on the quantified unit as a complete whole, while *areʔ* focusses on the quantified unit as a collection of individuals. Examples of *baʔuk* ‘many, how many?’ and *areʔ* ‘all, every’ are given in (171)–(173) below. The structure of the quantified nominal in (173) is given in (174).

(171) *aina!* *in na-sae-b baʔ~baʔuk atoin=ein?*
 mother 3SG 3-rise-TR INTNS~how.many man=PL
 ‘Oh my goodness! How many people was it carrying?’ 130911-2, 0.59 ◀

(172) *nema =t, na-ha n-rair areʔ mnaaht=i =m ka= na-ʔoi*
 3\come =SET 3-eat 3-finish every food=1DET =and NEG= 3-leave
 ‘(They) came and ate all the food and didn’t leave.’ 130906-1, 5.19 ◀

(173) *hai mi-rari =te, hai m-, m-fee mainuan n-eu a-naʔapreent=a*
 1PX 1PX/2PL-finish =SET 1PX 1PX/2-give opportunity 3-DAT NML-official=0DET
 =ma, *areʔ saksii, mahonit he n-fee, ahh, faineka-t*
 =and every witness clan.elder\U IRR 3-give advise-NML
 ‘We gave an opportunity to the government officials and all the witnesses, the clan elders to give advice.’ 130902-1, 0.51 ◀



The quantifier *are?* ‘every’ can co-occur with *oke?* ‘all’. Two examples from the Amarasī Bible translation are given in (175) and (176) below.

- (175) *batuur, are? tua-f=ein ok~oke? re? In a|n-toup =sin a|n-ɕari=n*
 true every person-0GEN=PL INTNS~all REL 3SG 3-receive =3PL 3-become=PL
In aanh=ein,
 3SG child=PL
 ‘Truly, every person whom He accepts becomes His children.’ Hebrews 12:6
- (176) *rari=t are? a-maet-s=ein ok~oke?, sin ar=sin nema=n =ma n-baiseun*
 then every NML-die-NML=PL INTNS~all 3PL all=3PL 3\come=PL =and 3-look.up
?-toko prenatal naan.
 NML-sit govern 2DEM
 ‘Then all the dead people came and stood before that governing seat (i.e. throne).’
 Revelation 20:13

When a pronoun is quantified, the usual strategy is for *ar=* ‘all’ to precede the accusative form of the pronoun. This *ar=* is almost certainly a phonologically reduced form of *are?*. Examples are given in (177)–(180) below. Such quantified pronouns are also usually preceded by an agreeing pronoun, as in (177)–(179), but this preceding pronoun is optional, as seen in (180).

- (177) *karu hi ar=ki, m-naa? liturgi =te*
 if 2PL all=2PL.ACC 1PX/2-hold liturgy =SET
 ‘If you’re all holding a liturgy,’ 130821-1, 1.40 ◀
- (178) *hit ar=kit ta-hini t-toom.*
 1PI all=1PI.ACC 1PI-know 1PI-clear
 ‘We all know (that) clearly.’ 130821-1, 7.13 ◀
- (179) *itu yan kemudian he- au he u-reet?=e n-eu =kit ar=kit.*
 that REL then 1SG IRR 1SG-story=3SG.ACC 3-DAT =1PI.ACC all=1PI.ACC
 ‘That is what I want to tell us all,’ 130821-1, 2.46 ◀
- (180) *ar=kit a|t-tae liturgi, ar=kit a|t-sii, au u-skau*
 all=1PI.ACC 1PI-look.down liturgy all=1PI.ACC 1PI-sing 1SG 1SG-invite
ar=kit t-fena t-haek.
 all=1PI.ACC 1PI-rise 1PI-stand
 ‘We’ll all look at the liturgy, we’ll all sing, I invite us all to stand.’ 130821-1, 9.56 ◀

I also have one example of this *ar=* attached to a relativiser and one example of it attached to a numeral. For the sake of completeness these two examples are given in (181) and (182) below.

- (181) *?-ait ne? neh persiapan lengkap eh ar=ne? tempat duduk.*
 1SG-take REL preparations complete all=REINT place sit
 ‘I took that thing ummm, the preparations were complete, all those places to seat.’
 130825-8, 0.23 ◀

- (182) *oke, of ar=nua saa?, ai? kaah?*
 OK maybe all=two thing or NEG
 ‘OK, maybe both those things (stories), right?’ 120715-4, 2.59

In summary, quantifiers do not induce M-forms on the nominal as they form the head of their own quantifier phrase. This quantifier phrase is outside of the nominal phrase, and can occur either before or after the nominal phrase.

6.6 Equative Clauses

An equative clause involves two adjacent nominal phrases which have the same referent. One nominal functions as the subject and the other as a non-verbal predicate. Given examples such that in (183) below, which has been cited several times in this thesis, we do not expect M-forms to occur on either member of an equative clause. This is indeed the case.

- (183) [_{NP} *fatu*] [_{NP} *ko?u*]
 stone\U big\U
 ‘Stones are big.’

While sentence (183) is judged acceptable by native speakers, equative clauses in which both halves consist of only a single nominal phrase are extremely rare in natural data. It is much more usual for one half of the equative clause to be a determiner phrase.

Two textual examples of an equative clause are given in (184) and (185) below. In each of these examples the first part of the equative clause is a determiner phrase (§6.5.2) and the second part is a nominal phrase.

- (184) [*?naka skoor=i*]_i [*bifee.*]_i
 head school=1DET woman
 ‘The headmaster was a woman.’ 130907-3, 0.33

- (185) [*meens=i*]_i [*huma? mes~mese?*]_i *ka= n-beda =fa*
 sickness=1DET kind INTNS~one NEG= 3-different =NEG
 ‘The sickness was exactly the same (*lit.* one kind). It wasn’t different.’ 120923-1, 12.49

Two similar examples are given in (186) and (187) below. In each of these examples the second part of the equative phrase consists of a property nominal.


- (186) [*taa?dʒ=es=i*]_i [*muti?*]_i
 branch=one=1DET white
 ‘One of these branches was white.’ 130823-2, 0.49

- (187) *mama*, [*au huutgw=i*]_i [*ma?tane?*]_i *aa?*
 mum 1SG louse=1DET strong Q
 ‘Mum, I’ve got too many lice, don’t I.’ (*lit.* ‘my lice are strong’) 130914-3, 1.06

6.6.1 Pronominal Equative Clauses


When the first part of an equative clause is a third person pronoun, the nominal phrase simply follows the pronoun. Two examples are given in (188) and (189) below with a thing nominal and property nominal respectively. Pronominal equative clauses do not induce M-forms on either member of the equative clause.


Example (188) is a left-dislocated topic, with the referential info outside the clause proper, and the trace pronoun being the syntactic subject of the equative clause.


- (188) *Moo?-Hitu re? naan, [in]_i ahh [kauna?]_i*
 M.-H. REINT 2DEM 3SG snake\U
 ‘Now as for that Moo’-Hitu, he was a snake.’ 120715-4, 1.16  ¹³

- (189) *a|?naef=e et re? nee. [in]_i [reko.]_i*
 old.man=3DET IPFV.LOC GVN.OBJ 3DEM 3SG good\U
 ‘The old man is there. He is well.’ Genesis 29:6

When the pronoun in an equative clause is not third person singular, the nominal phrase is preceded by a nominative pronoun and followed by an accusative pronoun. Four examples of such constructions are given in (190)–(193) below.

- (190) *[ho]_i [a-baka-t]_i [=ko.]_i m-ak mu-baka =ma m-tama =te*
 2SG NML-steal\U-NML =2SG.ACC 1PX/2-say 2SG-steal =and 1PX/2-go.in =SET
 ‘If you are a thief, meaning you will steal and enter then ...’ 120923-2, 1.51 

- (191) *au u-toon, au au au [au]_i [a-mon~mono-t]_i [=kau!]_i*
 1SG 1SG-tell 1SG NML-INTNS~stupid\U-NML =1SG.ACC
 ‘I tell (you), I was a real idiot!’ 130825-6, 3.12 

- (192) *n-ak hei =te, [ho]_i [mun~munif]_i [=ko]_i =t, mu-snaas mu-?ko...*
 3-say hey =SET 2SG INTNS~young\U =2SG.ACC =SET 2SG-stop 2SG-ABL
 ‘He said: Now then, while you’re still young, you (should) stop ...’ 130907-3, 4.52 

- (193) *hi ro he kninu?, na-tuin [au]_i [kninu?]_i [=kau.]_i*
 2PL must IRR clean\U 3-because 1SG clean =1SG.ACC
 ‘You must be holy because I am holy.’ 1 Peter 1:16

Equative clauses do not trigger M-forms on either nominal because neither nominal is syntactically modifying the other within the nominal phrase. The only phonological difference between an equative clause and an attributive phrase is that the first nominal in an equative clause is in the U-form while the first nominal in an attributive phrase is in the M-form. The comparison of equative clauses with attributive phrases provides strong evidence of the morphological nature of Amarasi metathesis.

¹³ In the accompanying audio file another speaker first completes the equative clause for the main narrator with the word *kauna?* ‘snake’, before the narrator completes it himself.

6.7 Serial Verb Constructions

Syntactically conditioned M-forms also occur in the verb phrase to mark a serial verb construction (SVC). Some formal properties which allow us to identify a word class of verbs were given in Table 6.1 above, repeated as 6.15 below.

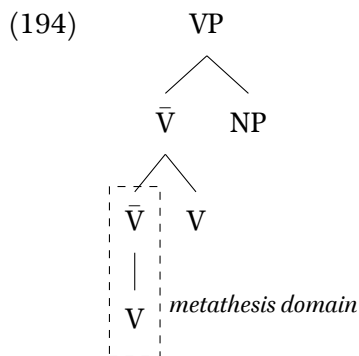
Table 6.15: Amarasi Word Classes[†]

	agr-	<i>a-...-t</i>	<i>-b</i>	<i>ma(k)-</i>	C#→∅	SUBJ/OBJ	=DET	=Num
Nominal	–	–	–	–	✓	✓	✓	✓
precategorial	✓	✓	✓	✓	✓	✓	✓	✓
Verb	✓	✓	✓	✓	–	–	–	–

[†] agr-: take verbal agreement prefixes (§3.6.1.1), *a-...-t*: can be nominalised with the circumfix *a-...-t* (§3.6.2.3), *-b*: can take the transitive suffix *-b* (§3.6.3.3), *ma(k)-*: can take the reciprocal prefix *ma(k)-* (§3.6.1.2), C#→∅ final consonant can be deleted to derive verbs (§6.2.1), SUBJ/OBJ: can be the subject or object of a verb, =DET: can take definiteness marking determiners (§6.2.3), =Num: can take number enclitics (§6.5.1.1).

The clearest of these formal properties is that verbs obligatorily agree with the person and number of the subject (except in some imperatives) by taking a verbal agreement prefix.¹⁴ The form and distribution of these prefixes has been discussed in §3.6.1.1.¹⁵

“A serial verb construction (SVC) is a sequence of verbs which act together as a single predicate” (Aikhenvald 2006:1). Non-initial verbs in an Amarasi SVC occur in the M-form. The analysis I adopt is one in which members of an SVC are adjuncts below the level of \bar{V} , in the same way as attributive modifiers are adjuncts below the level of \bar{N} . The proposed structure of the Amarasi verb phrase is given in (194) below. The object nominal phrase fills the specifier position.



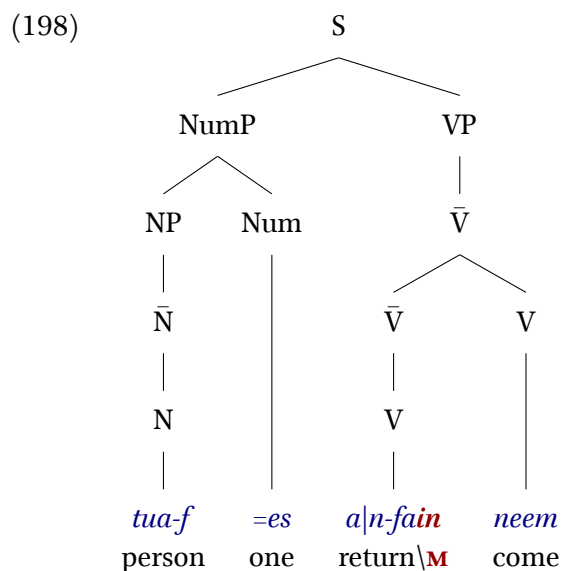
¹⁴ There are only four verbs in my corpus which do not agree with the subject of the sentence. These are the auxiliaries *he* IRR ‘irrealis’, and *bisa* ‘can’ (from Malay *bisa*), as well as the locational verbs *on* IRR.LOC ‘irrealis locative’ and *et* IPFV.LOC ‘imperfective locative’. (*et* marks a location where someone was/is, but from which they later moved/will move.) Other locational verbs including *n-bi* RL.LOC ‘realis locative’ and *na-ʔko* ABL ‘ablative’ all take agreement prefixes as expected.

¹⁵ The verb \sqrt{Vma} ‘come’ has a partially suppletive conjugation. See Table 3.27 on page 117 for details.

Having the object nominal appear in the specifier position of the VP in (194) is cross-linguistically unusual. The reason it occurs in this position rather than a complement position, close to the head verb as is commonly the case in other languages, results from its competition with the attributive adjunct in relation to the structural domain of metathesis marking dependency in Amarasi. Unlike attributive verbs, object nominals do not induce M-forms on the verb, and verbs with an object freely occur in the U-form or M-form as determined by the discourse structures of the entire phrase, as discussed in Chapter 7.

Three examples of SVCs in Amarasi are given in (195)–(197) below. The final verb of an SVC occurs in the U-form or M-form depending on the discourse structures of the clause (Chapter 7). The structure of the verbal clause of example (197) is given in (198) below.

- (195) *ahh kaah, neno kreedz=i =te, hai m-taam mi-krei.*
 kaah neno krei=i =te hai m-tama mi-krei
 NEG day church=1DET =SET 1PX 1PX/2-enter\M 1PX/2PL-church
 ‘Ah no, when it was Sunday, we went to church.’ 130902-1, 2.09 🔊
- (196) *saap au ?-soi? u-rair.*
 saap au ?-so?i u-rari
 because 1SG 1SG-count\M 1SG-finish\M
 ‘Because I’d finished counting.’ 130825-6, 0.36 🔊
- (197) *tua-f=es a|n-fain neem, kaan-n=e nai? Tu?as.*
 tua-f=es n-fani nema kana-n=e nai? Tu?as
 person-0GEN=one 3-return\M 3\come\M name-3SG.GEN=3DET Mr. T.
 ‘One person came back (here), his name was Tu’as.’ 130821-1, 5.00 🔊



In a cross linguistic survey of SVCs Aikhenvald (2006) gives five properties of canonical SVCs. Of these, Amarasi SVCs clearly conform to at least four, listed in (199) below.

- (199) Properties of serial verb constructions in Amarasi: (Aikhenvald 2006)
- a. Single predicate (SVCs function on par with monoverbal clauses in discourse)
 - b. Single intonation (SVCs have the intonational properties of a monoverbal clause)
 - c. Single tense/aspect/mood/polarity
 - d. encode a single event

The only property of an SVC given by Aikhenvald (2006) to which Amarasi SVCs arguably do not conform is that SVCs should be “monoclausal and allow no markers of syntactic dependency on their components” (Aikhenvald 2006:6). In Amarasi non-final verbs of an SVC occur in the M-form, which I analyse as a marker of syntactic dependency; M-forms are a construct form (§2.5.2.1) which mark the presence of a dependent modifier.

Aikhenvald (2006) includes this criterion in her definition to distinguish SVCs from other structures including “coordination, consecutivization, complement clauses [and] subordinate clauses”. In Amarasi each of these kinds of clauses have different structures. The differences between an SVC, coordination and complement clauses are illustrated with an example each in (200)–(202) below.

Example (200) is an instance of an SVC. The two verbs are immediately adjacent and the first is in the M-form. Example (201) is an instance of coordination or consecutivization and the connector *=ma* occurs between the two verbs. (See §7.3 for more discussion of the structure of coordination.) Example (202) is an instance of complementization or subordination, and the subordinate clause is introduced with the irrealis verb *he*.

- (200) Serial verb construction

au ka= ?-aim u-hiin =fa roit.
au ka= ?-ami u-hini =fa roit
 ISG NEG= ISG-look.for\M ISG-know\M =NEG money
 ‘I don’t know how to look for money.’ 130825-6, 0.52 🔊

- (201) coordination/consecutivization

?-aiti =ma ?-rees=en.
?-aiti =ma ?-resa=en
 ISG-pick.up\U =and ISG-read\M=INCEP
 ‘(I) picked (them) up and started to read.’ 130825-6, 21.14 🔊

- (202) complement/subordinate clause

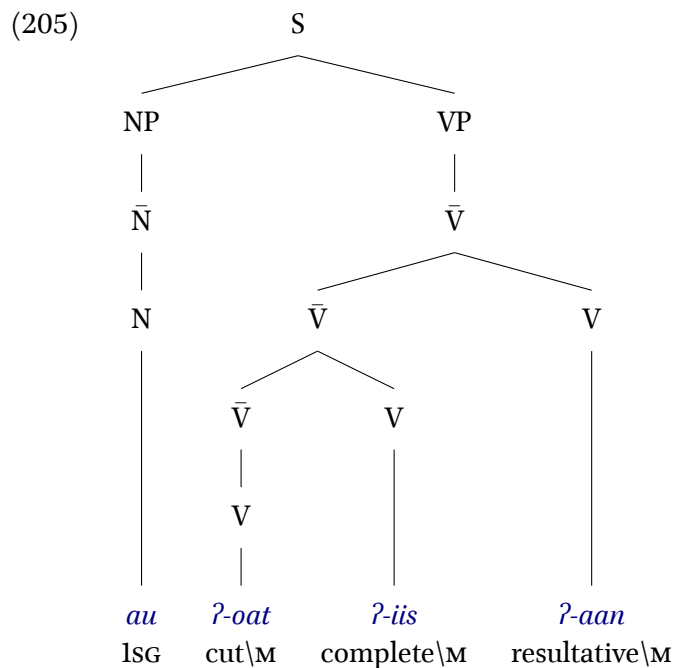
?-aim he ?-soos bantal.
?-ami he ?-sosa bantal
 ?-look.for\M IRR ISG-buy\M cushion
 ‘I’m looking to buy a cushion.’ 130914-1, 1.01 🔊

SVCs with more than two verbs also occur. All non-final verbs in such SVCs occur in the M-form, and the final verb in the U-form or M-form as determined by the discourse (Chapter

7). Two examples are given in (203) and (204) below, though only in (203) does each of the non-final verbs have a distinct M-form. The structure of (203) is given in (205) below.

(203) *n-ak* “*au* *ʔ-oat* *ʔ-iis* *ʔ-aan*”
 n-ak au ʔ-ote ʔ-isa ʔ-ana
 3-say 1SG 1SG-cut\M 1SG-completely\M 1SG-RES\M
 he said: “I cut (him) dead.” 130925-1, 1.30

(204) *ʔ-ak*: “*au* *ʔ-nao* *ʔ-meo* *ʔ-aan* *bi* *Uli* *n-ok* *bi* *Rahel*”
 ʔ-ak au ʔ-nao ʔ-meo ʔ-ana bi Uli n-oka bi Rahel
 1SG-say 1SG 1SG-go 1SG-see 1SG-RES\M Ms. U. 3-with\M Ms. R.
 ‘I said: “I’ll go and see Uli and Rachel.”’ 130825-6, 16.55



There are a number of verbs which occur frequently or exclusively in SVCs. The discussion in this section draws upon that of Jacob and Grimes (2011), who analyse SVCs in Kupang Malay. The similarities between Kupang Malay and Amarası SVCs are a result of Kupang Malay calquing on structures found in the local languages of western Timor.

The root *ʔani* occurs almost exclusively as the final verb of an SVC. It carries a temporal meaning, indicating that the event encoded by the SVC occurs before some other event. Occasionally it also means ‘directly, straight-away’. An example with the meaning ‘before’ is given in (206) below, and an example with the meaning ‘directly, straight-away’ in (207).

(206) *in* *n-toko =t*, *in* *of* *a|n-reis* *n-ain* *are?* *hae-f=ein* *a|msa?*
 in n-toko =te in of n-resi n-ani are? hae-f=ein msa?
 3SG 3-sit\U =SET 3SG sure 3-plan\M 3-before\M each messenger-0GEN=PL also
 ‘While sitting down, he’ll plan all the messengers beforehand.’ 130913-1, 2.43

- (207) *ma hai mi-soup* *m-ain* =*sin es re? neno nana msa?*
 ma hai mi-sopu m-ani =sin es re? neno nana msa?
 and 1PX 1PX/2PL-complete\M 1PX/2-direct\M =3PL one REL day 2DEM also
 ‘And we even finished them straight-away on that (same) day.’ 130921-1, 0.59 ◀

Another verb which occurs almost exclusively as the final member of an SVC in my corpus (73 attestations) is *√ana* which converts activities into accomplishments with a focus on the resulting state of the accomplishment.¹⁶ In addition to the aspectual function, it sometimes indicates the object of the SVC has on-going discourse relevance. It is glossed RES ‘resultative’. Two examples are given in (208) and (209) below.

- (208) *sin n-seen* *n-ana* *?rean?=es.*
 sin n-sena n-ana ?reno?=es
 3PL 3-plant\M 3-RES\Ů lemon=one
 ‘They (had) planted a lemon tree.’ 130823-2, 0.24 ◀
- (209) *n-bain he au u-taan* *?-aan* =*ko* *raasɟ=es.*
 n-bani he au u-tana ?-ana =ko rasi=es.
 3-let\M IRR 1SG 1SG-ask\M 1SG-RES\M =2SG.ACC matter=one
 ‘Let me ask you about something.’ 130825-6, 18.34 ◀

Example (208) is the first event of its story, with the rest of the story revolving around what happens because of this particular lemon tree. (The full version of this text is given in §7.2.) Similarly, in example (209) the speaker interrupts the main storyteller to have him change topic. The act of asking is irrelevant, the speaker being interested in its desired result: the contents of the new topic.

The verb *√rari* ‘finish’ can occur as an independent verb. It also frequently occurs as the second member of an SVC with a completive meaning. The difference between *√ana* and *√rari* in SVCs lies in the part of the event which each verb emphasises. With *√ana*, the focus is on the resulting state of the event, while with *√rari* the focus is on the event itself. Two examples of *√rari* as the second member of an SVC are given in (210) and (211) below.

- (210) *saap au ?-soi?* *u-rair.*
 saap au ?-so?i u-rari
 because 1SG 1SG-count\M 1SG-finish\M
 ‘Because I’d finished counting.’ 130825-6, 0.36 ◀
- (211) *hae?, a-skau-t=an,* *a|m-bukae m-raardɟ=en?*
 hae? a-skau-t=an, m-bukae m-rari=en
 hey NML-invite-NML=2DET 1PX/2-eat 1PX/2-finish\M̄=INCEP
 ‘Hey inviter/host, have you eaten?’ 130825-7, 2.29 ◀

¹⁶ This insight comes from the analysis of the equivalent Kupang Malay verb *ame* ‘take’ discussed in Jacob and Grimes (2011:349f).

The verb \sqrt{Vma} ‘come’ occurs as an independent verb as well as the second member of an SVC indicating action oriented toward the speaker. (This verb has an irregular conjugation, discussed in §3.6.1.1 on page 117.) Two examples of this verb as the second member of an SVC indicating speaker oriented action are given in (212) and (213) below.

- (212) *oka =t m-ʔeer uma m-bi ia.*
 okeʔ =te m-ʔere uma m-bi ia
 after.that 1PX/2-look.intently\M 1/2SG\come\Ů 1PX/2-RL.LOC IDEM
 ‘After that, keep looking this way.’ 130907-3, 7.36 ◀
- (213) *tua-f=es a|n-fain neem, kaan-n=e naiʔ Tuʔas.*
 tua-f=es n-fani nema kana-n=e naiʔ Tuʔas
 person-0GEN=one 3-return\M 3\come\M name-3SG.GEN=3DET Mr. T.
 ‘One person came back (here), his name was Tu’as.’ 130821-1, 5.00 ◀

6.7.1 Phonological Restrictions on M-forms in SVCs

In both the nominal phrase and the verb phrase M-forms mark the presence of a dependent modifier. However, in the nominal phrase all heads occur in the M-form while in the verb phrase only vowel final verbs occur in the M-form, and then only when the following verb begins with a single consonant.

This phonological restriction is partly explained by the fact that the default form of vowel final verbs is the M-form (discussed in §7.1.1) with the U-form of these verbs being used to mark events as unresolved.

Consonant final verbs only occur in the M-form in my data when they are the host of a vowel initial enclitic. When a consonant final verb occurs as the first member of an SVC it occurs in the U-form. Such phonologically predictable U-forms are glossed $\backslash\hat{U}$. Two examples of consonant final verbs as non-final within an SVC are given in (214) and (215) below.

- (214) *au msaʔ =at au ʔ-poi ʔ-poriʔ ʔ-aan oa.*
 au msaʔ =te au ʔ-poi ʔ-poriʔ ʔ-ana oa
 1SG IRR 1SG-exit 1SG-throw\Ů 1SG-RES\M water
 ‘Me too then, I’ll go out and relieve myself (*lit.* throw water).’ 130825-7, 3.10 ◀
- (215) *atoni-ʔ n-nikan n-ain, saaʔ reʔ sin n-mooʔdʒ=e uun neno unuʔ.*
 atoni-ʔ n-nikan n-ani saaʔ reʔ sin n-moʔe=e unuʔ neno unuʔ
 man-U 3-forget\Ů 3-before\M what REL 3PL 3-do\M=3SG.ACC past day past
 ‘People forgot the kinds of things they used to do in past days.’ 160326, 11.21 ◀

Similarly, when a vowel final verb occurs before a consonant cluster it usually occurs in the U-form. Verbal U-forms before consonant clusters are mostly phonologically predictable and are also glossed $\backslash\hat{U}$. Two examples of an SVC in which the second member begins with a consonant cluster are given in (216) and (217) below.

- (216) *hai mi-sopu m-rair Roma, es nean haa-ʔ=i.*
 hai mi-sopu m-rari Roma es neno haa-ʔ=i
 1PX 1PX/2PL-complete\ŭ 1PX/2-finish\M R. one day four-ORD=1DET
 ‘We’d completed (reading) Romans on Thursday.’ 130921-1, 0.43 ◀
- (217) *sa- n-ak, he m-sanu m-fain he mi-ah*
 3-ak he m-sanu m-fani he mi-ah
 3-say IRR 1PX/2-descend\ŭ 1PX/2-back\M IRR 1PX/2PL-eat
 ‘he thought we would go back down to eat.’ 130825-7, 2.24 ◀

It is possible for a vowel final verb to occur in the M-form before a verb with an initial consonant cluster. This is the minority pattern in my corpus with 13 attestations compared with 198 attestations of a vowel final U-form in the same environment. One example of an M-form in an SVC before a consonant cluster is given in (218a) below, which is immediately followed by another speaker who repeats the same SVC, though with an initial U-form.

- (218) A man who’s already made preparations for his funeral: 130913-1 ◀
- a. α : *m-ak in n-hain n-mees?*
 m-ak in n-hani n-mese
 1PX/2-say 3SG 3-dig\M 3-alone\M
 ‘Do you think he dug it alone?’ 0.57
- b. β : *in of a|n-hani n-mees.*
 in of n-hani n-mese
 3SG sure 3-dig\ŭ 3-alone\M
 ‘He must’ve dug it alone.’ 0.59

When a consonant final verb occurs before a consonant cluster either epenthesis takes place, as in (219) below, or the cluster of three consonants is not resolved, as in (220) below.

- (219) *t-pe~pea mes baptua Banus in na-barab a|n-rair*
 t-pe~peo mes baptua Banus in na-barab n-rari
 1PI-INTNS~talk but old.father B. 3SG 3-prepare\ŭ 3-finish\M
 ‘We’re talking about it, but father Banus is already prepared.’ 130913-1, 2.30 ◀
- (220) *neem he t-ʔonen t-pasat t-aan=e.*
 nema he t-ʔonen t-pasat t-ana=e
 3\come\M IRR 0-pray\ŭ 0-whack.away\ŭ 1PI-RES\M=3SG.ACC
 ‘He comes to have it prayed away.’ 120923-1, 6.59 ◀

Consonant final verbs always occur in the U-form when they are a member of an SVC. This phonotactic restriction is also found with unassimilated consonant final loan nominals in attributive phrases (§6.3.1). Similarly, when a non-final verb in an SVC is followed by a consonant cluster, it usually occurs in the U-form. This behaviour is different from (native) nominals followed by an attributive modifier in which M-forms are obligatory no matter the phonotactic shape of the nominal and modifier.

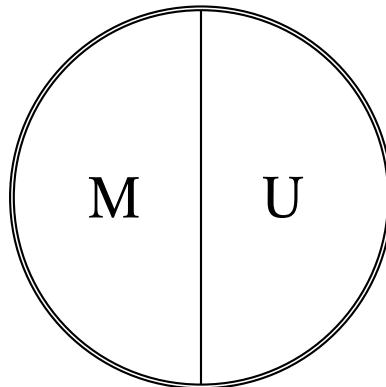
To account for this fact we can posit that different word classes are sensitive to different phonotactic constraints. Within the nominal phrase preservation of a final consonant is less important than marking the presence of an attributive modifier. Within the verb phrase preservation of a final consonant is more important than marking a following modifier.

6.8 Conclusion

Syntactic metathesis in Amarasi is a morphological process used to mark the presence of a following attributive modifier. It is a construct form (§2.5.2.1) used to mark that a word of the same word class as the head is dependent on the head. Syntactic metathesis affects every non-final word below the level of \bar{X} .

A syntactic M-form canonically co-occurs with a following U-form. A syntactic M-form cannot occur at the end of a phrase and thus entails the presence of a following U-form which syntactically completes any prior M-form. Within the syntax M-forms and U-forms comprise a parallel and complementary pair of morphological forms; they are a dyadic set, with each form being one half of a whole. The complementary and parallel nature of syntactic M-forms and U-forms in Amarasi is represented in Figure 6.1.

Figure 6.1: Amarasi Syntactic Metathesis



Chapter 7

Discourse Driven Metathesis

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7.1 Introduction

In this chapter I analyse the discourse functions of Amarasi metathesis. Discourse metathesis marks an unresolved event or situation, which requires another clause to achieve resolution. A discourse U-form (unmetathesised) occurs in a parallel and complementary relationship with an M-form (metathesised), the latter of which resolves the former.

Example (1) is a question-answer pair in which a question posed in the U-form is resolved by an answer in the M-form. Example (2) contains two events. The second event is encoded in the M-form and is dependent on the prior U-form event for its realisation. In both these examples it is ungrammatical for the U-form verbs to be replaced with M-forms.

- (1) Q: *ho* *mu-beʔiʔ* A: *au* *u-beʔiʔ*
ho mu-beʔi *au u-beʔi*
 2SG 2SG-capable\U 1SG 1SG-capable\M
 ‘Can you do it?’ ‘Yes I can!’ observation 02/08/13, p.20
- (2) *m-ak* *hai nua =kai* *m-taikobi* *=m* *hai* *m-maet* *okeʔ.*
m-ak hai nua =kai m-taikobi =ma hai m-mate okeʔ
 1PX/2-say 1PX two =1PX.ACC 1PX/2-fall\U =and 1PX 1PX/2-die\M all
 ‘So we two will fall down and (then) both die.’ 130909-6, 0.39 ◀▶

Discourse U-forms are used by speakers to signal that the event or situation is not resolved. Such a U-form represents half of a whole which requires resolution by another clause. Discourse driven U-forms leave the audience in a state of suspense, with the speaker signalling that more information is required to resolve the situation or event encoded by the U-form. The word classes which have such discourse driven U-forms are given in (3) below. These word classes occur in the U-form when unresolved.

- (3) Word classes with discourse driven U-forms:
- a. verbs
 - b. cardinal numerals
 - c. place names
 - d. number enclitics
 - e. demonstratives
 - f. pronouns

Among these word classes, the use of U-forms is completely productive for verbs, cardinal numerals and place names. For number enclitics, demonstratives and pronouns, the use of U-forms is less productive, though there are still many instances in which U-forms with these latter classes signal a lack of resolution.¹

Discourse U-forms typically occur in certain constructions and environments. These constructions and environments include dependent co-ordination (§7.3), tail-head linkage (§7.4), poetic parallelism (§7.5), chiasmus (§7.6) and inter-speaker interaction (§7.7). These five constructions are summarised in Table 7.1 along with the typical structure of each.

Table 7.1: Constructions in which Discourse U-forms Typically Occur[†]

Construction	Typical Structure
Dependent Co-ordination	<div style="display: flex; justify-content: space-between; width: 100%;"> §7.3 </div>
Tail-head linkage	<div style="display: flex; justify-content: space-between; width: 100%;"> §7.4 </div>
Poetic parallelism	<div style="display: flex; justify-content: space-between; width: 100%;"> §7.5 </div>
Chiasmus	<div style="display: flex; justify-content: space-between; width: 100%;"> §7.6 </div>
Interaction	<div style="display: flex; justify-content: space-between; width: 100%;"> §7.7 </div>

[†] An arrow indicates the form which resolves a U-form and a line joining two forms indicates forms which are semantically identical or parallel. Event₁ and event₂ refer to two different events, with event₁ beginning before event₂.

In my corpus there are 321 purely discourse driven U-forms.² Of these, 296 (89%) clearly occur in one of the five constructions/environments given in Table 7.1.

Before I discuss the occurrence of U-forms in Amarasi discourse, I discuss two other facts which help in properly understanding the use of discourse driven U-forms. Firstly, in §7.1.1

¹ As discussed in Chapter 4, words which end in a vowel sequence do not have M-forms (except before enclitics). As a result, the only number enclitic with both forms is *=eni* → *=ein* PL, the only demonstrative is *nana* → *naan* 2DEM and the only pronouns are *ini* → *in* 3SG, *sini* → *sin* 3PL, *hiti* → *hit* IPL.INCL.NOM and *=kiti* → *=kit* IPL.INCL.ACC. The exceptional M-forms with vowel deletion for the pronouns are discussed in §4.2.5.1.

² With 321 attestations, discourse (un)metathesis is a well attested morphological process. For comparison, my corpus has 146 instances of partial reduplication (§3.4.2) and 46 of the reciprocal prefix *ma(k)-* (§3.6.1.2).

I show that the M-form is indeed the semantically unmarked form of the word classes given in (3). This is surprising given that the M-form is the morphologically marked form.

Secondly, in §7.2 I explain some of the most important general structures of Amarasi discourse. This gives the reader the necessary background for understanding the role that U-forms have within Amarasi discourse.

7.1.1 Default M-form

For the word classes given in (3) above; verbs, cardinal numerals, place names, number enclitics, demonstratives and pronouns, the default semantic form is the M-form except when phonotactic constraints overrule. The two phonotactic constraints which overrule are: when the stem occurs before a consonant cluster and when the stem is consonant final.

Even though the M-form of these word classes is the semantically default form, the U-form must still be posited as the morphologically underlying form. This is due to the processes of vowel assimilation which occur in the formation of M-forms (§4.2.3). Two examples of minimal pairs with identical M-forms but different U-forms are \sqrt{ne} ‘press’ and \sqrt{ne} ‘hear’ → *n-neen* ‘presses’/‘hears’ as well as \sqrt{re} ‘field’ and \sqrt{re} ‘force’ → *na-reen* ‘makes field’/‘forces’.

For these word classes, the morphologically unmarked form is the semantically marked form with special discourse uses (unresolved), and the morphologically marked form is the semantically unmarked form without special discourse uses. This difference between nominals and other word classes is shown in Table 7.2.

Table 7.2: Nominal and Non-Nominal Metatheses

	unmarked semantics	marked semantics
nominal	U-form	M-form
other	M-form	U-form

Most of discussion in this section focusses on verbs as these are the most well attested word class with default M-forms. Unless stated otherwise, the statements here hold for the default M-form of the word classes with discourse driven U-forms, such as cardinal numerals and place names. The M-form of these word classes is the form used in simple declarative sentences, the citation form and the most common form.

Four simple declarative sentences are given in (4)–(7) below. Each of these examples is taken from the very beginning of its text. The verbs in each instance take the M-form.

- (4) *nenō ia aam Nahor Bani n-maet.*
 nenō ia ama Nahor Bani n-mate
 day IDEM father N. B. 3-die\M
 ‘Today father Nahor Bani died.’ 130928-1, 0.02 🔊
- (5) *krei ia in naan-n=i, hai m-rees surat Roma.*
 krei ia in nana-n=i, hai m-resa surat Roma
 week IDEM 3SG inside-3SG.GEN=IDET 1PX 1PX/2-read\M paper R.
 ‘During this week we read the book of Romans.’ 130920-1, 0.22 🔊
- (6) *ahh, hai m-baiseun fuunn=e =te, ahh*
 hai m-baisenu funan=e =te
 1PX 1PX/2-look.up\M moon=3DET =SET
 ‘Umm, when we looked up at the moon,’ 120715-3, 0.10 🔊
- (7) *au he u-toon n-ok hai mepu na-?ko nean mese? tar a|n-tea nenō ia.*
 au he u-tona n-ok hai mepu na-?ko nenō mese? tar n-tea nenō ia
 1SG IRR 1SG-tell\M 3-with 1PX work 3-ABL day one until 3-arrive day IDEM
 ‘I want to talk about our work from Monday until today.’ 130921-1, 0.20 🔊

As the default form, the M-form is also the usual citation form. The citation forms of a number of vowel final verbs in one recorded word-list are given in (8) below, with the 3SG agreement marker (*a|n-* or *na-*).

- (8) Vowel final verb citation forms:

Root	Citation
\sqrt{henu}	→ <i>na-heun</i> ‘fills, is full’
\sqrt{hini}	→ <i>na-hiin</i> ‘knows’
\sqrt{ita}	→ <i>n-iit</i> ‘looks at’
\sqrt{kisu}	→ <i>a n-kius</i> ‘sees’
\sqrt{mate}	→ <i>n-maet</i> ‘die’
\sqrt{nena}	→ <i>a n-neen</i> ‘hear’
$\sqrt{ro?a}$	→ <i>a n-roo?</i> ‘vomits’
\sqrt{roro}	→ <i>a n-roor</i> ‘kills by stabbing’
\sqrt{toko}	→ <i>a n-took</i> ‘sit’

For nominals, the semantically default form is the U-form, with the M-form marking modification (see chapter 6). There are a number of pre-categorical roots in Amarasi which can occur as either a verb or nominal, such roots are cited in U-form for the nominal meaning and the M-form for the verbal meaning. Examples are given in Table 7.3 below.

Table 7.3: Metathesis with Pre-categorical Roots

Root	Nom.	Gloss (N.)	Verb	Gloss (V.)
$\sqrt{he?o}$	<i>he?o</i>	‘(a) saw’	<i>n-heo?</i>	‘(to) saw’
\sqrt{kinu}	<i>kinu-f</i>	‘cheek’	<i>na-kiun</i>	‘(to) spit’
$\sqrt{?soko}$	<i>?soko</i>	‘sign’	<i>na-?sook</i>	‘make a sign’
\sqrt{nope}	<i>nope</i>	‘cloud’	<i>n-noep</i>	‘be cloudy’
\sqrt{reko}	<i>reko</i>	‘good’	<i>na-reok</i>	‘be good’
\sqrt{rono}	<i>rono-f</i>	‘saliva’	<i>n-roon</i>	‘(to) spit’
$\sqrt{si?u}$	<i>si?u-f</i>	‘(an) elbow’	<i>n-siu?</i>	‘(to) elbow’
\sqrt{snasa}	<i>snasa-f</i>	‘breath’	<i>na-snaas</i>	‘take a break’

The M-form is also the most frequent form for word classes with discourse driven U-forms. In my corpus M-forms comprise 75% (3,319/4,440) of all instances of non-nominals. After excluding M-forms which are obligatory before vowel initial enclitics (414 instances), U-forms which are consonant final stems (519 instances), and U-forms before consonant clusters (281 instances), M-forms constitute 90% (2,905/3,226) of the relevant word classes. Put differently, the semantically unmarked form occurs in 90% of instances. These figures for each word class are detailed in Table 7.4.

Table 7.4: Frequency of U-forms and M-forms in Texts[†]

	U-form	/_CC	/C#	else.	M-form	/_=V	else.
verbs	962	268	438	256	1,836	354	1,482
numerals	42	2	26	14	90	21	69
place names	64	0	55	9	54	3	51
<i>=eni</i>	20	3	–	17	196	26	170
pronouns	15	8	–	7	1,025	10	1,015
demonstratives	18	0	–	18	118	0	118
total	1,121	281	519	321	3,319	414	2,905

[†] U-form = total U-forms, /_CC = U-forms before consonant clusters, /C# = consonant final stems in U-form, else. = U-forms elsewhere (purely discourse driven U-forms), M-form = total M-forms, /_=V = M-forms before vowel initial enclitics, else. = M-forms elsewhere

M-forms are the semantically default form of word classes with discourse driven U-forms. For such word classes U-forms normally mark an unresolved event or situation. However, there are two phonotactic environments in which U-forms are the usual form of these word classes. In such environments the phonology overrules the morphology and U-forms do not carry any particular discourse meaning. These environments are when the stem itself is consonant final (§7.1.1.1) and when the stem occurs before a consonant cluster (§7.1.1.2). U-forms in each of these phonotactic environments are glossed \u0304.

7.1.1.1 Consonant Final U-forms

(Kotos) Amarasi does not allow word final consonant clusters.³ Metathesis of a word containing a final consonant would result in a final consonant cluster and (Kotos) Amarasi has a number of strategies for avoiding this. For nouns, the final consonant is deleted after metathesis, yielding examples such as *muʔit* → *muiʔ* ‘animal’ (§4.2.2).

For other word classes, the potential for final clusters is mitigated by simply avoiding metathesis. As a result, consonant final non-nominals always occur in the U-form except before vowel initial enclitics. Two examples of simple declarative sentences with consonant final verbs are given in (9) and (10) below.

- (9) *nenoo naa paha ʔpina-n ia, a|n-kobub on bare meseʔ*
 day 0DEM country below-3SG.GEN IDEM 3-pile.up\ʔ IRR.LOC place one
 ‘In those days the world was piled up in one place.’ 120715-4, 0.05 🔊
- (10) *n-ak: ʔhit ta-naniʔ kuan=i, kaisaʔ Neanpeen.*
 3-say 1PI 1PI-move\ʔ village=1DET PROH N.
 ‘They said: “Let’s change the village, it shouldn’t be Neanpeen.’ 130823-2, 0.57 🔊

Similarly, the citation form of consonant final verbs is the U-form. Examples of consonant final verbs cited in the U-form in a recorded word-list are given in Table (11) below.

(11) Consonant Final Verb Citation Forms:

Root	Citation
$\sqrt{ʔapuʔ}$	→ <i>na-ʔapuʔ</i> ‘is pregnant’
\sqrt{manis}	→ <i>n-manis</i> ‘laughs at s.o.’
$\sqrt{reruʔ}$	→ <i>a n-reruʔ</i> ‘is sleepy’
\sqrt{sumak}	→ <i>a n-sumak</i> ‘dives’

This behaviour includes verbs whose final consonant is a suffix, or the consonantal allomorph of the plural enclitic =*n*. The citation form of a number of vowel final verbs and their corresponding forms with the plural enclitic =*n* are given in (12) below to illustrate.

(12) Plural Verb Citation Forms:

Root	Verb	Verb=PL
\sqrt{nema}	<i>neem</i>	→ <i>nema=n</i> ‘come’
\sqrt{tona}	<i>na-toon</i>	→ <i>na-tona=n</i> ‘tell’
\sqrt{mate}	<i>n-maet</i>	→ <i>n-mate=n</i> ‘die’
\sqrt{eki}	<i>n-eik</i>	→ <i>n-eki=n</i> ‘bring’
\sqrt{hini}	<i>na-hiin</i>	→ <i>na-hini=n</i> ‘know’
\sqrt{mepu}	<i>n-meup</i>	→ <i>n-mepu=n</i> ‘work’
\sqrt{romi}	<i>n-roim</i>	→ <i>n-romi=n</i> ‘like’

³ Morpheme final consonant clusters only occur before vowel initial enclitics (Chapter 5), in which case the clitic host and enclitic form a single phonological word.

Ro'is Amarasi provides evidence that it is indeed a phonotactic constraint against word final consonant clusters which blocks M-forms for consonant final non-nominals in Kotos Amarasi. Ro'is Amarasi allows certain word final consonant clusters,⁴ and we find that in Ro'is Amarasi consonant final verbs can occur in the M-form. One example is the verb $\sqrt{?onen}$ 'to pray', cited in Ro'is as $?oenn$ but in Kotos as $n-?onen$. Two examples of Ro'is Amarasi sentences with a consonant final verb in the M-form are given in (13) and (14) below.

- (13) Ro'is: *sin na-saap=n*.
 Kotos: *sin na-sapa=n*.
 3PL 3-kick=PL
 'They're playing soccer.' observation 08/10/14, p.113
- (14) Ro'is: *raump=ein n-maet=n*.
 Kotos: *paku=n n-mate=n*.
 light=PL 3-die=PL
 'The lights have died.' observation 09/10/14, p.114

Metathesis of consonant final verbs does not occur in Kotos Amarasi due to a constraint against final consonant clusters. The default form of consonant final verbs is the U-form.

7.1.1.2 U-forms before Consonant Clusters

Another phonotactic environment in which the word classes given in (3) do not usually occur in the M-form is before consonant clusters. In my corpus there are 278 U-forms of these word classes before a consonant cluster and only 21 M-forms before a consonant cluster. Two examples of a U-form before a consonant cluster initial root are given in (15) and (16) below.

- (15) *uma ?-tee =ma, ?-aiti bruuk*.
 uma ?-tea =ma ?-aiti bruuk
 1/2SG\come\ŭ 1SG-arrive =and 1SG-pick.up\ŭ pants
 'I arrived (home) and picked up some pants.' 130825-6, 10.05 ◀▶
- (16) *Onai =te, ho m-tebi ?teta?*.
 like.this 2SG 1PX/2-turn\ŭ different
 'Like this, you turn (it) differently.' 130914-1, 0.53 ◀▶

One of the most frequent kinds of consonant clusters in my corpus are those created through the addition of a verbal prefix to a consonant initial verb stem (§3.6.1). This is the most common kind of consonant cluster found after U-forms of the relevant word classes, with 78% (218/278) of all U-forms before a consonant cluster occurring before a consonantal prefix attached to a consonant initial root. Examples are given in (17) and (18) below.

⁴ It is not yet known whether there are restrictions on the kinds of word final consonant clusters permitted.

- (17) *hai m-eki m-sanu m-bi re? ?pinan ia =t,*
 1PX 1PX/2-bring\ŭ 1PX/2-go.down-\ŭ 1PX/2-RL.LOC GVN.OBJ below IDEM =SET
 ‘When we went down there,’ 130902-1, 3.41 ◀
- (18) *in, in ao-n=e n-mese n-nao n-peo? aafgw=i =m,*
 in in ao-n=e n-mese n-nao n-pe?o afu=i =ma
 3SG 3SG body-3SG.GEN=3DET 3-alone\ŭ 3-go 3-go.by\M ground=1DET =and
 ‘His, his body went by itself along the ground.’ 120715-4, 2.26 ◀

While the vast majority of non-nominals are in the U-form before a consonant cluster, there are 21 instances of an M-form before such words in my corpus. Such examples represent only 7% (21/302) of all non-nominals before a consonant cluster. Two examples are given in (19) and (20) below.

- (19) *surat a|n-poi n-taam n-poi n-taam, ?-toup.*
 surat n-poi n-tama n-poi n-tama ?-toup
 paper\U 3-exit 3-enter\M 3-exit 3enter\M 1SG-receive\M
 ‘Letters would be issued and received, issued and received, I got (one).’ 130907-3,
 8.04 ◀
- (20) *n-eik kreedz=i neem.*
 n-eki krei=i nema
 3-bring\M church=1DET 3\come\M
 ‘(They) brought the Church here.’ 160326, 10.22 ◀

7.1.1.2.1 Consonant Final Stems before Consonant Clusters There are 46 instances of a consonant final stem before a consonant cluster in my corpus. In 14 instances, epenthesis occurs to break up the underlying cluster of three consonants. Two examples are given in (21) and (22) below, in which the epenthetic vowel /a/ is inserted to break up the cluster of three consonants (§3.8.2).

- (21) *t-pe~pea mes baap tua Banus in na-barab a|n-rair*
 t-pe~peo mes bapa tua Banus in na-barab n-rari
 1PI-INTNS~talk but father old B. 3SG 3-prepare\ŭ 3-finish\M
 ‘We’re talking about it, but father Banus is already prepared.’ 130913-1, 2.30 ◀
- (22) *in n-moo?dz=o-n on kaun?=i =ma n-nonok a|n-peo?*
 in n-mo?e=o-n on kauna?=i =ma n-nonok n-pe?o
 3SG n-do\M=REFL-3SG.GEN IRR.LOC snake=1DET =and 3-crawl\ŭ 3-go.by
aafgw=i =ma
 afu=i =ma
 ground=1DET =ma
 ‘he did it like the snake and crawled along the ground and’ 120715-4, 1.52 ◀

In the remaining 32 instances in my corpus, the cluster of three consonants is not phonemically resolved. In all 32 instances, the first consonant (i.e. the final consonant of the stem) is either the glottal stop /ʔ/ or the alveolar nasal /n/. That epenthesis is not obligatory after these consonants is consistent with the data presented in §3.8.2 which showed that epenthesis is uncommon between ʔ_CC, and only optional between n_CC.

An example each of final /ʔ/ and /n/ before a consonant cluster is given in (23) and (24) below respectively. In both instances the first consonant of each cluster is phonetically deleted, or has coalesced with the following consonant.

- (23) [i napəpə mǎ nsiḡi nʔaʔ ʔpiʔt]
in na-papaʔ =ma n-siriʔ n-nao piut.
 3SG 3-wound\ʔ =and 3-spread\ʔ 3-go continue
 ‘The wound keeps on spreading.’ 120923-2, 6.28 ◀
- (24) [n̄ma'senən ɐm:ɐ ʔanmɐ'βanə nβin rɛʔ nanɔ mɛsɛʔ]
n-ma-senu=n =ama a|n-ma-bana=n n-bi=n reʔ nanaʔ meseʔ
 3-RECP-replace\ʔ=PL =and 3RECP-hit\ʔ=PL 3-RL.LOC=PL REL inside but
 ‘They replaced and fought one another inside.’ 120715-4, 7.56 ◀

Verbs nearly always take the U-form before a word which begins with a consonant cluster. This is because clusters of three consonants are normally disallowed in Kotos Amarasi.

7.1.1.3 Summary

There are six word classes in Amarasi for which the default form is the M-form and for which the U-form is used to signal lack of resolution. These word classes are listed in (25) below.

- (25) Word classes with discourse driven U-forms:
- verbs
 - cardinal numerals
 - place names
 - number enclitics
 - demonstratives
 - pronouns

The default form of vowel final members of each of these word classes in Amarasi is the M-form. When members of these word classes occur before a consonant cluster or when they themselves have a final consonant they occur in the U-form (glossed \ʔ) except before determiners. These facts can be seen as part of a drift towards final closed syllables which is also seen in some dialects closing syllables with an epenthetic consonant (§4.5.1.3.7). U-forms of members of the word classes given in (25) signal lack of resolution.

7.2 Discourse Structures in Amarasi

Before discussing the discourse functions of U-forms, it is helpful to first discuss general patterns of Amarasi discourse, including some of its more common discourse structures. In this section I illustrate some pertinent discourse structures of Amarasi by means of a detailed exposition of a single short text.

The text selected for exposition is *Kuareno'*, a short narrative text about how the village of *Kuareno'* came to have its current name.⁵ With sixteen clauses, this text is both short enough to allow detailed exposition, and still long enough to illustrate a range of discourse structures. The structure of this text is indicative of other texts.

The outline of this story is given in Table 7.5. In this table I have given a summary of each clause, the part of the plot in which it occurs, which conjunctions occur and the occurrence of U-forms and M-forms.⁶ I have also tracked repetition between clauses.

Table 7.5: Summary of *Kuareno'* Story

	Plot	Conj.	Summary	U/M	Repetition	Index
1	<i>Opening</i>		Kuareno's name is K. because	ŭ ŭ	A B	(26)
2	<i>Setting</i>		at first, its name wasn't K.	U ŭ	A B	(27a)
3			its name was Neanpeen	M	B C	(27b)
4			there were lots of people	M		(27c)
5	<i>Inciting</i>	then	they planted a lemon tree	M ŭ	D	(28a)
6	<i>incident</i>		a single lemon tree		D	(28b)
7	<i>Climax</i>	then	it grew two branches		E	(29a)
8			it grew two branches		E	(29b)
9			one of the branches		F	(29c)
10			its contents and fruit were red		G G	(29d)
11			one was white		G	(29e)
12			one of the branches was white		F	(29f)
13	<i>Dénouement</i>	so	someone called it K.	M̄ ŭ	A B	(30a)
14		so	they named it K.	M̄	A B	(30b)
15			let's change it, not Neanpeen	ŭ M	C H	(30c)
16		but	let's change its name to K.	M̄ ŭ	A B H	(30d)


I have broken the text up according to the plot structure, and discuss each chunk in turn. The identification of different parts of the plot follows the principles and protocols outlined

⁵ The name *Kuareno'* is historically from *kuan* 'village' + *?reno?* 'lemon', an instance of an attributive nominal phrase (§6.3) with reduction/attrition of an initial cluster (§6.3.4)


⁶ Recall that 'ŭ' is a consonant final U-form, or U-form before a consonant cluster. As discussed in §7.1.1 the default form in such phonotactic environments is the U-form. 'M̄' is an M-form before a vowel initial enclitic. As discussed in Chapter 5 M-forms are obligatory before vowel initial enclitics.

in Dooley and Levinsohn (2001). Parts of each chunk which receive special discussion are indicated in red boldface type.

Line (26) is the Opening of the story. After gathering his thoughts, the narrator provides a short explanation that the text is about the name of *Kuareno'* village.

- (26) Kuareno' – Opening: 130823-2 
- ahh, Kuareno? ahh, in kaan-n=e Kuareno? na-tuina? ahh*
 Kuareno? in kana-n=e Kuareno? na-tuina?
 PAUSE K.\u028a PAUSE 3SG name-3SG.GEN=3DET K.\u028a 3-because PAUSE
 'Umm, Kuareno', its name is Kuareno' because,' 0.00

This opening line is followed by the setting, given as (27) below. The Setting is the part of the story in which the narrator provides background information about the place, time and participants of the story. In (27) we learn the time this story took place ('long ago, at first') and more about the main participant; the village of Kuareno'.


- (27) Kuareno' – Setting: 130823-2 
- a. *na-hunu =t, in kaan-n=e ka= Kuareno? =fa.*
 na-hunu =te in kana-n=e ka= Kuareno? =fa
 3-first\U =SET 3SG name-3SG.GEN=3DET NEG= K.\u028a =NEG
 'Well, long ago it's name wasn't Kuareno'.' 0.09
- b. *in kaan-n=e ahh Neanpeen.*
 in kana-n=e Neanpeen
 3SG name-3SG.GEN=3DET PAUSE N.\M
 'It's name was Neanpeen.' 0.13
- c. *a|n-nao~nao =te, a|n-mui? toogw=i na-mfau.*
 n-nao~nao =te, n-mu?i too=i na-mfau
 3-FRD~go =SET 3-have\M citizen=1DET 3-many
 'After a while, it had a lot of residents.' 0.17

In (27a) there is a purely discourse driven U-form; *na-hunu* 'at first; long ago', which is resolved by the following two clauses which describe the situation which held 'long ago'.

In (27) there are also two occurrences of the connector *=te*, glossed as SET 'setting'. This particle is always clause final and its function is to provide the background which sets the scene for the following clause. The clause preceded by *=te* is the stage on which the following clause takes place. In (27a) the clause *na-hunu* 'at first' is the time of the next clause. In (27c), the clause preceding *=te* is an event (*a|n-nao~nao* 'it went on') which preceded the clause following *=te*. Due to the semantics of this connector (background for next clause), verbs before *=te* obligatorily occur in the U-form (resolved by next clause). The use of this enclitic is discussed in more detail in §7.3.2.

After the scene has been set in (27), the narrator introduces the Inciting Incident, given as (28) below. The Inciting Incident of the story is the part of a story in which something first


happens and the story line gets moving. In (28) the inciting incident is introduced by the conjunction *oka =te* ‘after that, then’.⁷ It is common for new parts of the plot to be introduced with conjunctions. Conjunctions which do not introduce new parts of the story, such as *=ma* ‘and’, are usually clause final. I call such conjunctions *connectors*. Connectors are discussed in more detail in §7.3.

- (28) Kuareno' – Inciting Incident: 130823-2 
- a. *oka =te, sin n-seen n-ana ?rean?=es,*
oke? =te sin n-sena n-ana ?reno?=es
 after.that 3PL 3-plant\M 3-RES\ŭ lemon=one
 ‘After that, they planted a lemon tree.’ 0. 22
- b. *u?u mese?, ?rean?=i u?u mese?*
u?u mese? ?reno?=i u?u mese?
 tree single lemon=1DET tree single
 ‘A single one, a single lemon tree.’
 (*lit.* ‘A single one, the lemon tree was a single one.’) 0. 29

Another common feature of Amarasi discourse found in (28) is repetition. The lemon tree is repeated twice as is the fact that it was a single tree. None of these instances of repetition are false starts. Instead, repetition is a common feature of Amarasi discourse and is found with all speakers (including eloquent speakers) in many text genres.

Repetition has already been seen in this *Kuareno'* story in the Opening (26) and Setting (27) of this text, with three repetitions of *Kuareno?* and three of *in kaan-n=e* ‘its name’ between them. Metathesis and repetition interact in Amarasi, as one use of U-forms is to mark one half of a tail-head linkage construction with two identical verbs (§7.4).

The Inciting Incident precedes the Climax; the main problem of the story which needs to be solved. The Climax is given as (29) below. As with the Inciting Incident, the Climax in (29) is introduced with the conjunction *oke =t* ‘after that, then’. As in other parts of the story, the climax also has a large amount of repetition. In fact, there is no clause in (29) which is not repeated in some way in this same section.

- (29) Kuareno' – Climax: 130823-2 
- a. *oke =t in na-tae tae-f nua. ahh*
oke? =te in na-tae ta?e-f nua
 after.that 3SG 3-branch branch-0GEN two
 ‘After that, it grew two branches.’ 0. 31
- b. *na-tae tae-f nua,*
na-tae ta?e-f nua
 3-branch branch-0GEN two
 ‘It grew two branches.’ 0. 34

⁷ Historically this conjunction is from *oke?* ‘all, finished’ and the scene setting enclitic *=te*.

- c. *es=i, in taaʔɔʒ=es=i ahh,*
es=i in taʔe=es=i PAUSE
 one=1DET 3SG branch=one=1DET
 ‘One of these, one of its branches,’ 0.36
- d. *aaf-n=e meʔe, fua-n=e meʔe.*
afa-n=e meʔe fua-n=e meʔe
 content-3SG.GEN=3DET red fruit-3SG.GEN=3DET red
 ‘Its contents were red, its fruit was red.’ 0.42
- e. *es=e mutiʔ. mmh*
es=e mutiʔ
 one=3DET white
 ‘The other one was white. [murmur of satisfaction]’ 0.45
- f. *taaʔɔʒ=es=i mutiʔ.*
taʔe=es=i mutiʔ
 branch=one=1DET white
 ‘One of the branches was white.’ 0.49

There are at least three types of repetition in (29). Clauses (29a) and (29b) are an instance of verbatim repetition: part of the clause is simply repeated word for word. Clause (29d) contains parallelism, in which the same or a similar idea is expressed with non-identical words. In (29d) the parallelism is between *aaf-n=e* ‘its contents’ and *fua-n=e* ‘its fruit’. The clauses in (29d) are also parallel with the following clause in (29e), in which case the parallelism is between *meʔe* ‘red’ and *mutiʔ* ‘white’.⁸

Parallelism is an important feature of many languages in Timor, particularly of (but not restricted to) their poetic registers. Fox (1988; 2014) and Grimes et al. (1997:15ff) discuss the use of parallelism in the languages of this region. I discuss parallelism in Amarasi and Timor in more detail in §7.5 and §8.3.

Clauses (29c)–(29f) present a third kind of repetition; chiasmus. Chiasmus typically has the structure ABB'A', where the first and final clauses are parallel to one another and the middle two clauses are parallel to each other. One use of discourse U-forms is to mark the centre of a chiastic structure (§7.6). The chiastic structure of (29c)–(29f) is summarised below:

one of the branches was red was white one of the branches

The final part of the story is the Dénouement; the part of the story where the problem introduced in the climax is solved. The dénouement of this story is given in (30). The Climax

⁸ The colours of the Indonesian national flag are red and white, and a common term for this flag is *merah putih* ‘red white’. The similarity between the colour of the fruit in this story and the Indonesian flag is probably not a coincidence.

and/or the Dénouement of the story is usually the most important part of the story, and these sections are often referred to collectively as the Peak.

- (30) Kuareno' – Dénouement: 130823-2 ◀
- a. *jadi es a|n-teek=e =t n-ak Kuareno?. aah*
jadi es n-teka=e =te n-ak Kuareno?
 so one 3-call\̄M=3SG.ACC =SET 3-say K.\Ű
 'So someone called it Kuareno' (lemon village). [murmur of satisfaction] 0.51
- b. *onai =m sin na-kaan-b=e n-eu:*
onai =ma sin na-kana-b=e n-eu
 and.so 3PL 3-name\̄M-TR=3SG.ACC 3-DAT
 'and so they named it' 0.55
- c. *n-ak "hit ta-nani? kuan=i, kaisa? Neanpeen*
n-ak hit ta-nani? kuan=i kaisa? Neanpeen
 3-say 1PI 1PI-move\Ű village=1DET PROH N.\M
 'saying "Let's change the village, it shouldn't be Neanpeen' 0.56
- d. *tapi tanai- ahh ta-nani?=e, in kaan-n=e Kuareno?."*
tapi ta-nani?=e in kana-n=e Kuareno?
 but 1PI-move\̄M=3SG.ACC 3SG name-3SG.GEN=3DET K.\Ű
 'but we'll change it, it's name will be Kuareno.' 0.59

As in the Inciting Incident and the Climax, the Dénouement in (30) is also introduced by a conjunction, in this case the conjunctions used are *jadi* 'so' (from Malay *jadi* [dʒadi]) and *onai =m* 'and so'. Both these conjunctions have the sense of 'so, consequently' and tend to be used in logical relations, rather than temporal relations.

Again, there is a large amount of repetition in the Dénouement. Two different verbs for naming occur, *a|n-teek=e* 'called it' and *na-kaan-b=e* 'named it'. The verb *ta-nani?* 'move, change' also occurs twice. In addition, the final two clauses of the Dénouement form a high level chiasmus with the first two clauses of the setting in (27). Such a structure is known as a sandwich structure.

In this short text we see three common features of Amarasi discourse. Firstly, Amarasi employs a large amount of repetition of different kinds. Such repetition includes verbatim repetition, parallelism and chiasmus. Secondly, new parts of the story are typically introduced with clause initial conjunctions such as *oke? =te* 'after that, then' or *onai =m* 'and so'. Thirdly, the particle *=te* is used to background information which is the setting/background of the following clauses. In the following sections we will see the way U-forms and M-forms interact with repetition as well as the connectors *=ma* and *=te*.

7.3 Dependent Co-ordination

The most common use of U-forms in discourse is to mark one event/situation as dependent on another event/situation. When the U-form word encodes an event or state, this signals a temporal relation between two events with the U-form event beginning prior to and leading into the next event. The typical structure of dependent co-ordination is given in (31) below.

$$(31) \text{ event}_1 \setminus \text{U} \left(\begin{array}{c} \{ =ma \} \\ \{ =te \} \end{array} \right) \text{ event}_2 (\setminus \text{M})$$

Slightly over half (166/321) of all discourse driven U-forms in my corpus are instances of dependent co-ordination. Most examples of dependent coordination involve either of the connectors *=ma* ‘and’ or *=te* SET ‘when, as’. Either of these connectors occurs in 87% (145/166) of all examples in my corpus. I discuss each in turn, followed in §7.3.3 by dependent coordination without any connector.

Each of the connectors *=ma* and *=te* have four allomorphs each. Firstly, after consonants these connectors usually (though not obligatorily) take an initial /a/, thus *=ama* and *=te*. Secondly, it is common for the final vowel of these connectors to be deleted, thus *=m* and *=t*, or after consonants *=am* and *=at*. The allomorphy of these connectors is summarised in (32) below. (See §3.7.3 for more details of this allomorphy.)

(32) Connector Allomorphy

<i>=te</i>	→	<i>=te</i>	~	<i>=t</i>	/V#_
	→	<i>=ate</i>	~	<i>=at</i>	/C#_
<i>=ma</i>	→	<i>=ma</i>	~	<i>=m</i>	/V#_
	→	<i>=ama</i>	~	<i>=am</i>	/C#_

7.3.1 Dependent Co-ordination with *=ma* ‘and’

When the connector *=ma* ‘and’ occurs after a U-form, it signals that this event precedes the next event. This often also implies that the first event caused the second event. The event encoded by the U-form is resolved by the following event. This is illustrated in (33) below. There are 53 examples of dependent co-ordination with the connector *=ma* in my corpus.

$$(33) \text{ event}_1 \setminus \text{U} =ma \longrightarrow \text{event}_2 (\setminus \text{M}) \longrightarrow$$

A U-form followed by *=ma* ‘and’ is viewed as a separate event discrete from the next event rather than both events being viewed as a single complex whole. This contrasts with M-forms followed by *=ma* ‘and’ in which the events encoded by each verb are identical.

Four examples of a U-form and the connector *=ma* are given in (34)–(37) below. In each example the U-form describes an event which preceded and led to the event encoded by the verb following *=ma*. The resolving event is that following the U-form.

- (34) *in aam-f=i es a|n-renu =ma n-hain re? nopu.*
 in ama-f=i es n-renu =ma n-hani re? nopu
 3SG father-KIN.GEN=1DET one 3-order\U=and 3-dig\M GVN.OBJ hole
 'It was his_i father who gave the order and he_i dug the grave.' 130928-1, 1.54 ◀▶
- (35) *m-ak hai nua =kai m-taikobi =m hai m-maet oke?.*
 m-ak hai nua =kai m-taikobi =ma hai m-mate oke?
 1PX/2-say 1PX two =1PX.ACC 1PX/2-fall\U=and 1PX 1PX/2-die\M all
 'So we two will fall down and (then) both die.' 130909-6, 0.39 ◀▶
- (36) *au maeb=es=i, ?-toko =ma ?-tui sin =am au ?-kaububu? sin*
 au mabe=es=i ?-toko =ma ?-tui sin =ma au ?-kaububu? sin
 1SG time=one=1DET 1SG-sit\U=and 1SG-write 3PL =and 1SG 1SG-gather\U 3PL
eta=n ne? suurt=e =m
 eta=n ne? surat=e =ma
 IPFV.LOC=PL REL paper=3DET =and
 'A few nights ago I sat down and (then) wrote them down and collected them in the book and ...' 130909-5, 0.28 ◀▶
- (37) *a|n-mo?e =ma n-poodz=en a|n-bi meto?.*
 n-mo?e =ma n-poi=en n-bi meto?
 3-make\U=and 3-exit\M=INCEP 3-RL.LOC dry
 'he made and (then) went out onto dry land.' 120715-4, 0.45 ◀▶

When the event followed by *=ma* directly precedes the next event, it is not grammatical for the first event to be in the M-form. This is shown in (34') and (37') below, each of which is a manipulated version of the equivalent examples (without primes) above with the only difference being the use of an M-form verb instead of a U-form.

- (34') **in aam-f=i es a|n-reun =ma n-hain re? nopu*
 in ama-f=i es n-renu =ma n-hani re? nopu
 3SG father-KIN.GEN=1DET one 3-order\M=and 3-dig\M GVN.OBJ hole
 'It was his_i father who gave the order and he_i dug the grave.' elicited. 09/02/16 p.9
- (37') **a|n-moe? =ma n-poodz=en a|n-bi meto?*
 n-mo?e =ma n-poi=en n-bi meto?
 3-make\M=and 3-poi\M=en 3-RL.LOC dry
 'he made and (then) went out onto dry land.' elicited. 13/02/16 p.16

It is possible for an M-form to occur before *=ma*. When this is the case, the words connected by *=ma* encode the same event, as discussed in §7.3.1.1 below. The ungrammaticality of examples (34') and (37') is explained by the impossibility of each of the verbs encoding an identical event.

7.3.1.1 M-forms before =ma ‘and’

Examples (34’) and (37’) can be contrasted with examples in which an M-form verb occurs before =ma and both verbs describe the same event, as illustrated in (38) below.

(38) event [VERB\M =ma VERB] →

An example of two verbs connected by =ma describing a single event is given in (39) below. In this example the event encoded by the verb following =ma anaphorically refers to the same event encoded by the verb preceding =ma.

(39) *fee mnais?=e na-suun =ma n-moe? on re? ia.*
 fee mnasi?=e na-suna =ma n-mo?e on re? ia
 wife old=3DET 3-spin.thread\M =and 3-do like IDEM
 ‘The old woman spun thread doing it like this.’ 120715-3, 0.14

This pattern is particularly common in poetic parallelism, in which two semantically parallel verbs are used to describe a single event. An example is given in (40) below, in which both verbs on either side of the connector =ma are near-synonyms used to describe a single event. Poetic parallelism is discussed in more detail in §7.5.

(40) *mu-heun =ma mu-tiis paah pina-n*
 mu-henu =ma mu-tisi paha pina-n
 2SG-fill\M =and 2SG\TR-pour country below-3SG.GEN
 ‘Fill [doublet] the earth.’ 160326, 1.50

7.3.1.2 Large Numerals

One specific kind of dependent co-ordination with =ma ‘and’ involves large numbers. In this case numerals before the connector =ma obligatorily occur in the U-form. Three examples are given in (41)–(43) below.

(41) *bo? fanu =m teun*
 bo? fanu =ma tenu
 ten eight\U =and three\M
 ‘eighty-three’ (83)

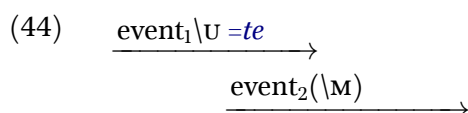
(42) *nifun nima =m natun hitu =m bo? nee =m faun*
 nifun nima =ma natun hitu =ma bo? nee =ma fanu
 thousand five\U =and hundred seven\U =and ten six and eight\M
 ‘five thousand seven hundred and sixty-eight’ (5,768)

(43) *nifun bo? hitu =m niim*
 nifun bo? hitu =ma nima
 thousand ten seven\U =and five\M
 ‘Seventy-five thousand’ (75,000) 130823-5, 0.42

In such instances the U-form numeral is not an event which occurs chronologically prior to the following numerals, but instead the U-form signals that the numeral is not complete. The final numeral — an M-form in each of the examples above — resolves all previous U-forms and signals completion of the numeral.

7.3.2 Dependent Co-ordination with *=te* ‘SET’

The connector *=te* marks a background event which sets the scene for the following event. The clause preceded by *=te* is the stage on which the following event takes place. The event followed by *=te* begins before the second event and is usually ongoing when the second event begins. This is illustrated in (44) below in which the arrows represent the temporal duration of an event.



The connector *=te* has the form *=ate* after consonant final stems and the final vowel is often deleted in rapid speech, thus yielding a total of four forms: *=te*, *=t*, *=ate* and *=at* (§3.7.3). There are 82 examples of dependent co-ordination with a U-form and the connector *=te* in my corpus.

Two examples are given in (45) and (48) below. In example (45) the U-form verb *n-mate* ‘dies’ encodes an event which must happen before the M-form verb *t-suub* ‘bury’ can be carried out. Likewise, in example (46) the U-form *mu-hini* ‘know’ encodes a state which must hold if the event encoded by the M-form final serial verb construction *m-suir m-aan* ‘heal’ is to occur.

- (45) *nehh, jadi in n-mate =te t-suub=e*
jadi in n-mate =te t-suba=e
 PAUSE so 3SG 3-die \U =SET 1PI-bury \M̄=3SG.ACC
on pani-n neefgw=e?
on pani-n nefo=e
 IRR.LOC across-3SG.GEN lake=3DET
 ‘So, when he’s dead we should bury him over beside the lake?’ 130913-1, 0.00 🔊
- (46) *reko papa =m ho mu-hini =t a|m-turan he m-suir*
reko papa =ma ho mu-hini =te m-turan he m-suri
 good dad =and 2SG 2SG-know \U =SET 1PX/2-help \U̇ IRR 1PX/2-heal \M
m-aan =kau hee.
m-ana =kau hee
 1PX/2-RES \M =1SG.ACC hey
 ‘It’s good, dad, if you know (how) you can help to heal me.’ 120923-2, 5.25 🔊

Another two examples are given in (46) and (47) below. In example (47) the U-form verb *?-toko* ‘sit’ describes a state which held when the M-form verb *n-aun* ‘disturb’ occurred. Similarly, in example (48) the U-form verb *n-toko* ‘sits’ encodes an event which will be ongoing at the time of the next event.

- (47) *a|?-tok~toko =t n-eu, kmiiǰ=i n-aun =kaagw=en.*
 ?-tok~toko =te n-eu kmii=i n-anu =kau=en
 1SG-INTNS~sit\U =SET 3-DAT urine=1DET 3-disturb\M =1SG.ACC=INCEP
 ‘I was sitting there and needed to relieve myself.’
 (*lit.* ‘While sitting, the urine disturbed me.’) 130825-6, 21.34 ◀▶
- (48) *in n-toko =t, in of a|n-reis n-ain are? hae-f=ein a|msa?.*
 in n-toko =te in of n-resi n-ani are? hae-f=ein msa?
 3SG 3-sit\U =SET 3SG sure 3-plan\M 3-before\M each messenger-0GEN=PL also
 ‘While sitting, he’ll plan all the messengers.’ 130913-1, 2.43 ◀▶

There is some overlap in the use of U-forms before the connectors *=te* ‘SET’ and *=ma* ‘and’. For instance, example (36) on page 302 has the verb *toko* ‘sit’ as the U-form before *=ma*, much like examples (47) and (48) above in which *toko* ‘sit’ precedes *=te*. While all three examples encode an event which happened while sitting, in (36) with *=ma* there is more emphasis on the initial action of the subject assuming a sitting position. In examples (47) and (48) on the other hand, the initial action of sitting down is less relevant and the emphasis is on the sitting as an ongoing state.

It is not uncommon for the event/state preceded by *=te* to refer to a specific time. Two examples are given in (49) and (50) below. In each of these examples the U-form verb encodes the time of day at which the event encoded by the next verb takes place.

- (49) *Mere, airoo, Mere. maans=e n-mabe =t ho mu-kpesa?*
 Mere airoo Mere manas=e n-mabe =te ho mu-kpesa?
 M. oh M. sun=3DET 3-afternoon\U =SET 2SG 2SG-sift\ŭ
 ‘Mary, oh Mary, it’s late afternoon while you’re sifting (rice).’ 130825-6, 4.51 ◀▶
- (50) *n-meu n-fini =t, n-aena n-bi =at dees=i, =m n-ak*
 n-meu n-fini =te n-aena n-bi =te desa=i =ma n-ak
 3-morning 3-night\U =SET 3-run\ŭ 3-RL.LOC =SET village=1DET =and 3-say
 ‘Early in the morning he ran to the (head of) the village and said’ 130825-6, 7.28 ◀▶

Another two examples are given in (51) and (52) below. In each of these examples the U-form before *=te* is a cardinal numeral (§6.5.1) and each describes the exact day or time at which the next event occurs.

- (51) *nenō nima =te hai m-piir bupati.*
 nenō nima =te hai m-piri bupati
 day five\U =SET 1PX 1PX/2-choose\M regent
 ‘In five days we’ll elect a (new) regent.’ 130902-1, 4.32 ◀▶

- (52) *n-reuk fanu =te, pa? Charles, pa? Graims a|n-koen=o-n neem.*
 n-reku fanu =te pa? Charles pa? Graims n-koen=o-n nema
 3-hit eight\U=SET Mr. Ch. Mr. Gr. 3-depart=REFL-3SG.GEN 3\come\M
 ‘When it struck eight o’clock Mr. Charles, Mr. Grimes came.’ 130920-1, 0.51 ◀

The connector *=te* almost always occurs after U-forms and it is usually ungrammatical for *=te* or its allomorph *=ate* (used after consonants) to occur after a word in the M-form. This ungrammaticality is explained by the fact that *=te* explicitly marks an event as only relevant in the context of another event. Thus, it must co-occur with a U-form which marks an event as resolved by a following event. Four examples are given below each of which is manipulated from the equivalent non-prime example in order to have an M-form verb before *=(a)te*.



- (45') * *in n-maet =ate t-suub=e on pani-n neefgw=e*
 in n-mate =te t-suba=e on pani-n nefo=e
 3SG 3-die\M=SET 1PI-bury\M=3SG.ACC IRR.LOC across-3SG.GEN lake=3DET
 ‘When he’s dead should we bury him over beside the lake?’ elicit. 09/02/16 p.11
- (48') * *in n-took =ate, in of a|n-reis n-ain are? hae-f=ein a|msa?*
 in n-toko =te in of n-resi n-ani are? hae-f=ein msa?
 3SG 3-sit\M=SET 3SG sure 3-plan 3-before each messenger-0GEN=PL also
 ‘While sitting down, he’ll plan all the messengers.’ elicit. 09/02/16 p.11
- (51') * *neni nim =te hai m-piir bupati*
 neno nima =te hai m-piri bupati
 day five\M=SET 1PX 1PX/2-choose\M regent
 ‘In five days we’ll elect a (new) regent.’ elicit. 22/02/16 p.21
- (52') * *n-reuk faun =ate pa? Charles pa? Graims a|n-koen=o-n neem*
 n-reku fanu =te pa? Charles pa? Graims n-koen=o-n nema
 3-hit eight\M=SET Mr. Ch. Mr. Gr. 3-depart=REFL-3SG.GEN 3\come
 ‘As it struck eight o’clock Mr. Charles, Mr. Grimes came.’ elicit. 13/02/16 p.15

While it would be possible to analyse this as a case of morphemically conditioned metathesis (§2.3), this analysis would ignore the generalisation that U-forms are used mark events resolved by a following event. The inability for *=te* to occur with an M-form is due to *=te* requiring another event for which it sets the stage.⁹

⁹ Some evidence in favour of analysing this as morphemically conditioned metathesis may come from the universal occurrence in my corpus of verbal U-forms before the enclitic *=ha* ‘just, only’. (Though this has not yet been tested under elicitation.) While morphemically conditioned metathesis may be able to account for some of the data, it is insufficient to account for *all* the data. Morphemically conditioned metathesis cannot account for the use of both U-forms and M-forms before *=ma* (§7.3.1) or examples in which no connector occurs (§7.3.3). It also cannot account for the use of U-forms in conversation (§7.7).


7.3.2.1 *rari =te* ‘after that’

One verb which frequently occurs with the connector *=te* in dependent co-ordination is *rari* ‘finish’. Such instances of *rari =te* are examples of a reduced adverbial clause (Lehmann 1988:211). Two examples are given in (53) and (54) below. In each example the event preceding *rari =te* was completed before the beginning of the event following *rari =te*.


- (53) Organising a wedding reception: 130902-1 
- a. *oke? =te, hai m-ʔator, acara, n-eu reʔ, ahh, oras toup tamu, resepsi*
 oke? =te hai m-ʔator acara n-eu reʔ oras topu tamu resepsi
 after.that 1PX 1PX/2-arrange event 3-DAT REL time receive guest reception
 ‘After that we arranged an event, a time to receive guests, a reception.’ 0.39
- b. *hai mi-rari =te,*
 1PX 1PX/2PL-finish\U =SET
 ‘When we finished that,’ 0.48
- c. *hai m-, m-fee mainuan n-eu anaaʔpreent=a=ma areʔ saksii*
 1PX 1PX/2-give opportunity 3-DAT official=0DET =and every witness
mahonit he n-fee, ahh, fainekat.
 elder IRR 3-give advice
 ‘We gave an opportunity to the government officials and each of the witnesses
 and clan elders to give advice.’ 0.51
- (54) Organising clothes to go to a wedding: 130825-6 
- a. *ʔ-istarika =m,*
 ʔ-istarika =ma
 1SG-iron\U =and
 ‘I ironed (my pants) and,’ 10.16
- b. *u-rari =te, ʔ-aena ʔ-bi nahen Jes Oraʔ nee,*
 u-rari =te ʔ-aena ʔ-bi nahen Jes Oraʔ nee
 1SG-finish\U =SET 1SG-run\U 1SG-RL.LOC down J. O. 3DEM
 ‘having finished I ran down there to Jes Ora!’ 10.18

When *rari* co-occurs with *=te*, it does not have to take agreement prefixes. Such instances of *rari =te* are often best translated as ‘after that’. There are three such examples in my corpus. Two of these are given in (55) and (56) below.

In example (55) *rari =te* ‘finish’ serves to transition between two episodes of the story. It marks that the penultimate event of the wedding reception had finished (*na-prir~riraʔ* ‘dances’) before the final event took place (*n-ma-taeb* ‘shake hands’), and the main characters of the story left the wedding reception.

- (55) Attending a wedding reception: 130902-1 
- a. *nai? Owen a|msa? n-ok na-bsoo? na-prira? kuu-n.*
 nai? Owen msa? n-oka na-bso?o na-prira? kuu-n
 Mr. O. also 3-with\M 3-dance\M 3-dance.with.arms\ŭ self-3SG.GEN
 ‘Owen himself also joined in the dancing.’ 3.23
- b. *na-prir~rira? mhh.*
 3-INTNS~dance.with.arms\ŭ
 ‘He danced and danced.’ 3.26
- c. *ahh, rari =te, n-ma-taeb n-ok ahh baroit=n=ein =ama*
 rari =te n-ma-tabe n-oka baroti=n=ein =ma
 finish\U =SET 3-RECP-shake.hands\M 3-with\M bride/groom=PL=PL =and
hai m-tebi m-fain iim.
 hai m-tebi m-fani ima
 1PX 1PX/2-turn\ŭ 1PX/2-return\M 1PX/2PL\come\M
 ‘After that he shook hands with each of the bride and groom and we turned
 and came back.’ 3.34

Example (56) below shows that such uses of *rari =te* have become semantically bleached, with the meaning ‘finish’ giving way to a more general ‘after that’. In example (56) the event preceding the reduced adverbial clause is *mi-sopu m-rair* ‘finished completing’ in which the last verb of the serial verb construction has the same root as that of *rari =te*.

- (56) Reading books of the Bible: 130921-1 
- a. *hai mi-sopu m-rair Roma, es nean haa-?=i*
 hai mi-sopu m-rari Roma es neno haa-?=i
 1PX 1PX/2PL-complete\ŭ 1PX/2-finish\M R. one day four-ORD=IDET
 ‘We finished Romans, it was on Thursday.’ 0.43
- b. *rari =t, nean niim-?=i,*
 rari =te neno nima-?=i
 finish\U =SET day five-ORD=IDET
 ‘After that, on Friday,’ 0.47
- c. *hai mi-koon-b=e n-ok nai? Yohanis*
 hai mi-kono-b=e n-oka nai? Yohanis
 1PX 1PX/2PL-keep.on\M-TR=3SG.ACC 3-with\M Mr. Y.
in surat re?, a-hunu-t
 in surat re? a-hunu-t
 3SG paper REL NML-first-NML
 ‘we kept going with John’s first book (1 John).’ 0.50

There are only three examples of *rari =te* without an agreement prefix found in my corpus. However, a search of the Amarasi Bible (Unit Bahasa & Budaya 2015) yielded 2,733 instances of *rari* without an agreement prefix preceding *=te*. All but two of these are

orthographic <*rarit*> or <*Rarit*> with *te* reduced to a single consonant, as in (56) above. The Amaras Bible contains 27 instances of <*-rari*> with an agreement prefix followed by full <*te*> with a final vowel.

7.3.3 Dependent Co-ordination with no Connector

There are also a small number of examples in my corpus of dependent co-ordination in which neither of the connectors =*ma* ‘and’ or =*te* ‘SET’ occur. Examples are given in (57)–(59) below. In examples (57) and (58) the event encoded by the U-form chronologically precedes the next event.

- (57) *usi n-romi uma ?-nao.*
king 3-like\U 1/2SG\come\U 1SG-go
‘The king liked (that), so I came back.’ 130907-3, 5.13 ◀▶
- (58) *n-ak a|n-manini mes na-seeḡ=o-n re? ia ro n-tuup=en.*
n-ak n-manini mes na-see=o-n re? ia ro n-tupa=en
3-ak 3-fever\U but 3-excuse\M=REFL-3SG.GEN REL IDEM must 3-sleep\M=INCEP
‘He_i said he_j has a fever, but he_j excused himself, he_j had to sleep.’ 120923-1, 4.18 ◀▶


In example (59a) below the serial verb construction *ta-hiin t-ana* ‘figure out, get to know’ is dependent on the following information, and introduces a list of different information which could resolve this U-form. This usage is not dissimilar from the use of U-forms in large numerals (§7.3.1.2).

- (59) The settling of Koro'oto hamlet: 160326 ◀▶
- a. *sin neem na-tua Koor?oot es re? oras mee ka= ta-hiin t-ana =f.*
sin neem na-tua Koor?oto es re? oras mee ka= ta-hini t-ana =f.
3PL 3\come 3-settle K.\M one REL time where NEG= 0-know 0-RES\U =NEG
‘They came and settled in Koro'oto, it was at a time which hasn't been figured out.’
5.37
- b. *bian n-ak, of fuunn=es re? kira-kira abat ke-ḡempat blas.*
some 3-say sure month=one REL around century ORD-four ten
‘Some say/think it was a month in the fourteenth century.’ 5.45
- c. *bian n-ak, ma-tu(?)i n-bi balai desa =te n-ak, kira-kira*
some 3-say PROP-write\PROP 3-RL.LOC office village =SET 3-say around
abat ke-delapan blas.
century ORD-eight ten
‘Some say/think, (as) is written in the village office that it was around the eighteenth century.’ 5.45


The introduction of a list is particularly common with the U-form of the plural enclitic =*eni* (§5.6). In such cases, =*eni* occurs attached to a nominal and the list enumerates the

members of that nominal. The U-form *=eni* is resolved by the list. Such examples represent just under half (7/17) of all U-forms of the plural enclitic *=eni* in my corpus.


Three examples are given in (60)–(62) below. In each case the contents of the list resolve the U-form. In example (60) the form *=eni* is attached to *a-resa-t* ‘reader’ and introduces a list of proper names: the people who were the readers.

- (60) Reading books of the Bible: 130920-1 
- a. *ai? na-taan a-rees-t=eni. ahh*
 ai? na-tana a-resa-t=eni
 or 3-ask\M NML-read-NML=PL\U
 ‘or the readers were asked’ 1.32
- b. *bi Yane, ain Lince, aam Ferdi*
 Ms. Y. mother L. father F.
 ‘Yane, Lince (and) Ferdy (were the readers).’ 1.36

Similarly, in (61) the form *=eni* introduces a list of people who correspond to the head nominal *nuuk tua-f* ‘people in grief’. In this example only the main member of this group (*Fanu*) is introduced with a proper name while the other members are mentioned by their relationship to him.

- (61) The death of Nahor Bani: 130928-1 
- a. *nuuk tua-f=eni nai? Fanu n-ok are? in tata-f*
 nuka tua-f=eni nai? Fanu n-oka are? in tata-f
 grief person-0GEN=PL\U Mr. F. 3-with\M each 3SG eSi-KIN.GEN
 ‘The ones in grief, Fanu and each of his older siblings,’ 2.05
- b. *es-es =at n-ok in fee in mone*
 FRD~one =SET 3-with\M 3SG wife 3SG husband
 ‘each with their wife or husband.’ 2.09

In example (62) *=eni* introduces a list of (two) names but in this instance these names are not people but rather members of the group *kaan aku-f* ‘special name’.

- (62) *sin nai? Bain mone kusus, sin kaan auk=eni bisa, Mea ai? Tutun.*
 sin nai? Bani mone kusus sin kana aku=eni bisa Mea ai? Tutun
 3PL Mr. B.\M male special 3PL name special.name=PL\U can M. or T.
 ‘Members of the Bani clan classified as male¹⁰ can exclusively have the special names Mea or Tutun.’ 160326, 18.26 

In summary, dependent coordination can also occur when neither of the connectors *=ma* or *=te* occur. One specific kind of dependent coordination without a connector is the use of the U-form *=eni* PL to introduce a list. In such instances the list resolves the plural marker.

¹⁰ In Amarası society the classification of households as *mone* ‘masculine’ or *feto* ‘feminine’ refers to their social relationship to one another rather than biological gender. See §8.3 for discussion of the complementary pair *feto-mone* ‘female-male’ as well as the connection between metathesis and the Amarası division of the world into parallel and complementary pairs.

7.3.4 Place Names

Native place names participate in discourse driven metathesis. As with verbs, the default form of vowel final place names in Amarasi is the M-form. Consonant final place names, such as *Kopan* ‘Kupang’ and *Kuareno?* (see §7.2) occur in the U-form (glossed \u) except before determiners. However, place names which are vowel final occur by default in the M-form.

Three textual examples of a simple declarative clause with a place name with a vowel final root are given in (63)–(65) below. In each example the place name occurs in the M-form.

- (63) a. α : *Bein Masneno? umi mee?*
 Beni Masneno? umi mee
 B. M house where?
 ‘Where is Benny Masneno’s house?’ 130825-8, 1.00 ◀▶
- b. β : *Sonraen.*
 Sonrane
 S.\M
 ‘Sonraen.’
- (64) *pa? ?naak- Inabuy ?naak aan?=i n-bi Oekbiit.*
 pa? Inabuy ?naka ana?=i n-bi Oekbiti
 Mr. I. head small=1DET 3-RL.LOC O.\M
 ‘Mr. Inabuy was the deputy leader in Oekbiti.’ 130907-3, 5.31 ◀▶
- (65) *es re? Koor?oot na-heun bare~bare bian.*
 es re? Koor?oto na-henu bare~bare bian
 one REL K.\M 3-fill FRD~place other
 ‘Koro’oto was the one which filled other places.’ 160326, 17.41 ◀▶

The only environment in which place names have been attested in the U-form is before either of the connectors =*ma* or =*te* in a dependent co-ordination construction. Three examples are given in (66)–(68) below, each of which has the same place names as given in (63)–(65) above. While *Sonraen* occurs in the M-form in (63), when before the connector =*te* in (66) below it occurs in the U-form.

- (66) *in n-tee Sonrane =t, maans=e n-pee?*
 in n-tea Sonrane =te manas=e n-pe?e
 3SG 3-arrive S.\U =SET sun=3DET 3-break\M
 ‘When he arrived at Sonraen, it was sunrise’ (*lit.* ‘the sun broke’) 130914-3, 0.23 ◀▶

Similarly, in (64) above *Oekbiit* occurs in the M-form, while in (67) below it is before =*ma* and occurs in the U-form.

- (67) *nhh ?-nao =ma ?-nao ?-bi kantoor na Oekbiti =ma,*
 ?-nao =ma ?-nao ?-bi kantoor na Oekbiti =ma,
 1SG-go =and 1SG-go 1SG-RL.LOC office well O.\U =and
 ‘And so I went, I went to the office (of), well, Oekbiti and ...’ 130907-3, 4.41 ◀▶

Likewise, the name *Koor?oot* is in the M-form in (65) above, but before the connector *=te* in (68a) below it occurs in the U-form *Koor?oto*. Example (68b) also has an M-form of this place name.

- (68) Praying for rain: 160326, 16.14 ◀
- a. *karu n-boefanu =m n-ak uurn=i n-mouf n-eu =ha, n-eu =ha*
karu n-boefanu =ma n-ak uran=i n-mofu n-eu =ha n-eu =ha
 if 3-pray.fervently\U =and 3-say rain=1DET 3-fall\M 3-DAT =only 3-DAT =only
re? Koor?oto =te,
re? Koor?oto =te
 GVN.OBJ K.\U =SET
 ‘If they prayed fervently for the rain to fall just on Koor’oto,’
- b. *uurn=i n-eu =ha re? Koor?oot. kuan bian ka= na-peni =f.*
uran=i n-eu =ha re? Koor?oto kuan bian ka= na-peni =fa
 rain=1DET 3-DAT =only GVN.OBJ K.\M village other NEG= 3-get\U =NEG
 ‘the rain (fell) only on Koro’oto. Other villages wouldn’t get any.’

U-forms of place names probably occur in other environments in which discourse driven U-forms are attested, such tail-head linkage (§7.4) and question-answer pairs (§7.7). However, I currently only have data for U-form place names in dependent co-ordination.

7.4 Tail-Head Linkage

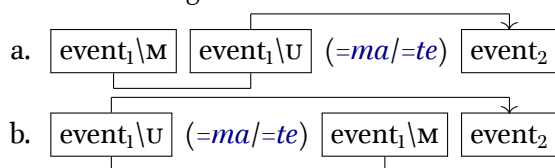
Another use of discourse U-forms in Amarasi discourse is in tail-head linkage. Tail-head linkage is a repetition structure for slowing down the rate of new information “in which the last sentence of one paragraph cross-references to the first sentence of the following paragraph” (Longacre 1983:9). Tail-head linkage can also link clauses in sentences. A simple example of tail-head linkage in English is given in (69) below.

- (69) a. *I arrived home.*
 b. *When I arrived, I went straight to the fridge.*

Tail-head linkage in Amarasi typically consists of repetition of a single verb with the second instance of the verb introducing an event subsequent to the event encoded by both verbs, or introducing extra information about the way in which that event occurred. One of the repeated verbs is in the U-form and the other repeated verb is in the M-form. The new event introduced resolves the U-form half of the tail-head linkage construction.

Tail-head linkage in Amarasi can be thought of as a kind of dependent co-ordination (§7.3) with repetition of the first event. The two typical structures of tail-head linkage in Amarasi are given in (70) below. The first instance of the word encoding event₁ is the tail and the second instance of this word is the head.

(70) Tail-head linkage structures:



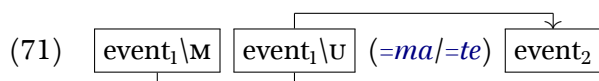
Except in highly restricted examples it is not usually grammatical for both verbs encoding the first event to take the same form of metathesis.¹¹ If the tail is in the U-form, the head must be in the M-form. If the tail is in the M-form, the head must be in the U-form. The tail and head each form a complementary and mutually dependent pair.

There are 66 instances of tail-head linkage with a U-form in my corpus; 21% (66/321) of all discourse driven U-forms in my corpus. The M-form half of a tail-head linkage construction is often in the M-form due to a following vowel initial enclitic (Chapter 5) or as the first member of a serial verb construction (§6.7).

7.4.1 M-form Tail and U-form Head

There are 26 instances of tail-head linkage in my corpus in which the tail is in the M-form and the head in the U-form. In most instances the head is followed by one of the connectors *=ma* ‘and’ or *=te* SET ‘when, as’.

The structure of these tail-head linkage constructions is given in (71) below. The tail occurs in the M-form followed by the head in the U-form. This introduces a second event which resolves the previous U-form.



In about one quarter (7/26) of these examples the tail occurs at the point where the plot structure shifts from background information to the storyline, either in or right after the Setting part of a story, with the U-form head occurring in the Inciting Incident, which then leads to the Climax. If we examine only the low level structure of the immediate sentences or clauses such U-forms are usually resolved fairly quickly. However, at the higher level of the plot structure of a narrative, the problems introduced by such U-forms are often not resolved until the Dénouement of the story.

One example is given in (72) below. In this instance the M-form tail occurs in the first part of the Inciting Incident of the narrative. At a low level the U-form *n-mofu* ‘fall’ in (72c) is resolved by the following event which it causes, *na-mneuk* ‘lost’, however, at a higher level of

¹¹ When both verbs are followed by a vowel initial enclitic, both may be in the M-form. Apart from such instances there are 36 instances of tail-head linkage in my corpus in which both verbs are in the M-form. This is out of 1,978 verbal M-forms; less than 2% of all M-forms. Nearly half of these examples of tail-head linkage come from speakers who do not live in Nekmese’ village and thus may be due to a dialectal difference.

the discourse this entire incident is not resolved until several clauses later in the Dénouement when the problem introduced by (72) is resolved.

- (72) Going to a party – Inciting Incident: fall\M fall\U and lost\M 130902-1
- a. *oras hai m-nao =te,*
time 1PX 1PX/2-go =SET
'While we were going,'
- b. *nai? Owen in a|?piur?=e n-mouf,*
nai? Owen in ?piru?=e n-mofu
Mr. O. 3SG cloth=3DET 3-fall\M
'Owen's handkerchief fell,'
- c. *n-mofu =m na-mneuk.*
n-mofu =ma na-mneku
3-fall\U =and 3-lose\M
'it fell and got lost' 1.43

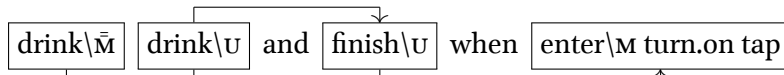
Another example is given in (73) below, which consists of the first three clauses of a story. The first clause in (73a) is the Setting of the story with the M-form verb *n-maet* 'dies'. This verb is then repeated as a U-form in (73b) to introduce the Inciting Incident in (73c). At a low level, the U-form verb *n-mate* in (73b) is resolved by the event in (73c). However, at a higher level, the chain of events introduced by this U-form are not resolved until much later in this story.

- (73) When Nahor Bani died: die\M die\U when dug before\M 130928-1
- a. *nenō ia aam Nahor Bani n-maet.*
nenō ia ama Nahor Bani n-mate
day IDEM father N. B. 3-die\M
'Today father Nahor Bani died.' 0.02
- b. *oras in n-mate =te,*
time 3SG 3-die\U =SET
'When he died,' 0.06
- c. *in aan moonḡ=es kaan-n=e nai?, Fanu,*
in anah mone=es kana-n=e nai? Fanu
3SG child male=one name-3SG.GEN=3DET Mr. F.
a|n-hain n-ain nopu.
n-hani n-ani nopu
3-dig\M 3-before\M hole
'One of his sons, called Fanu, had dug the grave beforehand.' 0.11

Another example is given in (74) below. In this example (74a) is the final part of the Setting: the narrator is relaxing in his hotel room. The Setting ends with the M-form

ʔ-iiŋgw=en ‘drank’. As with the previous two examples, this verb occurs as a U-form in the following clause (74b) to introduce the Inciting Incident: the narrator enters the bathroom.

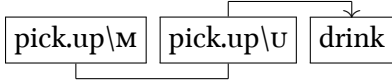

(74) Exploring a hotel room: 130825-8 



- a. *ʔ-took ʔ-oka bruuk=i =m ʔ-ait biir kalen sin*
ʔ-toko ʔ-oka bruuk=i =ma ʔ-aiti biir kalen sin
 1SG-sit\M 1SG-with\U pants=1DET =and 1SG-pick.up\M beer can =ASSOC.PL
=m ʔ-iiŋgw=en
=ma ʔ-inu=en
=and 1SG-drink\bar{M}=INCEP
 ‘I sat down in those pants, picked up some cans of beer and drank.’ 1.06
- b. *ʔ-inu =m u-rari =t, a|ʔ-taam ʔ-ai kraan=i,*
ʔ-inu =ma u-rari =te ʔ-taam ʔ-ai kraan=i
 1SG-drink\U =and 1SG-finish\U =SET 1SG-enter\M 1SG-push tap=1DET
 ‘I drank and when I finished (drinking), I went in and turned on the tap,’ 1.10
- c. *mu-hiin he oe mapuutʔ=e es mee =m*
mu-hini he oe maputuʔ=e es mee =ma
 2SG-know\M IRR water hot=3DET IPFV.LOC where =and
oe mainiikn=e es mee?
oe mainikin=e es mee
 water cold=3DET IPFV.LOC where
 ‘Who knows where the hot water is and where the cold water is?’ 1.13

While about a quarter of tail-head linkages with a U-form head are used to introduce the Climax part of the plot. Others are simply used to introduce some extra information. One such example is given in (75) below.

In this example the speaker is encouraging the main narrator to keep telling his story. The M-form *m-ait* ‘pick up’ in (75a) is repeated as a U-form in (75c) which introduces the event which is presumed to have occurred next (*m-bukae* ‘consume’).

(75) Exploring a hotel room:  130825-8, 0.17 

- a. *ho meu- m-ait biir kalen,*
ho m-aiti biir kalen
 2SG 1PX/2-pick.up\M beer can
 ‘You picked up a can of beer,’ 0.17
- b. [others interrupt]
- c. *ho m-aiti, ho m-bukae.*
ho m-aiti ho m-bukae
 2SG 1PX/2-pick.up\U 2SG 1PX/2-consume
 ‘you picked (it) up, you drank (it).’ 0.21

No connectors occur in (75), nonetheless the head of the tail-head linkage construction occurs in the U-form. My main informant rejected the equivalent of (75) above with two M-forms, as shown in (75') below. This is evidence that tail-head linkage with alternate U-forms and M-forms is a grammaticalised pattern in Amarasi, independent of the presence or absence of connectors.

- (75') * *ho m-ait biir kaleŋ, ho m-ait ho m-bukae*
 ho m-aiti biir kaleŋ ho m-aiti ho m-bukae
 2SG 1PX/2-pick.up\M beer can 2SG 1PX/2-pick.up\M 2SG 1PX/2-consume
 'You picked up a beer can, you picked (it) up, you drank.' elicit. 25/02/2016 p.29

Another example of tail-head linkage with a U-form head is given in (76) below. In this example the M-form verb *ta-mnaasɔʒ=en* 'grow old' is repeated as a U-form *ta-mnasi* in the next clause, which in turn introduces a new event *ta-smeru?* 'look at angrily'. The equivalent of (76) with a second M-form was judged unacceptable, as shown in (76').

- (76) Growing old together:

old\M

old\U

 when

stare\U

130909-6, 2.20

- a. *haa ya. on re? naan, ta-mnaasɔʒ=en =t,*
 haa ya on re? naan ta-mnasi=en =te
 hey yes like 2DEM 1PI-old\M=INCEP =SET
 'What's that? Yes. That's how it is. When we grow old,'
- b. *au ?-ak ai? ehh ta-mnasi ai? ia =t, of ai? ta-smeru? uis fee*
 1SG 1SG-say or 1PI-old\U or 1DEM =SET later or 1PI-glare\U lord wife
mnasi? ai? fee mnasi?
 old or wife old
 'I think, when we grow old now, we glare angrily at the lord of the old woman, or the old woman.'

- (76') b. * *au ?-ak ai? ta-mnais ai? ia =t, of ai? ta-smeru? uis fee mnasi?*
 1SG 1SG-say or 1PI-old\M or 1DEM =SET later or 1PI-glare\U lord wife old
ai? fee mnasi?
 or wife old
 'I thought when we grow old or now, we glare angrily at the lord of the old woman, or the old woman.' elicit. 25/02/16 p.28

The ungrammatical examples in (75') and (76') above are ungrammatical because the tail-head linkage construction contains two M-forms. Tail-head linkage constructions with two U-forms are also unacceptable. This is shown in (72') below, manipulated versions of example (72) above (repeated below), showing every possible combination of two U-form verbs with and without the connector =*ma*. None of these were judged acceptable.

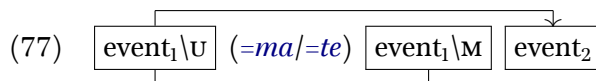
- (72) *nai? Owen in a|?piur?=e n-mouf, n-mofu =m na-mneuk*
 Mr. O. 3SG cloth=3DET 3-fall\M 3-fall\U =and 3-lose\M 130902-1, 1.43

- (72') a. * *nai?* Owen in a|?piur?=e n-mofu, n-mofu =ma na-mneuk
 Mr. O. 3SG cloth=3DET 3-fall\U 3-fall\U =and 3-lose\M
- b. * *nai?* Owen in a|?piur?=e n-mofu =ma, n-mofu na-mneuk
 Mr. O. 3SG cloth=3DET 3-fall\U =and 3-fall\U 3-lose\M
- c. * *nai?* Owen in a|?piur?=e n-mofu, n-mofu na-mneuk
 Mr. O. 3SG cloth=3DET 3-fall\U 3-fall\U 3-lose\M
 'Owen's handkerchief fell, it fell and got lost' elicit. 15/03/16 p.45

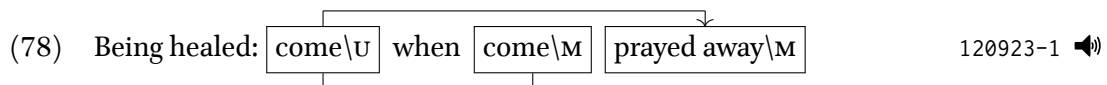
One pattern of tail-head linkage in Amarasí is for the head to be in the M-form and the tail to be in the U-form. In this case the U-form introduces a new event into the story line which resolves the event described by the tail-head linkage construction. U-forms must be used in combination with M-forms and it is not acceptable for both parts of the tail-head linkage construction to be in the M-form or for both to be in the U-form.¹²

7.4.2 U-form Tail with M-form Head

Tail-head linkage can also involve a U-form tail and an M-form head. The structure of this construction is given in (77). In most examples the tail is followed by one of the connectors =ma 'and' or =te SET 'when, as' and/or the head is an obligatory M-form due to a following vowel initial enclitic (Chapter 5) or because it is the first part of a serial verb construction (§6.7).



A simple example is given in (78) below. The tail is the U-form *nema* 'comes' in (78a), this is picked up by the M-form head in (78b), which introduces an event which happens after the subject comes.



- a. *nati?* mu-toon=e na-hiin he *nema* =t,
 nati? mu-tona na-hine he *nema* =te
 careful 2SG-tell\M=3SG.ACC IRR 3-know\M IRR 3\come\U
 'Ensure you tell him so he knows to come.'
- b. *neem* he t-?onen t-pasat t-aan=e.
 nema he t-?onen t-pasat t-ana=e
 3\come\M IRR 0-prayUc 0-whack.away\U IPI-RES\M=3SG.ACC
 'He comes to have it prayed away.'

6.59

¹² Two U-forms occur in a restricted set of circumstances. See §7.4.3 for more details.

A similar example is given in (79) below. In this example the U-form verb *n-romi* ‘likes’ occurs in (79b) with an explanation of what is desired introduced by the M-form version of this verb in (79c).

- (79) Naming the village Koro'oto: like\U like\M change 160326 ◀
- a. *oka =te sin hai be?i na?i sin na-bua=n =ama,*
 after.that 3PL 1PX PM PF =ASSOC.PL 3-gather=PL =and
 ‘Then those ancestors of ours gathered and,’ 4.57
- b. *n- n-romi.*
 3-like\U
 ‘they liked (it).’ 5.02
- c. *n-roim re? kuan=i kaan-n=e na-nain?=e*
 n-romi re? kuan=i kana-n=e na-nani?=e
 3-like\M GVN.OBJ village=1DET name-3SG.GEN=3DET 3-move\M=3SG.ACC
na-?ko Haar?oo n-eu Koor?oot.
 na-?ko Haar?oo n-eu Koor?oto
 3-ABL H. 3-DAT K.\M
 ‘They liked changing the name of this village from Haar'oo to Koro'oto.’ 5.05

Another example is given in (80) below. In this example the U-form tail *u-?mate* ‘kill’ is directly followed by the M-form head which introduces an event which follows this action. In this example the head is obligatorily in the M-form due to a following vowel initial enclitic.

- (80) Trying taps in a bathroom: turn.off\U turn.off\M and not flow 130825-8 ◀
- a. *a|?-toro? on re? ia =ma, ohh, iidz=ah oe mainikin.*
 ?-toro? on re? ia =ma ia=ah oe mainikin
 1SG-catch.liquid\U like 1DEM =and 1DEM=just water cold
 ‘I caught the water like this [gestures]. Ohh, this one is just cold water.’ 1.34
- b. [audience laughs] 1.37
- c. *u-?mate,*
 u-?mate
 1SG-kill\U
 ‘I turned (it) off,’
- d. *u-?maatdz=e =m ka= na-sai =fa.*
 u-?mate=e =ma ka= na-sai =fa
 1SG-kill\M=3SG.ACC =and NEG= 3-flow =NEG
 ‘I turned it off and it didn’t flow.’ 1.38

Speakers reject instances in which both parts of the tail-head linkage construction are in the M-form. This is shown in (80') below, in which the tail-head linkage construction of (80) has been manipulated to have two M-forms. This provides evidence that the speaker has

intuitively constructed his discourse in (80) so that the M-form which must be an M-form (due to the following vowel initial enclitic) does not co-occur with another M-form of the same verb.

- (80') * *u-ʔmaet, u-ʔmaatɕ=e* =*m ka= na-sai =fa*
 u-ʔmate u-ʔmate=e =ma ka= na-sai =fa
 1SG-kill\M 1SG-kill\M̄=3SG.ACC =and NEG= 3-flow =NEG
 'I turned (it) off, I turned it off and it didn't flow.' elicited. 25/02/16 p.30

In (81) below, tail-head linkage serves not to introduce a subsequent event, but rather to provide details on the manner in which the event was carried out. In this case the tail and head are both forms of *n-rame* 'plasters'. The introduced manner adverbial is *reko~reko* 'properly'. Again, the head is in the M-form due to a following vowel initial enclitic.

- (81) Digging and preparing a grave: plaster\U plaster\M̄ properly 130928-1
- a. *in ka= n-haandɕ=e ruum=ah =fa =te,*
 in ka= n-hani=e ruma=ah =fa =te
 3SG NEG= 3-dig\M̄=3SG.ACC empty=just =NEG =SET
 'He didn't just dig the grave emptily (i.e. with plain dirt walls).'
- b. *n-hani n-raardɕ=e =te, n-rame.*
 n-hani n-rari=e =te, n-rame
 3-dig\U 3-finish\M̄=3SG.ACC =SET 3-plaster\U
 'When he finished digging it, he plastered (it).' 0.30
- c. *n-raamdɕ=e reko~reko.*
 n-rame=e reko~reko
 3-plaster\M̄=3SG.ACC FRD~good
 'He plastered it properly.' 0.33

A version of (81) in which both halves of the tail-head linkage occur in the M-form with the enclitic =e attached is acceptable, as shown in (81') below. However, a version of (81) with two M-forms without an enclitic attached to the first is judged to be strange by native speakers, as shown in (81'') below. That forms with two M-forms are marginally possible, provides evidence the speaker has intuitively constructed the discourse in (81) to achieve a pairing of a U-form with an M-form.

Elicitation:

elicit. 09/02/16 p.9

- (81') a. ✓ *n-hani n-raardɔ̄=e* =te, *n-raamdɔ̄=e*.
 n-hani n-rari=e =te, n-rame
 3-dig\ŭ̄ 3-finish\̄M=3SG.ACC =SET 3-plaster\̄M=3SG.ACC
 ‘When he finished digging it, he plastered (it).’
- b. *n-raamdɔ̄=e* *reko~reko*.
 n-rame=e reko~reko
 3-plaster\̄M=3SG.ACC FRD~good
 ‘He plastered it properly.’
- (81'') a. * *n-hani n-raardɔ̄=e* =te, *n-raem*.
 n-hani n-rari=e =te, n-rame
 3-dig\ŭ̄ 3-finish\̄M=3SG.ACC =SET 3-plaster\M
 ‘When he finished digging it, he plastered (it).’
- b. *n-raamdɔ̄=e* *reko~reko*.
 n-rame=e reko~reko
 3-plaster\̄M=3SG.ACC FRD~good
 ‘He plastered it properly.’

A tail-head linkage construction in Amarasi canonically has two identical verbs which differ in whether they occur in the U-form or M-form. A U-form tail is complemented by an M-form head and a U-form head is paralleled by an M-form tail.

Speakers intuitively construct their discourse in such a way as to achieve a pairing of a U-form with an M-form. One way to do this is by forcing the head to be in the M-form with a vowel initial enclitic and having the tail in the U-form.

7.4.3 U-form Tail with U-form Head

There are eight examples in my corpus of tail-head linkage in which both the tail and the head occur in the U-form. On the face of it, this is a highly unexpected structure as U-forms canonically require an M-form to achieve resolution. However, a closer look reveals that in each instance one of the verbs is in the U-form due to other factors, such as occurring before a consonant cluster or being part of another tail-head linkage construction.

One example is given in (82) below. In this example the tail *m-resa* is in the U-form due to the following consonant cluster, and is thus glossed ‘\ŭ̄’ (§7.1.1.2). The head is also in the U-form as it is introducing the next event which provides its resolution.

- (82) Proofreading Bible translations: read\U̇ read\U and ask 130920-1
- a. *bukan hai m-resa n-mees.*
 bukan hai m-resa n-mese
 NEG 1PX 1PX/2-read\U̇ 3-alone
 ‘We didn’t read (it) by itself.’ 3.32
- b. *hai m-resa =ma, hai m-mak-tana=n mi-knuut?=e.*
 hai m-resa =ma hai m-mak-tana=n mi-knutu?=e
 1PX 1PX/2-read\U =and 1PX 1PX/2-RECP-ask=PL 1PX/2PL-refine\M=3SG.ACC
 ‘We read and we asked one another (about it) to refine it.’ 3.34

A very similar example is given in (83) below. In this case the tail (*nema* ‘comes’) of the tail-head linkage construction occurs immediately before a consonant cluster. This consonant cluster is also the first verb of the serial verb construction which contains the head and introduces a new event.

- (83) come\U̇ come\U when tell\M
- onai =m mes nema n-fain nema =t, na-toon =kau =m n-ak:*
 onai =ma mes nema n-fani nema =te na-tona =kau =ma n-ak
 and.so but 3\come\U̇ 3-back\M 3\come\U =SET 3-tell\M =1SG.ACC =and 3-say
 ‘But so (he) came, when he came back he told me.’ 130907-4, 3.21

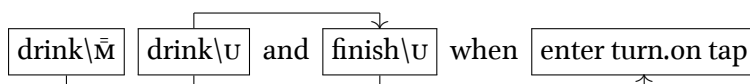
Example (84) below is slightly different. In this example the tail-head linkage construction involves two parallel verbs (§7.4.5). The first verb (*t-pafa?* ‘protect’) is consonant final, and thus occurs in the U-form and is glossed ‘\U̇’ (§7.1.1.1). The head of the construction then occurs in the U-form to introduce the elaboration; *on re? mee* ‘in which way, how’.

- (84) Burying a dead person: protect\U̇ or bury\U and in which way 130928-1
- a. *are? amahonit, anaa?prenat, too mfaun=eni neem na-bua=n =am*
 every elder official citizen many=PL 3\come 3-gather=PL =ma
 ‘All the clan elders, government officials, many people came and gathered’ 0.43
- b. *he na-?uab=ein n-eu re? he*
 IRR 3-speak=PL 3-DAT GVN.OBJ IRR
 ‘to talk about’ 0.48
- c. *a|t-pafa? ai? t-suba =ma, on re? mee.*
 IPI-protect\U̇ or bury\U =and like how
 ‘the way in which he should be protected or buried.’ 0.55

Most of the remaining examples of tail-head linkage with both a U-form tail and U-form head are examples in which the head is itself a tail for an anaphoric tail-head linkage

construction with the verb *rari* ‘finish’. One of these examples is given in (85) below. In (85) the initial M-form *?-iingw* ‘drank’ is the tail of a tail-head linkage construction with following *?-inu* ‘drank’ which is the tail of a tail-head linkage construction with following *u-rari* ‘finish’, which is resolved by the following clause.

(85) Exploring a hotel room: 130825-8 



- a. *?-took* *?-oka* *bruuk=i* *=m* *?-ait* *biir ka1eŋ sin =m*
?-toko *?-oka* *bruuk=i* *=ma* *?-aiti* *biir ka1eŋ sin =ma*
 ISG-sit\M ISG-with\U pants=1DET =and ISG-pick.up\M beer can 3PL =and
?-iingw=en
?-inu=en
 ISG-drink\M=INCEP
 ‘I sat down in those pants, picked up some cans of beer and drank.’ 1.06
- b. *?-inu* *=m*
?-inu *=ma*
 ISG-drink\U =and
 ‘I drank and’
- c. *u-rari* *=t*, *a|?-taam* *?-ai* *kraan=i*,
u-rari *=te* *?-tama* *?-ai* *kraan=i*
 ISG-finish\U =SET ISG-enter\M ISG-push tap=1DET
 ‘when I finished, I went into (the bathroom) and turned on the tap.’ 1.10

7.4.4 Elaboration between Tail and Head

While the usual pattern in tail-head linkage is for the elaboration to follow the head, the elaboration can also occur between the tail and the head. There are fourteen such examples in my corpus. An English example of tail-head linkage with elaboration between the tail and head is given in (86) below.

- (86) a. *I arrived home.*
 b. *I went straight to the fridge when I arrived.*

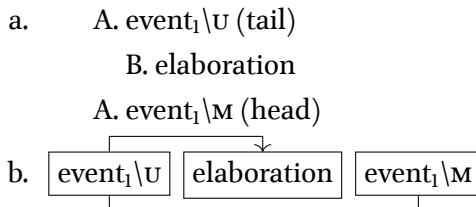
Examples of such constructions in Amarasi are a kind of chiasmus (§7.6) with U-forms and M-forms indicating the beginning and end of the tail-head linkage construction.

7.4.4.1 U-form Tail ... M-form Head

There are eight examples in my corpus in which the elaboration occurs between a U-form head and an M-form tail. Such examples are a kind of chiasmus, illustrated in two ways in

(87) below. The U-form tail indicates that more information is required for the event to be resolved, with the M-form verb indicating that with the previous information this event is resolved.

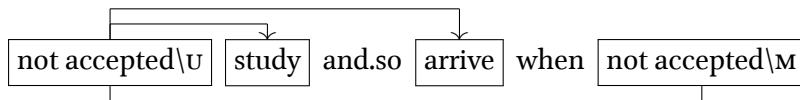
(87) Chiastic tail-head linkage:



In example (88) below the tail and head of *topu* ‘receive, accept’ occur on either side of information explaining the time and manner in which this event occurred.

(88) A son’s education:

130907-4



a. *‘I thought about it first, we’ll have the next one study government’* 3.13

b. *‘So Adi went down there,’* 3.15

c. *‘And he came back, he came back and told me’* 3.21

d. *ka= n-topu =f*
ka= n-topu =fa
 NEG= 3-receive\U =NEG
 ‘he wasn’t accepted’ 3.26

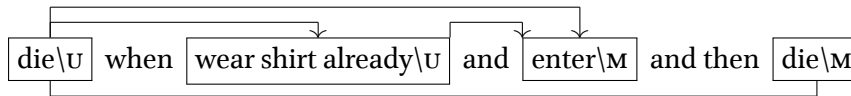
e. *bait he aam Adi in na-skora prenat.*
bait he ama Adi in na-skora prenat
 actually IRR father A. 3SG 3-study\U government
 ‘Actually Adi was going to study government.’ 3.28

f. *onai =m mes a|n-tee ne? nahe-n ne? skoor nahe-n*
onai =ma mes n-tea ne? nahe-n ne? skoor nahe-n
 and.so but 3-arrive GVN.OBJ down-3SG.GEN GVN.OBJ school down-3SG.GEN
nee =te ka= n-toup =fa.
nee =te ka= n-topu =fa
 there=0DET =SET NEG= 3-receive\M =NEG
 ‘But when he arrived at the school down there, he wasn’t accepted.’ 3.35

A more complex example is given in (89) below, in which the U-form verb *n-mate* ‘dies’ is the tail. In this case the elaboration between the tail and head is itself an instance of dependent co-ordination (§7.3) which describes the manner in which the death will occur. This elaboration is followed by the M-form head which signals that the previous information has resolved the event (*n-mate* ‘dies’) encoded by the tail and head.

(89) Someone who is ready for when he dies:

130913-1, 0.16



- a. *ona =t of in n-mate =t, in na-baur n-ani =m,*
onai =te of in n-mate =te in na-baru n-ani =ma
 then later 3SG 3-die\U =SET 3SG 3-shirt\M 3-before\U =and
 ‘Then later he’ll die while wearing a shirt (previously selected for the occasion of his death) and’
- b. *in n-taam n-eu peetɔ̃=e =m, naʔ n-maet.*
in n-tama n-eu peti=e =ma naʔ n-mate
 3SG 3-enter\M 3-DAT coffin=3DET =and then 3-die\M
 ‘he’ll get into the coffin and only then (will he) die.’

7.4.4.2 M-form Tail ... U-form Head

I also have six examples in my corpus in which a tail-head linkage construction with medial elaboration has an M-form tail and U-form head. Such constructions typically have two pieces of elaboration, one between the tail and head and one after the head. This construction is illustrated in (90) below.

(90) Chiastic tail-head linkage:

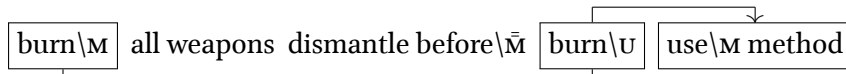
- a. A. event₁\M (tail)
 B. elaboration₁
 A. event₁\U (head)
 B. elaboration₂
- b.

In such constructions the introduction of the U-form signals that the previous information is not the only extra information. This U-form is then resolved by the following elaboration.

One example is given in (91) below in which the narrator describes the destruction of various objects associated with traditional religion after the village of Koro'oto converted to Christianity. In (91e) the noun *fua-t* ‘items used in traditional religion’ occurs as the patient of the M-form verb *n-out* ‘burnt’. After this M-form verb, (91e) and (91f) contain an elaboration of the kinds of items destroyed. This elaboration closes with the U-form verb *n-otu* ‘burnt’, which introduces (91g); an explanation on the method of destruction.

(91) Converting to Christianity:

160326 ◀



- a. *'They worshipped all kinds of things.'* 11.00
- b. *'Too many things.'*
- c. *'When the Church came, it said "Stop those things.'* 11.02
- d. *are? sin baer fua-t=eni n-nona? =sini =ma n-out =sin.*
 are? sin baer? fua-t=eni n-nona? =sini =ma n-otu =sin
 every 3PL thing trad'.religion-NML=PL\U 3-hand\U =3PL\U =and 3-burn\M =3PL
'All their items of traditional religion were handed over and burnt.' 11.06
- e. *are? suni? are? kenat,*
 every sword every weapon
'All (their) swords, all (their) weapons.' 11.10
- f. *are? uim fua-t, uim re?gw=e msa? a|n-pukai*
 are? umi fua-t umi re?u=e msa? n-pukai
 every house trad'.religion-NML house sacred=3DET also 3-dismantle
n-aandz=e, n-otu
 n-ani=e n-otu.
 3-before=3SG.ACC 3-burn\U
'every house of traditional religion, even the sacred house was pulled down and then burnt.' 11.13
- g. *henati?, n-paek re? cara re? ia,*
 IRR 3-use\M GVN.OBJ method REINT IDEM
'This was the method they would use,' 11.18
- h. *'(they did it) this way so that, people forgot the kinds of things they used to do in past days.'* 11.25

A second example is given in (92) below. In this example the M-form verb *n-ok* 'with' in (92b) precedes a description of the kinds of things the narrator and his companion did together, while the U-form verb in (92c) both follows and precedes something that the narrator did alone.

(92) Attending Church meetings:

130907-3 ◀



- a. *'And so when he arrived here I hadn't stopped (working) yet.'* 8.27
- b. *n-ok =kau =m hai nua =kai m-meup onai =m*
 n-oka =kau =ma hai nua =kai m-mepu onai =ma
 3-with\M =1SG.ACC and 1PX two =1PX.ACC 1PX/2-work\M and.so
'(He) joined with me and both of us worked and so' 8.31

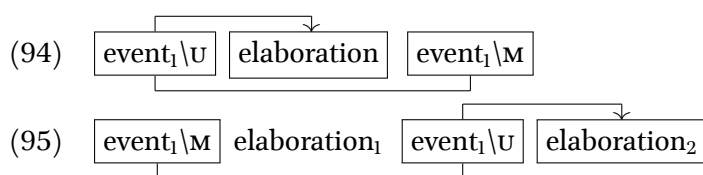
- c. *karu si- sidan, sidan klasis =ate, in ka= n-oka =f.*
 karu sidan, sidan klasis =te in ka= n-oka =fa
 if meeting meeting presbytery =SET 3SG NEG= 3-with\U =NEG
 'If it was a meeting, a presbytery meeting, he didn't join.' 8.36
- d. *au es a-na~nao-t. au es a-tok~took sidan.*
 au es a-na~nao-t au es a-tok~toko-s sidan
 1SG one NML-INTNS~go-NML 1SG one NML-INTNS~sit meeting
 'I was the one who went (*lit.* goer). I was the one who attended the meetings (*lit.* meeting sitter).' 8.40

Example (92) has two interlocking chiasmic structures. One is the tail-head linkage construction composed of the M-form and U-form forms of *n-oka* 'accompanies', the other is the repetition of attendance at meetings which occurs on either side of the head of this tail-head linkage construction. The structure of (92) is given in (93) below.

(93) Double chiasmus in (92):

- A. *join with*\M
 B. *work*
 C. *attend meetings*
 A. *didn't join with*\U
 C. *attend meetings*

A tail-head linkage construction can also have a piece of elaboration between the tail and the head. When this is the case U-form tails are resolved by the intermediate piece of elaboration, as illustrated in (94) below. When the head is in the U-form, it introduces another piece of elaboration in addition to that which occurs between the tail and head as illustrated in (95) below.

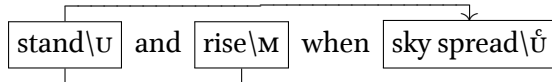


7.4.5 Semantically Parallel Verbs

Although the normal pattern in tail-head linkage is for tail and head to be encoded by identical verbs, it is quite frequent for the two words to be semantically parallel but not identical. Of the 66 instances of tail-head linkage in my corpus, fifteen involve parallel word pairs (23%).

One example is given in (96) below, in which the first clause consists of the serial verb construction *na-skeke n-fena n-hake* ‘sudden rise stand’ with a final U-form *n-hake*.¹³ This U-form is resolved in the third clause by the elaboration introduced by the M-form *n-feen*.

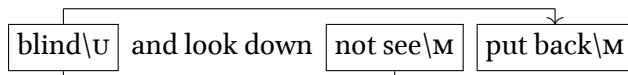
(96) How the snake *Moo'hitu* separated the sky from the land: 120715-4 ◀



- a. *in na-skeke n-fena n-hake =ma*,
3SG 3-sudden\U 3-rise\U 3-stand\U =and
‘He suddenly stood up and’ 0.25
- b. *in, in n-feen es mee =t*
in in n-fena es mee =te
3SG 3SG 3-rise\M IPFV.LOC where =SET
‘he, as he rose up to somewhere,’
- c. *neengw=i na-siri?, na-siri? sampe in n-tea re? =at*
neno=i na-siri? na-siri? sampe in n-tea re? =te
sky=IDET 3-spread\U 3-spread\U until 3SG 3-arrive REL =SET
‘the sky spread (and) spread until when he arrived there,’
- d. *nenoo nee msa? in na-tuin=e =ma*
sky 3DEM also 3SG 3-follow=3SG.ACC =and
‘that sky also followed him and’ 0.27

Another example is given in (97) below. In this example the serial verb construction *?-foro ?-mate* ‘dead (completely) blind’ with a final U-form in (97c) is the tail. This U-form is resolved by the M-form head *ka= ?-iit* ‘not see’ in (97d), which introduces the elaboration.

(97) Receiving a text message that can’t be read: 130825-6 ◀



- a. α : ‘I was bathing and this SMS made a noise in the mobile phone.’ 9.06
- b. α : ‘I took it and looked at it but’ 9.10
- c. α : *ho m-bi re? nahen poo?n=e =te*,
ho m-bi re? nahen po?on=e =te
2SG 1PX/2-RL.LOC GVN.OBJ down orchard=3DET =SET
?-foro ?-mate =m
1SG-foro 1SG-mate =ma
1SG-blind\U 1SG-die\U =and
‘When you were down in the orchard, I was dead (completely) blind and’ 9.12

¹³ The only U-form of this serial verb construction which is in the U-form for discourse reasons alone is the final verb. The other U-forms are all followed by a consonant cluster, an environment which discourages M-forms (§4.3).

- d. α : *ʔ-tae*, *ka= ʔ-iiit*, *u-tunuʔ u-fain*.
 ʔ-tae ka= ʔ-ita u-tunuʔ u-fani
 1SG-look.down NEG= 1SG-see\M 1SG-put\U 1SG-back\M
 ‘I looked down at (it), couldn’t see (it), (so I) put it back.’
- e. α : *maut uma ʔ-tee kuan a|ʔ-paek kacamata henaʔ*,
 maut uma ʔ-tea kuan ʔ-pake kacamata henaʔ
 let come\U 1SG-arrive village 1SG-use\M spectacles IRR
 ‘I should (wait) until I get to the village and use spectacles to ...’ 9.14
- f. β : *m-rees*
 m-resa
 1PX/2-read\M
 ‘read (it).’ 9.19

The tail and head of a tail-head linkage construction can either be identical verbs or semantically parallel verbs. The use of U-forms and M-forms and parallel verbs is discussed in more detail in §7.5 in which I discuss parallelism in Amarasi poetry.

7.5 Poetic Parallelism

Another use of U-forms is in poetry. In Amarasi poetry a semantically parallel pair of verbs can also occur with complementary U-forms and M-forms. One example is given in (98) below in which the verb *m-tenu* ‘shade (with umbrella)’ is both semantically and morphologically parallel to the following verb *m-haof* ‘shade’.

- (98) *henatiʔ m-tenu =m mu-haof too tafaʔ =kai*.
 henatiʔ m-tenu =ma mu-hafo too tafaʔ =kai
 IRR 1PX/2-umbrella\U =and 2SG-shade\M citizen small =1PX.ACC
 ‘So that you might shade [doublet] us small people.’ 130825-3, 1.21 ◀▶

Poetry in the Timor region makes extensive use of semantic parallelism. Semantic parallelism is the pairing of related words or phrases to ‘say the same thing twice’. Other terms used for this phenomenon include ‘speaking in pairs’ and ‘dyadic speech’ with the semantically paired words called a ‘doublet’. An English Biblical example from Isaiah 65:17–19 is given in (99) below, with doublets linked by connecting lines.

- (99) 17 a. *Behold, I will create new heavens and a new earth.*
 b. *The former things will not be remembered, nor will they come to mind.*
- 18 a. *But be glad and rejoice forever in what I will create,*
 b. *for I will create Jerusalem to be a delight and its people a joy.*

- 19 a. I will rejoice over Jerusalem and take delight in my people;
 b. the sound of weeping and of crying will be heard in it no more.

Each verse is divided into two parts, each of which contains at least one doublet. In some cases the words are opposites, such as the pair *heavens*||*earth* in verse 17, more often the pairs are of words or phrases which mean similar things, such as the pair *weeping*||*crying* in verse 19. Individually each member of a pair may not be an exact synonym, but when used as doublets, they are effectively synonymous.

A specific kind of semantic parallelism is canonical parallelism. Canonical parallelism is a circumscribed system of semantic parallelism in which the words and phrases which may form pairs are pre-defined. In such a system speakers are not free to innovate new pairs.

Canonical parallelism has been extensively studied in eastern Indonesia by James Fox (see particularly Fox 1988; 2014) who has been especially interested in poetry of the island of Rote, neighbouring the Timor mainland where Uab Meto and Amarasi are spoken. An example of Rote parallelism is given in (100) below. This example consists of the first six lines of a particular chant. In this short extract each pair of lines contains three words each of which is paired with another word in the next line.

- (100) Poetic parallelism in Rotenese:¹⁴ (Fox 1974:76f)


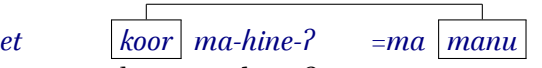
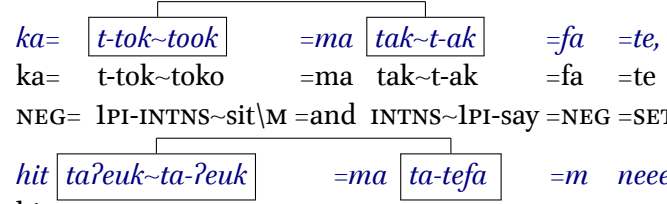
- a. Lole faik ia dalen. || Ma lada ledok ia tein naa
 good day this inside and fine time this stomach that
 ‘On this good day || and at this fine time.’
- b. *Lae:* tefu mangona lilok. || Ma huni malapa losik.
 say sugar.cane sheathed gold and banana blossomed copper
 ‘They say: the sugar cane has sheaths of gold || and the banana has blossoms of copper.’
- c. Tefu olu heni ngonan. || Ma huni kono heni lapan,
 sugar.cane shed away sheath and banana fall away blossom
 ‘The sugar cane sheds its sheath, || and the banana drops its blossom.’

Poetry in Amarasi also employs semantic parallelism. Traditionally, Amarasi also uses canonical parallelism. Not only are the words which can form doublets fixed, but the order in which each member of a doublet occurs is also fixed. Other features of Amarasi poetry include the use of metaphor, archaisms and a preference for morphologically complex words.

¹⁴ Each pair of lines has been combined into a single typed line in (100) to show clearly the links between paired words. Morpheme breaks are not shown to reduce clutter.

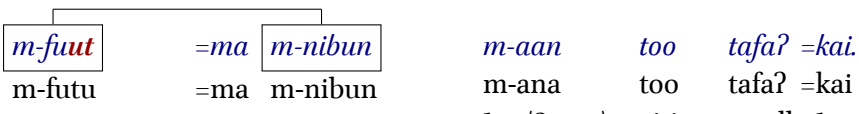
An example of Amarasi parallelism is given in (101) below, which consists of the first part of a traditional greeting. Such greetings are known as *aʔa srama-t* (poetic.speech greet-NML) in Amarasi. Every second line (those in capital letters) repeats one of the words from the previous line and is said by the whole group. The other lines are spoken by the group leader.

(101) Amarasi greeting (*aʔa sramat*): 120715-0 ◀▶

- a. 
 baisenu-t =ma ronaen n-eu muti? =ma mnatu? et nu-
 look.up-NML =and greeting 3-DAT silver =and gold IPFV.LOC
 nuun mafo? reet mafo?, Teunraen =am nee...
 nunuh mafo? rete mafo? Teunraen =ma nee
 banyan shade blackboard shade T. =and PAUSE
 ‘Respect and honour to (those like) silver and gold under the shade of the banyan tree and the shade of the blackboard tree (in) Teunraen and ...’¹⁵ 0.15
- b. *BURAEN* 0.21
- c. 
 n-eu koro manu, et koor ma-hine-? =ma manu nee...
 n-eu koro manu et koro ma-hine-? =ma manu nee
 3-DAT bird chicken IPFV.LOC bird PROP-know-PROP =and chicken PAUSE
 ‘to the population (*lit.* birds and chickens) among wise people (*lit.* wise birds and chickens)’ 0.24
- d. *MAHINE?* 0.28
- e. 
 ka= t-tok~took =ma tak~t-ak =fa =te,
 ka= t-tok~toko =ma tak~t-ak =fa =te
 NEG= 1PI-INTNS~sit\M =and INTNS~1PI-say =NEG =SET
 hit taʔeuk~ta-ʔeuk =ma ta-tefa =m nee...
 hit taʔeku~ta-ʔeku =ma ta-tefa =ma nee
 1PI FRD~1PI-encounter\M =and 1PI-meet\U =and PAUSE
 ‘We don’t just sit around and talk, we interact and meet.’ 0.30
- f. *TATEEF* 0.35

When an Amarasi doublet consists of two verbs and the connector *=ma* ‘and’ occurs between each, it is usual for the first verb to take the M-form. This is consistent with the use of M-forms before *=ma* as discussed in §7.3.1.1, in which a pair of verbs connected by *=ma* with the first verb in the M-form encodes a single event rather than two discrete events. Three examples of verbal doublets with the first verb in the M-form in Amarasi poetry are given in (102)–(104) below.

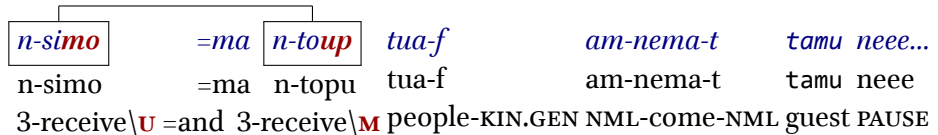
¹⁵ The villages of Teunraen and Buraen are those which traditionally housed the palace of the Amarasi king.

- (102) *hai mi-ʔ-futu-ʔ =ki ʔ-fuut nafe, henatiʔ*
 hai mi-ʔ-futu-ʔ =ki ʔ-futu-ʔ nafe henatiʔ
 1PX 1PX/2PL-TR-bind\U-TR =2PL.ACC NML-bind belt IRR

 m-futu =ma m-nibun m-ana too tafaʔ =kai
 1PX/2-bind\M =and 1PX/2-surround\U 1PX/2-RES\M citizen small =1PX.ACC
 ‘We clothe you with a cloth belt so that you will surround and bind us little people together.’ 130825-3, 0.51

- (103) *hai ʔaaʔ-t=i na-m-soup =ma n-heun-ʔ=o-n,*
 hai ʔaʔa-t=i na-m-sopu =ma n-henu-ʔ=o-n,
 1PX poetic.speech-NML=1DET 3-STAT-finish\M =and 3-fill\M-TR=REFL-3SG.GEN
on naan nai, tua.
 on naan nai, tua
 IRR.LOC 2DEM already ADDR
 ‘Our poetic speech is now finished and complete like that.’ 130825-3, 2.35

- (104) *mes au ka= ʔ-sium =ma ʔ-toup =fa naiʔ Esau.*
 mes au ka= ʔ-simo =ma ʔ-topu =fa naiʔ Esau
 but 1SG NEG= 1SG-receive\M =and 1SG-receive\M =NEG Mr. E.
 ‘But I did not receive [doublet] Esau.’ Romans 9:13

However, it is also possible for the first verb of the doublet to occur in the U-form with the second verb in the M-form. One example is given in (105) below which provides another part of the greeting in (101) above.

- (105) Greeting (*aʔa sramat*): 120715-0
- a. *in tua-n=e es~es naiʔ Bani, naiʔ Oraʔ,*
 in tua-n=e es~es naiʔ Bani naiʔ Ora
 3SG owner-3SG.GEN=3DET FRD~one Mr. B. Mr. O.

 n-simo =ma n-topu tua-f am-nema-t tamu neee...
 3-receive\U =and 3-receive\M people-KIN.GEN NML-come-NML guest PAUSE
 ‘Its lords the Bani and Ora’ clans receive [doublet] those who come (and those who are) guests.’ 0.51
- b. *AMNEMAT* 0.58

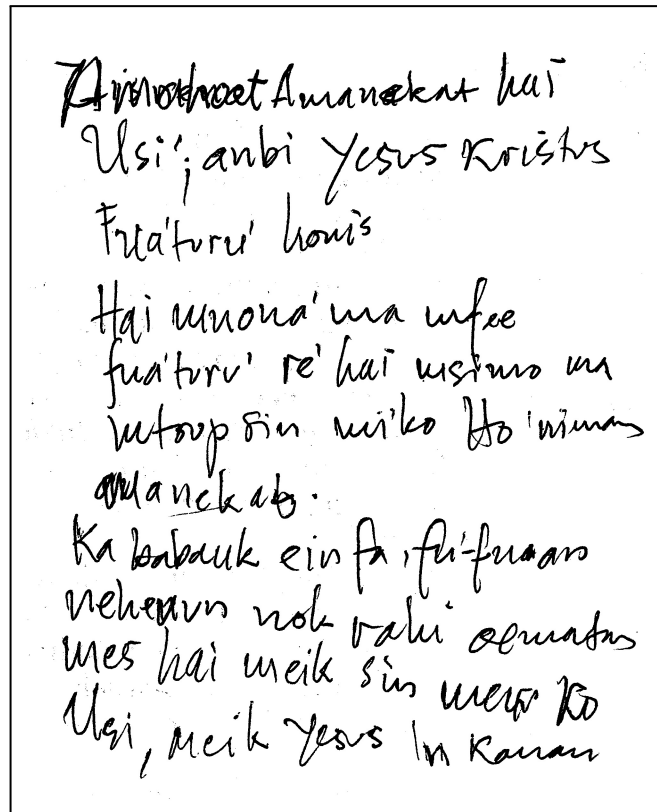
In (105) the U-form *?simo* is paired with M-form *?toup* ‘receive’.¹⁶ Another example of the same pair with alternate U-form and M-forms is given in (106) below, a prayer composed and written by my main informant Roni. A scan of the original is given in Figure 7.1 on the next page.

(106) Prayer for the offertory collected in Church:

- a. *a-ma-hoe-t* *a-ma-neka-t* *hai usi?*
 NML-PROP-bless-NML NML-PROP-love-NML 1PX lord,
 ‘Our loving and generous lord,’
- b. *a|n-bi* *Yesus Kristus fua?turu? honi-s.*
 3-RL.LOC Jesus Christ offering live-NML
 ‘in (the name of) Jesus Christ, the living sacrifice.’
- c. *hai m-nona?* =*ma m-fee* *fua?turu? re?* *hai*
 hai m-nona? =ma m-fee fua?turu? re? hai
 1PX 1PX/2-hand\U =and 1PX/2-give offering REL 1PX
m-simo =*ma* *m-toup* =*sin mi-?ko* *ho ?nima-m*
 m-simo =ma m-topu =sin mi-?ko ho ?nima-m
 1PX/2-receive\U =and 1PX/2-receive\M =3PL 1PX/2PL-ABL 2SG hand-1PX/2GEN
a-ma-neka-b,
 a-ma-neka-b,
 NML-PROP-love-TR
 We give [doublet] offerings we received [doublet] from your loving hand.’
- d. *Ka= ba?~bau?k=ein* =*fa*, *fu?~fu?an* *na-heun n-ok* *rahi oe-metan,*
 ka= ba?~ba?uk=ein =fa, fu?~fu?an na-henu n-oka rahi oe-metan
 NEG= INTNS~many=ein =NEG INTNS~few 3-full\M 3-with\M filth dirt
 ‘(It’s) not very much, (but) very little (and) filled with filth and dirt,’
- e. *mes hai m-eik* =*sin m-eu* =*Ko* *Usi, m-eik* *Yesus in*
 mes hai m-eki =sin m-eu =ko Usi m-eki Yesus in
 but 1PX 1PX/2-bring\M =3PL 1PX/2-DAT =2SG.ACC Lord 1PX/2-bring\M Jesus 3SG
kana-n.
 kana-n
 name-3SG.GEN
 ‘but we bring them to you Lord, in Jesus’s name.’

¹⁶ The normal word for ‘receive’ in Amarasi is *topu* with *simo* only occurring in poetic parallelism. The verb *simo* is a borrowing from another variety of Uab Meto in which this is the normal word for receive. Borrowing from a neighbouring dialect or language is a common strategy used to create parallel pairs (Grimes et al. 1997:27f). Another example can be seen in the pair *amnemat||tamu* ‘those who come || guests’ also in (105a) in which the second member is a borrowing from Malay *tamu* ‘guest’.

Figure 7.1: Prayer for the offertory collected in Church



A third example of parallel verbs with an alternate U-form and M-form is given in (107). In this case the doublet is *tenu*||*hafo* ‘umbrella : shade’.

- (107) Speech to welcome new government officials: 130825-3 🔊
- a. *hai mi-ʔpiruʔ =ki ʔpiur suun mees nua*
hai mi-ʔpiruʔ =ki ʔpiruʔ suna meseʔ nua
 1PX 1PX/2PL-cloth\U =2PL.ACC bandanna horn single two
 ‘We give you two single bandannas (as a) horn’ 1. 15
- b. *henatiʔ m-tenu =m mu-haof too tafaʔ =kai.*
henatiʔ m-tenu =ma mu-hafo too tafaʔ =kai
 IRR 1PX/2-umbrella\U =and 2SG-shade\M citizen small =1PX.ACC
 ‘so that you might shade [doublet] us small people.’ 1. 21

The two main patterns in which an Amharic poetic doublet of parallel verbs occur are given in (108) below.

- (108) Amharic parallel verbal pairs:
- a. $\boxed{\text{verb}_1 \backslash \text{M}}$ and $\boxed{\text{verb}_2 \backslash \text{M}}$
- b. $\boxed{\text{verb}_1 \backslash \text{U}}$ and $\boxed{\text{verb}_2 \backslash \text{M}}$

In non-poetic discourse the use of a U-form followed by *=ma* indicates that the event marked by the U-form preceded the event encoded in the next clause, as discussed in §7.3.1. However, in poetry such U-forms do not indicate the timing of events. Instead, the use of U-forms and M-forms is a poetic device, providing the option of a double parallelism on complementary verbs; such verbs are both semantically and morphologically parallel.

7.6 Centre of Chiasmus

Another use of discourse U-forms is to mark the centre of a chiasmus. Chiasmus is a kind of inverted parallelism in which parallel pairs are repeated on either side of another parallel pair. A simple example of chiasmus in English is given in (109) below from act 1, scene 1 of Shakespeare's *Macbeth*.

(109)

In Amarasi a U-form can occur in the middle of chiasmus to signal that the information before this U-form is going to be repeated again as illustrated in (110) and (111) below. There are 20 examples of U-forms marking chiasmus in my corpus.

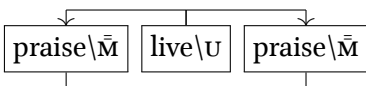

(110) Chiastic U-forms:

A. information₁
 B. verb\U
 A. information₁

(111)

By using a U-form in such examples the speaker signals non-resolution and puts the listener in a mild state of suspense, communicating roughly 'This is unresolved. Pay attention!'. The listener would thus be prepared for something unexpected. By repeating old information instead of providing something new, the speaker emphasises this repeated information. The U-form is resolved by the information on either side of it.

At its most simple, such U-forms are preceded and followed by an identical word or phrase. This simple chiastic structure constitutes nearly all instances of chiasmus with a central U-form in my corpus (18/20 instances). One example is given (112) below, in which the U-form *n-moni* 'lives' is both preceded and followed by M-forms of the verb *n-bo?is* 'praises'.

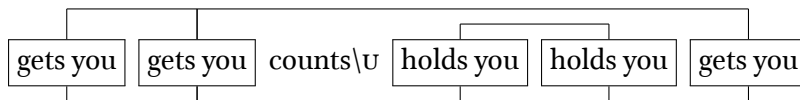
- (112) 
- n-boiʔs=e* *mate-s. aam baab-f=e* *n-moni =te,*
 n-boʔis=e mate-s ama baba-f=e n-moni =te
 3-praise=3SG.ACC die-NML father FZ/MB-KIN.GEN=3DET 3-live\U =SET
n-boiʔs=e. ??¹⁷
 n-boʔis=e
 3-praise=3SG.ACC
 ‘He praised him a lot. The uncle was alive, he praised him.’ 130925-1, 4.10 

A more complex example is given in (114) below, in which the material which forms a ‘sandwich’ around the U-form is repeated multiple times, including two repetitions which are not identical but parallel. The structure of this chiasmus is given in (113) below.

- (113) Chiasmus of (114):

A. *na-pein=ko* = ‘gets you’
 A. *na-pein=ko* = ‘gets you’
 B. *t-soʔi* = ‘counts\U’
 A’. *n-naaʔ=ko* = ‘holds you’
 A’. *n-naaʔ=ko* = ‘holds you’
 A. *na-pein=ko* = ‘gets you’

- (114) Catching a thief in your garden: 120923-2 



- a. *karna tuan=e na-pein =ko, na-pein =ko naaʔɛ=en =ama*
 karna tuan=e na-peni =ko na-peni =ko nai=en =ma
 because owner=3DET 3-get\M =2SG.ACC 3-get\M =2SG.ACC already=INCEP =and
 ‘Because the owner gets you, he’s got you already and’ 4.29
- b. *t-soʔi =t in n-naaʔ ko,*
 t-soʔi =te in n-naʔa =ko
 0-count\U =SET 3SG 3-hold\M =2SG.ACC
 ‘(someone) counts while he holds you’ 4.32
- c. *n-naaʔ =ko na-heer=en es reʔ in na-pein =ko reʔ ia.*
 n-naʔa =ko na-hera=en es reʔ in na-peni =ko reʔ ia
 3-hold\M =2SG.ACC 3-tight=INCEP one REL 3SG 3-get\M =2SG.ACC REL IDEM
 ‘He holds you tight like this, the one who’s got you like this.’ 4.34

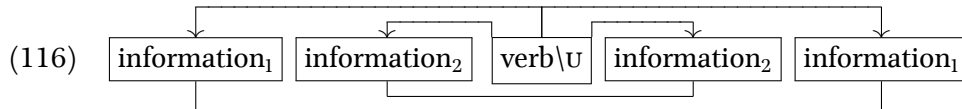
¹⁷ The final word/phrase of this sentence was not transcribed by Roni, who recorded and transcribed this text. Due to the faintness of the recording, I also cannot make out the final word/phrase of this sentence. My best guess is that it is *na-hiindɛ=e* ‘he knew it/him’.

The U-forms in examples (112) and (114) have a dual function, marking both the chiasmus as well as dependent coordination (§7.3). In these cases the information which resolves the U-form is similar/identical to that which precedes the U-form.

In addition to such examples in which there is only a single layer on either side of the U-form, there are at least two examples of a more complex chiastic structure in which there is more than one layer surrounding the U-form, as exemplified in (115) and (116) below.

(115) Complex Chiasmus:

- A. information₁
- B. information₂
- C. verb\U
- B. information₂
- A. information₁



The first of these examples is given in (118) below. This example consists of an outer layer ('I just followed the target.') an inner layer ('I couldn't offer') with the core U-form *?-nesi* 'more'. The chiastic structure of (118) is given in (117).

(117) Chiasmus in (118):

- A. *I just followed the target*
- B. *I couldn't offer*
- C. *any more\U*
- B. *I couldn't offer*
- A. *I just followed the target*

(118) Donating money:

130825-6

- a. *au ?-tuin=ah ne? target.*
 ISG ISG-follow=just GVN.OBJ target
 'I just followed the target.'
- b. *au ka= bisa ?-korban a|?-nesi =f.*
 au ka= bisa ?-korban ?-nesi =fa
 ISG NEG= can ISG-sacrifice ISG-more\U =NEG
 'I couldn't offer any more.'
- c. *au ka= bisa ?-korban.*
 ISG NEG= can ISG-sacrifice
 'I couldn't offer.'
- d. *au ?-tuin=ah ne? target.*
 ISG ISG-follow=just GVN.OBJ target
 'I just followed the target.'

2.57


3.01

A second example is given in (120) below, with the chiasmic structure summarised in (119). In this example the outer layer consists of the person *Olpi* the inner layer consists of the activity ‘went down to bathe’ and the U-form in the centre in (120b) is *n-sae n-fani* ‘came back up’. This core is also followed by an additional event in (120).

(119) Chiasmus in (120):

- A: *Olpi*
 B. *went down to bathe*
 C. *came back\U up*
 D. *handed me a towel and soap*
 B. *I went down to bathe*
 A: *Olpi*

(120) The narrator and *Olpi* are down at the garden:

130825-6 

- a. *Olpi n-saun na-niu =ma nsa-*,
 Olpi n-sanu na-niu =ma
 O. 3-go.down\M 3-bathe =and
 ‘*Olpi went down to bathe and*’ 9.20
- b. *n-sae n-fani =t*
 n-sae n-fani =te
 3-go.up 3-back\U =SET
 ‘*when he came back up,*’ 9.22
- c. *n-nona? =kau nehh, n-nona? kau nehh, handuk =am sabu*
 n-nona? =kau n-nona? kau handuk =ma sabu
 3-hand =1SG.ACC 3-hand =1SG.ACC towel =and soap
 he handed me, umm, handed me umm, a towel and soap.’ 9.23
- d. *?-saun u-niu =t*,
 ?-sanu u-niu =te
 1SG-go.down\M 1SG-bathe =SET
 ‘*I went down and bathed while*’ 9.27
- e. *Olpi n-ait nehh, hap- hapeedz=i*
 Olpi n-aiti hapei=i
 O. 3-pick.up\M mobile.phone=1DET
 ‘*Olpi picked up the mobile phone*’ 9.28

U-forms can mark the centre of a chiasmus. By introducing a U-form the narrator sets up the discourse as unresolved and introduces the possibility of an unexpected event. By then denying this possibility and repeating the information which occurred before the U-form, the narrator emphasises the repeated information. A U-form in the centre of chiasmus is resolved by the information on either side of it.

7.7 Interactional Metathesis Alternations

Another use of discourse U-forms is in conversation to maintain interaction between speakers. By using a U-form in conversation, the speaker flags that s/he considers the communicative act unresolved. This provides an opportunity for other participants to make their own contribution and resolve the U-form. In my corpus there are 44 instances of U-forms which are intended to elicit a response from the addressee. (The frequency of U-forms in conversations is discussed in more detail in §7.7.3.)

7.7.1 Question and Answer

The clearest example of U-forms being used in interactions between speakers is in question-answer pairs. U-forms are used to ask questions and M-forms are used to answer such questions. The normal structure of an Amarasi question-answer pair is given in (121) below. The question and answer usually contain identical verbs, with the question U-form being resolved by an M-form answer. A typical example is given in (122).





(121) Speaker₁: U-form Speaker₂: M-form

(122) Climbing a steep hill: observation 02/08/13, p.20
 a. α : *ho mu-be?i?* b. β : *au u-bei?!*
 2SG 2SG-capable\U 1SG 1SG-capable\M
 ‘Can you do it?’ ‘Yes, I can!’

Such question-answer pairs are similar to tail-head linkage (§7.4) or poetic parallelism (§7.5) with the difference that the U-form/M-form doublet is constructed by multiple speakers. U-form questions must be complemented by an M-form answer and U-form answers are judged as infelicitous. This is shown in (122') below, which can be compared with grammatical (122) above.

(122') Elicitation: elicit. 03/10/14 p.112
 a. *ho mu-be?i?* b. # *au u-be?i*
 2SG 2SG-capable\U 1SG 1SG-capable\U
 ‘Can you do it?’ ‘Yes, I can!’

Two examples of question\U-answer\M pairs from recorded conversations are given in (123) and (124) below. In each example a question posed in the U-form is answered by another speaker with an M-form version of the same verb.

- (123) Weaving cloth: 130914-1 
- a. α : *he t-futu?*
 he t-futu
 IRR 1PI-bind\U
 ‘Should we tie it?’ 0.20
- b. β : *t-fuut, re? muti? re? ia.*
 t-futu re? muti? re? ia
 1PI-bind\M REL white REINT IDEM
 ‘(Yes,) we tie it. The white one (goes) here.’ 0.21
- (124) Inquiring about family: 130909-6 
- a. α : *ehh, n-fain=n=en aa? Nai? Rius iindz=an a|n-fani?*
 n-fani=n=en aa nai? Rius ini=an n-fani
 3-back\M=PL=INCEP Q Mr. Lius 3SG=2DET 3-back\U
 ‘Ahh, they’ve come back, right? Lius’s (child) has come back?’ 3.23
- b. β : *in n-fain, tua.*
 in n-fani tua
 3SG 3-back\M ADDR
 ‘He’s come back.’ 3.25
- However, it is not a rule of Amarasi grammar that questions *must* be posed in the U-form. Two examples of questions posed in the M-form are given in (125) and (126) below. In each example the M-form question also elicits a response (partially) in the M-form.
- (125) Going to Jakarta: 130825-7 
- a. α : *n-moa? on mee =m es a|n-heek n-aan =ko n-ok bifee?*
 n-mo?e on mee =ma es n-heke n-ana =ko n-oka bifee
 3-do\M how =and one 3-catch\M 3-RES\M =2SG.ACC 3-with\M woman
Atau, ai? ho m-mouf?
 atau ai? ho m-mofu
 or or 2SG 1PX/2-fall\M
 ‘How did it happen, that is did they catch you with the woman?
 Or did you fall (morally)?’ 1.28
- b. β : *ka= n-heek =kau =f!*
 ka= n-heke =kau =fa
 NEG= 3-catch\M =1SG.ACC =NEG
 ‘They didn’t catch me!’ 1.31
- (126) A man who’s already made preparations for his funeral: 130913-1 
- a. α : *m-ak in n-hain n-meese?*
 m-ak in n-hani n-mese
 1PX/2-say 3SG 3-dig\M 3-alone\M
 ‘Do you think he dug it alone?’ 0.57

- b. β : *In of a|n-hani n-meəs.*
 in of n-hani n-mese
 3SG sure 3-dig\ŭ 3-alone\M
 ‘He must’ve dug it himself.’

0.59

A useful tool for analysing U-form/M-form question-answer pairs in Amarasi is provided by the notion of an *adjacency pair*, a concept developed by Schegloff and Sacks (1977:295) within the field of conversation analysis. An adjacency pair has the following properties:

- (127) An Adjacency Pair:
- a. consists of two conversational turns:
 - i. which are by different speakers
 - ii. which are placed next to one another
 - iii. which are ordered
 - iv. which are differentiated into pair types

The first part of an adjacency pair is known as the *first pair part* and the second part is called the *second pair part*. Property (127a-iii) refers to the fact that these two pairs come in a set order: i.e. a question (first pair part) precedes an answer (second pair part). Property (127a-iv) refers to the fact that which second pair part is allowed is constrained by the first pair part. An acceptable second pair part for a greeting is another greeting, while an acceptable second pair part for a question is an answer.

The Amarasi examples seen so far in this section are examples of a question-answer adjacency pair. U-forms occur as first pair parts (questions) and M-forms occur in second pair parts (answers).

A first pair part projects the relevant second pair part. If the relevant second pair part is lacking, the conversation is viewed as problematic or incomplete. Thus, for instance when a speaker asks a question, they expect to receive an answer. This is illustrated with the English example in (128) below, taken from Liddicoat (2007) with the transcription adapted to the same transcription conventions used in this thesis.

- (128) A conversation: (Liddicoat 2007:108)
- a. α : *Did you speak to Mary today?*
 - b. [0.2 seconds of silence]
 - c. α : *Did you speak to Mary?*
 - d. β : *Oh, yeah I saw her at lunch.*

In (128a) speaker- α 's question is followed by 0.2 seconds of silence, which is interpreted by speaker- α as the answer being absent, as a result he repeats his question in (128c) which induces the required answer in (128d).

Within the terminology of conversation analysis, a U-form in Amarasi explicitly flags a turn as the first pair part of a question-answer adjacency pair. This thus projects forward an answer as the second pair part. Within more general terminology, U-forms are one way of marking a question which expects an explicit answer. Such U-form questions are complemented and completed by an M-form answer.

7.7.2 Maintaining Interaction

U-forms are not only used in questions, but are used more broadly to maintain ongoing interaction and conversation between speakers.

One example is given in (129) below. In this example speaker- α wants to interact with speaker- β . Speaker- α initiates a conversation in (129a) and speaker- β responds with the M-form *?took* 'sit' in (129b). Speaker- α then repeats this answer with a U-form *m-toko* 'sit' in (129c). By using a U-form in (129c) speaker- α signals that the interaction is not yet socially complete. When speaker- β fails to resolve the U-form, speaker- α does so himself by offering betel nut in (129d), the chewing of which is a core Timorese social activity.

(129) Speaker- α approaches speaker- β who is with friends: observation 19/09/2014 p.97

- a. α : *ho mu-nsaa??*
 ho mu-nsaa?
 2SG 2SG-do.what
 'What are you doing?'
- b. β : *au ?took.*
 au ?-toko
 1SG 1SG-sit\M
 'I'm sitting.'
- c. α : *ho m-toko?*
 2SG 1PX/2-sit\U
 'So, you're sitting, are you?'
- d. α : [*comes up to group and offers betel nut*]

A similar example is given in (130) below. In (130a) speaker- β invites speaker- α to go first at a buffet. This invitation is accepted by speaker- α in (130b) with the U-form *u-hunu* 'first'; this is a kind of rhetorical question casting doubt on the interaction. This U-form is then resolved by speaker- β by him nodding that this is indeed his desire.

(130) Lining up at a buffet to get food: observation 19/09/2014 p.97

- a. β : *ho mu-hunu.*
 ho mu-hunu
 2SG 2SG-first\M
 'You go first.' [*simultaneously gestures with hands*]


- b. α : *au u-hunu.*
 Isg Isg-first\U
 'I'll go first, then?' / 'OK I'll go first.'
- c. β : [*nods once and gestures*]
- d. α : [*starts serving himself food*]

A number of more complex interactional U-forms are given in (131)–(133) below. In (131) a group of speakers are discussing what to do about the presence of a voice recorder. Speaker- β announces in (131b) his intention with a U-form *?-nene* 'press'. This verb is then repeated in the M-form by speaker- α who points out that speaker- β is not achieving his goal. The U-form is not resolved by the action, but it is resolved by the interaction.

- (131) Turning a voice recorder off: 130825-7 ◀
- a. α : *t-sambun peo-t=e, he bisa bees~~ç~~=e na-taah =kit.*
 t-sambun peo-t=e he bisa besi=e na-taha =kit
 IPI-continue talk-NML=3DET IRR can machine=3DET 3-answer\M =IPLACC
 '(If) we keep talking the machine will be able to answer us.' 3.30
- b. β : *maut he au ?-nene!*
 maut he au ?-nene
 patient IRR Isg Isg-press\U
 'Hold on, I'll press (the buttons)!' 3.33
- c. α : *Ae?!*
 'Hey!' 3.34
- d. β : [*laughs*]
- e. α : *maan m-nenen mu-tafi? bees~~ç~~=e naan, kama?.*
 maan m-nene mu-tafi? besi naan kama?
 like.that 1PX/2-press\M 2SG-random\U machine\U 2DEM what's-it
Hoe! Australi punya ini.
 hoe Australi punya ini
 hey Australia have this
 'You're randomly pressing the machine there, (that) what's-it. Hey! This belongs to Australia.' 3.35
- f. α : *ho m-ak besi kraufn=es, ese? naan on re? hapei=ein*
 ho m-ak besi krafun=es es re? naan on re? hapei=ein
 2SG 1PX/2-say machine useless=one one REL 2DEM like mobile.phone=PL
re? a-taf-taif?=ein.
 re? a-taf-taif?=ein
 REL NML-INTNS~random=PL
 'You think it's a useless machine, the one there, like all those confusing mobile phones.' 3.40

Example (132) below involves a number of U-forms. None of these U-forms is repeated by another speaker, but in each instance a U-form is followed by the contribution of

another speaker. By using U-forms, the speakers indicate that they do not consider the communicative act resolved and thereby open the floor up for contributions from other speakers. The only change of speaker in (132) which does not involve a U-form is that in (132b) which is an interruption in which the first speaker is cut off mid-sentence by another speaker.

- (132) A conversation about a car which came off the road: 130911-2 
- a. α : *in na-reen=o-n =ma n-ʔantareek a|n-bi n-*
in na-rena=o-n =ma n-ʔantareek n-bi
3SG 3-force\̄M=REFL=3SG.GEN =and 3-backing 3-RL.LOC
‘He forced himself, and went back into it, was in...’ 0.31
- b. β : *na-bara maʔbakeʔ mhh.*
3-forever\U narrow
‘He was stuck in the narrow (place)’ 0.32
- c. γ : *in he n-bibi.*
3SG IRR 3-shrink\U
‘He would’ve wanted to shrink (the car).’ 0.34
- d. δ : *n-ak, ootgw=i, na-snii m-ak, =am, na-kamaf =am,*
n-ak oto=i na-snii m-ak =ma na-kamaf =ma
3-say car=1DET 3-slope 1PX/2-say and 3-what’s.it\̄U =and
‘he said, the car was sloping, you think, and what’s it and’ 0.35
- e. δ : *na-snii n-taikobi n-koon, naʔ na-tetu*
na-snii n-taikobi n-kono naʔ na-tetu
3-slope 3-fall\̄U 3-keep.on\M then 3\TR-upright\U
‘it was sloping, fell over, kept on and only then he got the car upright’ 0.38
- f. β : *onai =m a|srutun reʔ ia, in n-moofgw=en.*
onai =ma srutun reʔ ia in n-mofu=en
and.so suddenly REINT IDEM 3SG 3-fall\̄M=INCEP
‘and suddenly it fell down’ 0.40

A similar example of U-forms initiating a change of speakers is given in (133) below, which only involves two speakers. In this example the change of speakers after each sentence in (133b)–(133d) is initiated by a U-form, as is the change of speaker after (133f). This conversation also involves a large amount of repetition, a discourse structure already noted in §7.2 as a feature of Amarasi monologues.

- (133) Preparing a field for planting: 130909-6 ◀
- a. α : *mu-boor=en. ta-boor n-ok fuun ne(?)e.*
 mu-boor=en ta-boor n-oka funan ne(?)e
 2SG-make.hole=INCEP IPI-make.hole 3-with\M moon six(ORD)
 ‘You dug a hole. We dig holes (for planting) in June.’ 1. 12
- b. β : *he?, t-kanu =t, na? fuun ne(?)e.*
 t-kanu =te na? funan ne(?)e
 hey IPI-cut.field\U =SET then moon six(ORD)
 ‘What? We cut open a new field, only then is it June.’ 1. 15
- c. α : *ehh, t-kanu =t, na? fuun ne(?)e.*
 t-kanu =te na? funan ne(?)e
 oh 0-cut.field\U =SET then moon six(ORD)
 ‘Ohh..., we cut open a new field, only then is it June.’ 1. 16
- d. β : *t-tofa ?teets=i.*
 t-tofa ?tetas=i
 0-weed\U old.field=1DET
 ‘Weeded the old field.’ 1. 18
- e. α : *t-toof n-ok fuun se(?)o.*
 t-tofa\M n-oka funan se(?)o
 0-weed\M 3-with\M month\M nine(ORD)
 ‘Weeded (the field) in September.’ 1. 20
- f. β : *hau, t-toof nai he n-meto, oo.*
 hau t-tofa nai he n-meto oo
 yes 0-weed\M already he 3-dry\U Q
 ‘Yes, weeded (the field) after it’s dried out, as you know.’ 1. 22
- g. α : *neyahh, nean fauk=i na-?uur?*
 neno fauk=i na-?ura
 yeah day how.many=1DET 3-rain\M
 ‘Yeah... which day did it rain?’ 1. 26

The U-form in (133d) above is an example of a verb which is in the U-form for two reasons. On the one hand the word which follows it begins with a consonant cluster, on the other hand it is used to motivate a change of speaker. The question particle *oo* in (133f) is discussed further in §7.7.4.2 below.

U-forms can be used in conversation to maintain interaction between speakers and to motivate a change of speaker. By using a U-form, a speaker signals a lack of resolution while other features such as intonation and silence indicate that the speaker themselves will not resolve the U-form. It thus becomes incumbent on the addressee or audience to provide a resolution to the U-form.

7.7.3 Frequency of U-forms in Conversation

Discourse U-forms are nearly twice as frequent in conversations as in monologues in my corpus. My text collection consists of 182.49 minutes (three hours two minutes) of recorded, transcribed and glossed texts. Of this, 152.37 minutes (two hours thirty-two minutes) are monologues: texts which consist mainly of a single speaker, and 28.32 minutes are conversations: texts in which more than one person regularly speaks.

Of the 321 discourse driven U-forms in my corpus which cannot be explained by phonotactic constraints, 242 occur in monologues and 79 occur in conversations. This gives a frequency rate of 1.57 discourse U-forms per minute in monologues and 2.79 discourse U-forms per minute in conversations. These figures are summarised in Table 7.6.

Table 7.6: Discourse U-forms in Monologues and Conversations

	Mon.	Conv.	all
total length (minutes)	154.17	28.32	182.49
discourse U-forms	242	79	321
U-forms per minute	1.57	2.79	1.76

That discourse driven U-forms are nearly twice as frequent in conversations than in monologues lends quantitative support to an analysis of U-forms as being used interactionally by speakers in conversations to motivate turn taking and change of speaker.

7.7.4 Other Interactional Resources

U-forms are only one of several resources in Amarasi available to speakers to maintain interaction with other speakers. In this section I discuss the way a number of discourse particles interact with discourse driven U-forms.

The addressee particle *tua* indicates that the speaker is about to stop interacting with the addressee. Thus, it cannot co-occur with U-forms, which require a response. On the other hand the question particles *oo* and *kaah* require a response from the addressee. Thus, they combine naturally with U-forms in direct questions.

7.7.4.1 Addressee Particle *tua*

The addressee particle *tua* cannot co-occur with interactional U-forms. This is because such a U-form as unresolved or incomplete and places an obligation on the addressee to respond to the speaker, while *tua* signals that the speaker considers the interaction complete and that they are about to temporarily/briefly stop interacting with the addressee.

The particle *tua* is translated by native speakers as ‘yes’ or ‘Sir/maam’, and they explain that this word makes one’s speech *halus*, Indonesian for ‘smooth, refined, polite’. This interactional particle is transparently related to the inalienably possessed noun *tua-f* which means ‘person’ or ‘owner’ when no possessor is specified (i.e. when the 0GEN suffix *-f* occurs, see §3.6.3.1) and either ‘owner’ or ‘self’ when a possessor occurs.

Two examples of unpossessed *tua-f* ‘person, owner’ are given in (134) and (135) below, and one possessed use meaning ‘self’ in (136). Nearly all examples in my corpus in which the meaning of *tua-f* is unambiguously ‘person’ rather than ‘owner’ involve a quantifier or numeral, as in (134).

- (134) *maski sin tua-f nautn=es es n-euk bidžae naan,*
 maski sin tua-f natun=es es n-eku bidžae naan
 even.if 3PL person-0GEN hundred=one one 3-eat\M cow 2DEM
 ‘Even if a hundred people are the ones who eat that cow,’ 120923-1, 7.09 ◀▶
- (135) *onai =m atoni-? mui? tua-f=e, a|n-biuk.*
 onai =ma atoni-? mu?it tua-f=e n-biku
 and.so man-U animal owner-0GEN=3DET 3-curse\M
 ‘So the owner of the animals casts the *biku* curse.’ 120923-1, 6.24 ◀▶
- (136) *henati? hi m-?aba?kena? hi tua-m=ein.*
 IRR 2PL 1PX/2-cloth,belt\Ū 2PL self-1PX/2GEN=PL
 ‘So that you dress yourselves with a cloth belt.’ 130825-3, 2.04 ◀▶

These meanings of *tua-f* ‘person, owner’ are helpful in understanding the discourse uses of the particle *tua*, which I gloss ADDR ‘addressee’. An important part of the use of this particle is to signal to the addressee that you acknowledge that the addressee is a person with whom you are socially connected.

The different functions of the particle *tua* are summarised in (137) below, all of which also contain an element of politeness. Each of these different uses is exemplified further below.

- (137) Uses of *tua*:
- taking leave of someone
 - indicating the end of a turn in a conversation
 - acknowledging one is listening to someone else
 - ending a monologue
 - acknowledging instructions to begin a monologue
 - addressing the deceased

A statement of the functions of *tua* which covers all these uses is as follows: *tua* is used by a speaker to signal to the addressee that the speaker is about to stop interacting with them (even if only for a moment) but that the speaker still wishes to be socially connected to the addressee. A plain language definition of *tua* phrased in the first person is given in (138).

(138) Definition of *tua*:

- a. We have been talking to one another.
- b. I am about to stop talking to you.
- c. But I want you to know that I will want to talk to you again.

In Amarasi culture it is rude to pass by someone and not speak to them. Silence towards another person is interpreted as a sign of a damaged relationship or anger (which is considered dangerous) towards that person. As a result, people coming across one another during everyday activities are socially obliged to make small talk. Such small talk typically involves asking questions such as where the other person is going or where they are coming from. Two typical small talk questions and possible answers are given in (139) and (140) below.

- | | | |
|-------|--|---|
| (139) | a. <i>ho m-nao on mee?</i>
2SG 1PX/2-go IRR.LOC where
'Where are you going?' | b. <i>(au) ?-nao on rene.</i>
1SG 1SG-nao IRR.LOC field
'I'm going to my field.' |
| (140) | a. <i>ho m-o?ka mee?</i>
2SG 1PX/2-ABL where
'Where have you come from?' | b. <i>(au) ?-o?ka ata-n nee.</i>
1SG 1SG-ABL up-3SG.GEN 3DEM
'(I've come) from up there.' |

In Amarasi society the cultural imperative to interact in this way is so strong that speakers will yell out to one another across valleys or through the bush if they are aware that someone else is present. If the bush is so thick, or the distance so great such that the location of the other person cannot be pin-pointed exactly, speakers will resort to *n-koa?* 'whoop, yell a sound (without words)'. Similarly, when going past someone at speed on a motorbike or in a car, honking the horn is sufficient social interaction, though a comment is considered even more polite.

Interactions such as those in (139) and (140) do not generally occur on their own. Once someone has made small talk, they need strategies for ending the interaction to carry on whatever activity they were doing or to continue on their way. This can be done by taking leave of the addressee with any number of phrases, all of which end in the particle *tua*. A sample of the most common leave taking phrases are given in (141)–(144) below. The usual (and sufficient) response to all such leave taking phrases is the word *tua* by itself.

- | | |
|--|---|
| (141) Passing a stationary person: | (142) Returning home: |
| <i>au ?-koongw=en, tua.</i>
au ?-kono=en tua
1SG 1SG-pass\M=INCEP ADDR
'I'll keep going now.' | <i>au ?-faandz=en, tua.</i>
au ?-fani=en tua
1SG 1SG-back\M=INCEP ADDR
'I'm going to head back now.' |

- | | |
|--|---|
| <p>(143) Continuing after conversation:</p> <p><i>au</i> ?-naagw=en, <i>tua.</i>
 au ?-nao=en tua
 ISG ISG-go\M=INCEP ADDR
 ‘I’ll get going again.’</p> | <p>(144) Overtaking (i.e. on motorbike):</p> <p><i>hai mi-huun,</i> <i>tua.</i>
 hai mi-hunu tua
 1PX 1PX/2PL-first\M ADDR
 ‘We’re going on ahead.’</p> |
|--|---|

Any of the phrases in (141)–(144) above constitutes a sufficient social interaction on its own. In addition, while typical, the occurrence of final *tua* is socially constrained. Children taking leave of adults must use final *tua* while adults taking leave of a close friend who they will probably interact with in the near future are free to drop the *tua*.

Another context in which *tua* frequently occurs is when eating or drinking. Eating and drinking are important social activities in Amarasi society and it is impolite to eat or drink alone without offering food or drink to other people nearby. However, there are certain situations in which a person may find themselves eating or drinking but unable to offer anything to other people.

Someone may have got food from a buffet, from which the others will soon eat, in which case phrase (145) below is the usual way to ask permission to begin eating. Likewise, a host may have already served tea and/or coffee to a group of guests sitting around on the verandah, after which another person walks past on their way somewhere else, in which case those drinking will use a phrase such as (146) below.¹⁸

- | | |
|---|--|
| <p>(145) <i>au</i> ?-bukaadɔ=en, <i>tua.</i>
 au ?-bukae=en tua
 ISG ISG-dine\M=INCEP ADDR
 ‘I’m about to start eating.’</p> | <p>(146) <i>hai m-iun</i> <i>oa, tua.</i>
 hai m-inu oe tua
 1PX 1PX/2-drink\M water ADDR
 ‘We’re just having a drink.’</p> |
|---|--|


Those who are not (yet) eating or drinking can respond to these statements with a phrase such as that in (147) below, or simply with *tua* itself. In the case of a buffet when it is clear that others will soon have an opportunity to eat, they often say: “*Tua, tua!*” to emphasise that it really is fine for the eater to begin.

- (147) *bukae nai, tua!*
 dine already ADDR
 ‘Yes, please eat/drink!’


In general conversation a speaker uses *tua* to indicate that their conversational turn is over, after which others are free to contribute to the conversation. Two examples are given in (148) and (149) below.

¹⁸ In both situations the person asking permission usually raises their plate or glass towards those who are not (yet) eating or drinking.

In (148) below speaker- α and speaker- β are the main participants in the conversation. In (148a) speaker- α makes a statement, speaker- β then expresses his interest in this statement with an exclamation in (148b). However, speaker- γ interjects but ends his statement with *tua*, thus indicating that speaker- α and speaker- β are free to resume their conversation.

- (148) Talking about farming: 130909-6 
- a. α : *n-hetu uutn=i =t, es ka= bisa =fa.*
 n-hetu utan=i =te es ka= bisa =fa
 3-pick\U vegetables=1DET =SET one NEG= can =NEG
 ‘Picking vegetables, (he) can’t even do that.’ 2.42
- b. β : *Hau bah!*
 ‘Yes, indeed!’ 2.44
- c. γ : *n-pea =t na-?koro? bian, tua.*
 n-peo =te na-?koro? bian tua
 3-talk =SET 3-hide\U other ADDR
 ‘(He) talked (about it) and hid others.’ 2.44
- d. β : *ahh bai? Tobias n-ak, na-?koro? bian, haa!...*
 ba?i Tobias n-ak na-?koro? bian
 PF T. 3-say 3-hide\U other
 ‘Grandfather Tobias said he hid others.’ 2.45

In example (149) speaker- α is collecting meta-data. This meta-data consists of two questions: the narrator’s name and where he comes from. In (149a) speaker- α asks the first question and also addresses the narrator as *papa* ‘dad’ to express politeness. In (149c) speaker- α ends the second question with *tua*, indicating that he does not intend to ask more questions. The collection of meta-data is over and speaker- β can begin his story.

- (149) Collecting meta-data: 120923-1 
- a. α : *papa, ho kaan-m=i sekau, papa?*
 papa ho kana-m=i sekau papa
 dad 2SG name-1PX/2GEN=1DET who dad
 ‘Dad, what’s your name, dad?’ 0.01
- b. β : *au kaan-k=i Melkias Mna?o.*
 au kana-k=i Melkias Mna?o
 1SG name-3PL/1GEN=1DET M. M.
 ‘My name is Melchias Mna’o.’ 0.03
- c. α : *ho mu-?ko mee, tua.*
 2SG 2SG-ABL where ADDR
 ‘Where are you from?’ 0.04
- d. β : *au u-?ko Binoni Aufme?e, desa dua.*
 au 1SG-ABL B. A. village two
 ‘I’m from Binoni Aufme’e, village number two.’ 0.08

The word *tua* alone constitutes an acceptable conversational turn, in which case it merely indicates that the speaker is listening. Two examples are given in (150) below.

- (150) Asking about the *biku* curse: 120923-1 ◀
- a. α : *m-ak nehh, on karu he on moa- mu-taan =kau n-ok*
 1PX/2-say IRR.LOC if IRR IRR.LOC 2SG-ask\M =1SG.ACC 3-with\M
re? biku, cara biikgw=i?
 GVN.OBJ curse method curse=1DET
 ‘So you’re asking me about the *biku* curse, the method by which the *biku* curse is cast?’ 8.51
- b. β : *tua.*
 ‘Yes.’ 8.55
- c. α : *biku bukan na-tona=n paah=i.*
 curse NEG 3-tell\Ū=PL country=1DET
 ‘A *biku* curse is not proclaimed to the (spirits in the) land.’ 8.56
- d. β : *tua.*
 ‘OK’ 8.58
- e. α : *a|n-moo?ɔ̄=e n-ok hau, papa!*
 3-do=3SG.ACC 3-with\M spell dad
 ‘It’s done with a spell, dad!’ 8.59

In monologues *tua* commonly occurs at the end of a story or speech to indicate that the monologue is over. Two examples are given in (151) and (152) below. Example (152) is a typical high level discourse closure.

- (151) *hai ?aa?-t=i na-m-soup =ma n-heun-ʔ=o-n,*
hai ?aʔa-t=i na-m-sopu =ma n-henu-ʔ=o-n,
 1PX poetic.speech-NML=1DET 3-STAT-finish\M =and 3-fill\M-TR=REFL-3SG.GEN
on naan nai, tua.
on naan nai, tua
 IRR.LOC 2DEM already ADDR
 ‘Our poetic speech is now finished and complete like that.’ 130825-3, 2.35 ◀
- (152) *on re? naan, tua.*
 like 2DEM ADDR
 ‘That’s how it is.’ 120715-1, 1.31 ◀

If someone else has asked the narrator to tell a particular story, *tua* can be used by the narrator at the very beginning of the story to acknowledge the other speaker’s instruction, stop interacting with them and begin their monologue. Two examples are given in (153) and (154) below, in each example the narrator has been instructed by someone else to begin.

- (153) *au kaan-k=i* *bi Oma, tua.*
 au kana-k=i bi Oma tua
 1SG name-3PL/1GEN=1DET Ms. O. ADDR
 ‘My name is Oma.’ 120715-2, 0.01 🔊
- (154) *re? ahh uab* *uun?=ein, tua.*
 re? uaba unu?=ein tua.
 REL speech past=PL ADDR.
 ‘So (I’ll tell) some old stories.’ 120715-3, 0.07 🔊

I have one monologue in which *tua* occurs extremely frequently throughout the text. This is a text of a woman mourning for her recently deceased grandmother. After a death in Amarasi society, the body of the deceased is washed, clothed, prepared for burial and then laid in an open casket overnight while the family stays awake. When a family member wishes to express their grief, they can do so by addressing the deceased, whose body is present in the room. Two examples of *tua* from this mourning text are given in (155) and (156) below.

- (155) *airoo! kasian! ma bait* *ho saa? naa na-mena =te, ho mu-toon =kai*
 airoo kasian ma baiti ho saa? naa na-mena =te ho mu-tona =kai
 oh! pity! and actually 2SG something 3-sick\U =SET 2SG 2SG-tell\M =1PX.ACC
he hai mi-hiin *tua, nene!*
 he hai mi-hini tua nene
 IRR 1PX 1PX/2PL-know\M ADDR PM
 ‘Oh! Pity! And you had something that was sick and you told us so we knew. Oh, Grandma!’ 130823-8, 4.44
- (156) *airoo! benu?! ma t-bee?* *=te oke? =te ?-reun =ko =fa*
 airoo benu? ma t-be?e =te oke? =te ?-renu =ko =fa
 oh! goodness! and 1PI-stay.awake\M =SET after.that 1SG-order\M =2SG.ACC =NEG
he m-tupa *=te, ka= m-roim =fa, tua!*
 he m-tupa =te ka= m-romi =fa tua
 IRR 1PX/2-sleep\U =SET NEG= 1PX/2-like\M =NEG ADDR
 ‘Oh! Goodness! And when we stayed up I then told you to sleep, but you didn’t want to!’ 130823-8, 5.22

The particle *tua* does not co-occur with discourse U-forms. In my corpus there are 24 clauses with both an M-form and the particle *tua*, and no examples of a discourse U-form co-occurring with *tua*.

Not only is *tua* unattested with discourse U-forms, it is infelicitous with them. Every possible way of saying ‘I don’t know’ in Kotos Amarasi with each combination of ±metathesis and ±*tua* is given in (157) below.

Of these, native speakers consider (157a) and (157b) normal, with (157a) being more polite than (157b). Native speakers judge example (157c) to be even more respectful or polite while (157d) — with both a U-form and *tua* — is considered funny.

- (157) a. *au ka= u-hiin =fa.*
 au ka= u-hini =fa
 ISG NEG= ISG-know\M =NEG
- b. *au ka= u-hini =f.*
 au ka= u-hini =fa
 ISG NEG= ISG-know\U =NEG
- c. *au ka= u-hiin =fa, tua.*
 au ka= u-hini =fa tua
 ISG NEG= ISG-know\M =NEG ADDR
- d. # *au ka= u-hini =f, tua.*
 au ka= u-hini =fa tua
 ISG NEG= ISG-know\U =NEG ADDR
 'I don't know.'

The inability of *tua* to co-occur felicitously with U-forms is explained by a clash in the functions of these two discourse resources. The particle *tua* signals that the speaker is going to temporarily stop interacting with the addressee, while a U-form marks the communication as unresolved and thus places an obligation on the addressee to respond to the speaker.

7.7.4.2 Question Particles

There are three common tag question particles in Amarasi, given in Table 7.7 below. The tag question particles *oo* and *kaah* invite a response and combine naturally with discourse U-forms which signal lack of resolution.

Table 7.7: Amarasi Tag Question Particles

Prt.	Usage
<i>aa</i>	'I think this'
<i>oo</i>	'You should do this.'
<i>kaah</i>	'I think this, what do you think?'

The particle *oo* is often used as the language of power to obligate the addressee to respond and confirm or comply with the expectation of the speaker, thus resolving any U-form with which it occurred.

The particle *kaah* marks that the speaker is not sure of the content of their question and invites the addressee to correct, confirm, or deny the assumption, and thus resolve any U-form with which *kaah* occurred. The particle *aa* is often used in rhetorical questions to which the addressee is not expected to respond. A typical example is given (158) below, which represents a very common question asked when someone turns to go back home.

- (158) *ho mu-faandɔ̄=en aa?*
 ho mu-fani=en aa
 2SG 2SG-back=INCEP Q
 ‘So, you going back, are you?’

The particle *aa* cannot be felicitously combined with a direct question when the speaker is genuinely unsure about the answer. This is the case no matter whether a U-form or M-form is used. This is shown in (159) below.

- (159) Asking if someone drinks alcohol: elicit. 13/06/16 p.15
- | | |
|--|--|
| <p>a. # <i>ho m-inu, aa?</i>
 ho m-inu aa
 2SG 1PX/2-drink\U Q
 ‘You’ll drink, right?’</p> | <p>a. # <i>ho m-iun, aa?</i>
 ho m-inu aa
 2SG 1PX/2-drink\M Q
 ‘You’ll drink, right?’</p> |
|--|--|

When used in direct questions where the speaker genuinely wants an answer, the tag question particles *oo* and *kaah* combine naturally with a U-form, as shown in (160a) and (160c) below, but are not natural with an M-form, as shown in (160b) and (160d) below.¹⁹

- (160) Asking if someone drinks alcohol: elicit. 13/06/16 p.15
- | | |
|--|--|
| <p>a. <i>ho m-inu, oo?</i>
 ho m-inu oo
 2SG 1PX/2-drink\U Q
 ‘You’ll drink, won’t you?’</p> | <p>b. # <i>ho m-iun, oo?</i>
 ho m-inu oo
 2SG 1PX/2-drink\M Q
 ‘You’ll drink, won’t you?’</p> |
| <p>c. <i>ho m-inu, kaah?</i>
 ho m-inu kaah
 2SG 1PX/2-drink\U NEG
 ‘You’ll drink, won’t you?’</p> | <p>d. # <i>ho m-iun, kaah?</i>
 ho m-inu kaah
 2SG 1PX/2-drink\M NEG
 ‘You’ll drink, won’t you?’</p> |

A discourse U-form combines naturally with the tag question particles *oo* and *kaah*. This is because a U-form signals lack of resolution, the particle *oo* places an obligation on the addressee to respond and thus resolve the U-form, and the particle *kaah* invites the addressee to answer and thus resolve the U-form.

7.7.5 Summary

U-forms are used in conversation to maintain interaction between speakers. A speaker can use a U-form to signal a lack of resolution. If the same speaker does not provide a resolution,

¹⁹ The form *kaah* is also the negator. Its uses as a tag question can be compared with English examples such as ‘You drink, don’t you?’

it becomes incumbent upon the addressee to provide a resolution. Question/answer pairs are one subtype of this function, with questions being posed in the U-form and answered in the M-form.

Discourse U-forms combine naturally with the question particles *oo* and *kaah* which both require a response from the addressee, but these particles do not combine naturally with M-forms in direct questions. Because U-forms mark a lack of resolution, they do not combine with the particle *tua* which indicates that the interaction is about to end.

7.8 Conclusion

The different combinations of M-forms and discourse U-forms which are found in Amarasi are summarised in Table 7.8. Metathesis in Amarasi is a morphological device used to signal whether a situation, event or communication is resolved or not. U-forms are used to signal a lack of resolution with more information being required to achieve such resolution.

Table 7.8: Summary of U-form and M-form Combinations[†]

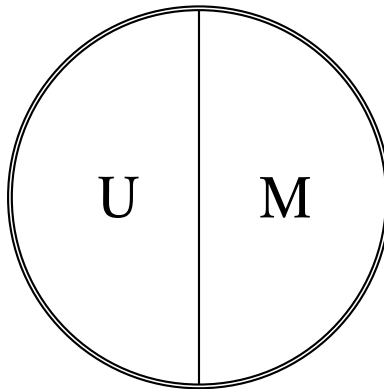
	decl. clause	Dep. Coord.	THL	Poetry	Chiasmus	Q/A	Convers.
MM	✓			§7.5		§7.7.1	
UM		§7.3		§7.5		§7.7.1	§7.7.2
UU							
MU							(§7.7.2)
MMM	✓						§7.7.2
UMM			§7.4.2				
UUM			§7.4.3				§7.7.2
MUM			§7.4.1		§7.6		
UMU							
MMU							
MUU							
UUU							(§7.7.2)

[†] decl. clause = declarative clause, Dep. Coord. = Dependent Coordination, THL = Tail-head linkage, Q/A = question-answer pairs, Convers. = Conversation

Table 7.8 shows that nearly all attested combinations of an M-form and a discourse U-form have an M-form as the final element. U-forms are canonically resolved by an M-form. This is seen most clearly in tail-head linkage (§7.4), question-answer pairs (§7.7) and in poetic parallelisms (§7.5) in all of which U-forms are obligatorily resolved by M-forms. It is also seen in dependent co-ordination (§7.3) and chiasmus (§7.6) in which U-forms are overwhelmingly resolved by M-forms.

A discourse U-form entails the presence of a corresponding M-form somewhere in the discourse. The use of a U-form obliges the speaker or other discourse participants to supply an M-form to complete the discourse structure in which both occur. At the discourse level, U-forms and M-forms comprise a parallel and complementary pair of morphological forms; they are a dyadic set, with each form being one half of a whole. The complementary and parallel nature of discourse U-forms and M-forms in Amarasi is represented in Figure 7.2.

Figure 7.2: Amarasi Discourse Metathesis



Chapter 8

Contributions and Conclusions

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8.1 Metathesis in Linguistics

Previous works on metathesis have mainly viewed the phenomenon through a phonological lens. This has led to much useful development of phonological models and analyses which can account for metathesis. In this thesis I have gone beyond phonological a account, and have provided perhaps the first detailed study of both the form *and* function of metathesis in a single language, Amarasi.

Like some other languages with synchronic metathesis, such as Rotuman, Leti and Helong (see §2.4), metathesis in Amarasi is not a unitary phenomenon. Instead, we can identify three kinds of metathesis: one kind of phonologically conditioned metathesis and two kinds of morphological metathesis, one with a syntactic function and one with a discourse function.

In the greater Timor region (and more widely) metathesis is often used as a construct form marking attributive modification. Other languages in which metathesis is a construct form include Rotuman, Leti, Roma, Mambae and Helong (§2.4). The large number of languages which have the same function for metathesis is probably connected with the way in which consonant-vowel metathesis develops.

Metathesis with a discourse function has previously reported for Luang, in which metathesis of verbs occurs at certain points in the narrative structure, namely: “Known information and mainline event information, especially at peak points of the story.” (Taber and Taber 2015:24). However, under the analysis of Taber and Taber (2015), metathesis in Luang is a phonological process which occurs in reaction to the need to join words into a single rhythm unit; a phrase with only one stressed syllable.

Metathesis in Kwara’ae, in which both forms are used in different speech registers, could be construed as a kind of discourse metathesis. Again, however, metathesis in Kwara’ae can be successfully analysed as a result of the stress rules of the language (Heinz 2004).

Neither syntactic nor discourse metathesis in Amarasi can be reduced to being the accidental side effect of some other, more important, phonological process (see §4.5.3.1). Instead, the two generalisations which allow us to account for all the different phonological processes found in the formation of M-forms are an obligatory CVCVC foot (with empty C-slots) and a rule of consonant-vowel metathesis; $CV \rightarrow VC / \acute{V} _$.

Blevins and Garrett (1998) showed how a process of synchronic metathesis can develop through a number of phonetically natural steps (see §2.5.1.1) and in §4.6.2 I showed that there is evidence that Amarasi developed its metathesis according to the pathway labelled ‘compensatory metathesis’ by Blevins and Garrett (1998); this is a kind of metathesis which originally arose in certain prosodically conditioned environments.

Metathesis in Amarasi is no longer restricted these environments. Unlike Kwara’ae or Luang, metathesis in Amarasi has escaped from any original phonological constraints and now runs throughout the whole language. From the simple occurrence of isolated words where nouns are cited in the U-form and verbs in the M-form, right up to complex clause chaining phenomena such as tail-head linkage, the single phenomenon the analyst encounters time and time again is metathesis.

Nearly all areas of Amarasi grammar interact with metathesis. In Chapter 4 I posited that the creation of a morphological metathesis paradigm led to the imposition of the CVCVC foot to all words of the language in order to provide the necessary machinery for consonant-vowel metathesis to operate, and thereby allow each word to fill both cells of the morphological paradigm. In this way metathesis has taken over the phonology of Amarasi and become the central organising principle by which words are phonologically structured.

The phonology is not the only linguistic sub-domain to have been invaded by metathesis. In Chapter 5 I showed that at the phonology-syntax interface, it is metathesis which marks a clear phonological boundary between clitic hosts and enclitics, separate syntactic heads which would be phonologically conjoined were it not for metathesis.

In Chapter 6 I showed that it is metathesis which marks the structure of the noun and

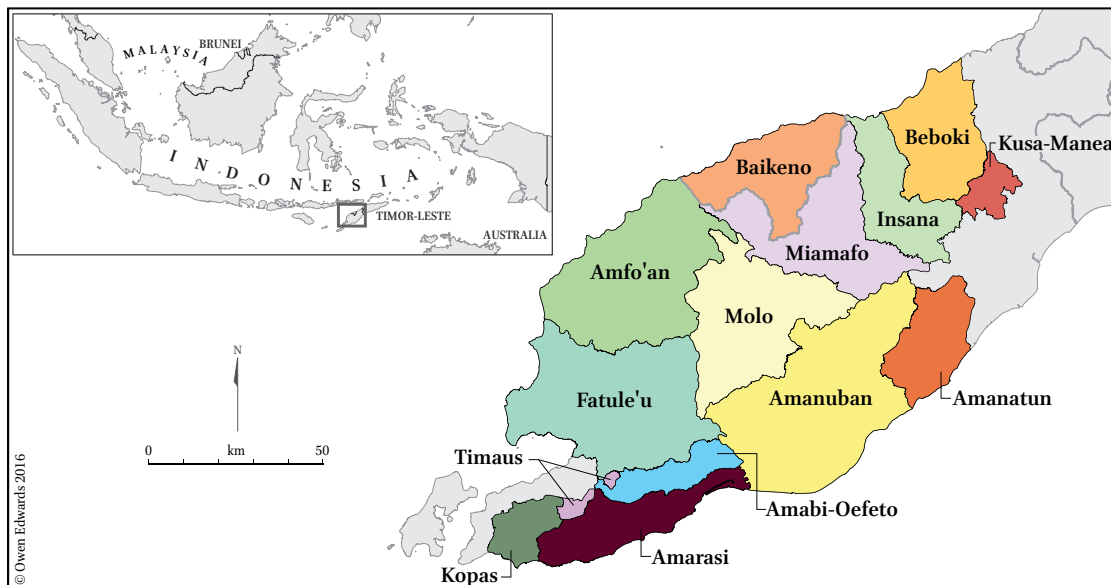
verb phrase by marking the presence of an attributive modifier which belongs to the same word class as the head of a phrase.

In Chapter 7 I showed that in narratives it is metathesis which advances the plot through tail-head linkage and dependent co-ordination. In multi-speaker discourse metathesis is the social glue which binds the conversation together. Unmetathesised and metathesised forms are employed as question-answer pairs, and signal the end of a conversational turn, thereby carrying forward inter-speaker communication.

Metathesis in Amarasi is not merely an epiphenomenon or exotic curiosity. Rather, it is the central feature around which other linguistic structures are organised. In addition to being the key which unlocks the structure and the genius of the language, metathesis in Amarasi is best seen as a linguistic instantiation of two pervasive ethnographic traits of the Amarasi people: identity and parallelism.

8.2 Metathesis and Identity

Figure 8.1: Self-Identified Varieties of Uab Meto



It is well known that language is frequently employed as a marker of identity (Milroy 1982, Edwards 2009, Fishman and García 2010). This is also the case in western Timor in which the four main ethnic identities of the region are delineated according to language: Rote, Helong, Tetun, and the Atoni, who speak Uab Meto.¹

¹ The term Atoni comes from the word *atoni?* 'man; person' and can be used to refer to the ethnic group.

Within each of these groups, further identities also exist. While the Atoni (Uab Meto speakers) self-identify as a single cultural and linguistic group, they also acknowledge internal cultural and linguistic differences between groups. The labels used for the prescriptively defined different groups, as given in Figure 8.1, correspond almost exactly to the historic kingdoms of the region.

One kind of cultural difference found between groups is different weaving traditions. An example of Amarasi cloth, Baikeno cloth and Fatule'u cloth is given in Figures 8.2–8.4 below. Further differences in weaving are also found between individual hamlets. Thus, the use of blue lines between the geometric maroon patterns in Figure 8.2 is distinctive of Koro'oto hamlet while the hamlet of Ponain uses yellow lines.

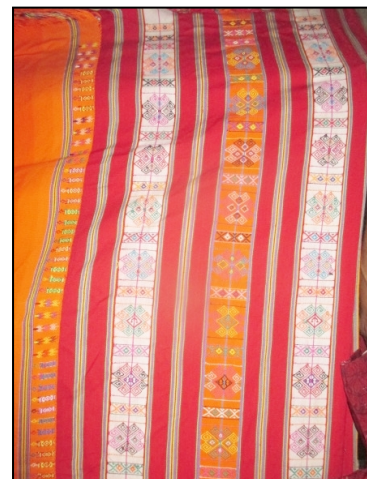
Figure 8.2: Amarasi Cloth



Figure 8.3: Baikeno Cloth



Figure 8.4: Fatule'u Cloth



Another example of enacted identity can be found in the different methods employed to count corn, the traditional crop of western Timor. As reported by Grimes and Bani (2011), Kotos Amarasi counts corn in units of *rean*, with one *rean* being 400 cobs of corn. In the Tais Nonof variety of Amarasi, corn is counted by the *nifu* (thousand). In some other regions corn is counted by *kuda* (Indonesian for 'horse') with one *kuda* consisting of 80 cobs of corn.

Such differences are salient to the Atoni. When collecting data on Fatule'u I was accompanied by my main Amarasi informant, Heronimus Bani (Roni). After I had collected a word-list, Roni asked about cloth design in Fatule'u; what the different parts of the pattern were called, and what these patterns symbolised. He also asked how corn was counted in Fatule'u and volunteered that in Amarasi corn was counted by *rean*.²

The Atoni agree that they speak a single language: Uab Meto. However, they also acknowledge that there are differences in how people speak in different places, differences

² None of this discussion was prompted. It was undertaken entirely on Roni's own initiative.

which can often accumulate to such an extent that they seriously hinder communication.

In my experience, Atoni from different regions often talk in a mixture of Uab Meto and Indonesian/Kupang Malay. The use of Uab Meto enables expression of their shared identity and the use of Indonesian/Kupang Malay enables effective communication. One or more speakers will also usually adapt their speech to perceived norms of their interlocutors.

The Atoni are aware to varying degrees of salient differences between different varieties of Uab Meto. It is fairly common knowledge, for instance, that Amarasi has /r/ while other varieties have /l/.³ Similarly, on a more local scale speakers of Kotos Amarasi and Ro'is Amarasi (the two major dialects of Amarasi) are aware of some differences between one another's speech, and when asked, my Kotos informants would gleefully try to imitate Ro'is speech.

One obvious kind of linguistic difference between different varieties of Uab Meto is the existence of different lexemes. A selection of lexemes in several varieties of Uab Meto and other languages of western Timor is given in Table 8.1. Although the difference between a Uab Meto variety and another language is greater than that between individual varieties of Uab Meto, the internal diversity of Uab Meto is not insignificant.

Table 8.1: Lexical Differences between Speech Varieties of western Timor

	'earth'	'thorn'	'grass'	'red' [†]	'bamboo' [‡]	'cheek' [§]	'dreams'
Amarasi	<i>afu</i>	<i>aika?</i>	<i>huun</i>	<i>me?e</i>	<i>oo</i>	<i>kinu-</i>	<i>na-mnei</i>
Amanuban	<i>nain</i>	<i>sakunat</i>	<i>huun</i>	<i>mee?</i>	<i>oo</i>	<i>su?i-</i>	<i>na-nae?</i>
Amanatun	<i>nain</i>	<i>kasunat</i>	<i>huun</i>	<i>mee?</i>	<i>oo</i>	<i>su?i-</i>	<i>na-nae?</i>
Fatule'u	<i>afu</i>		<i>ma?u</i>	<i>mtasa?</i>	<i>kaka?</i>	<i>skumu-</i>	<i>n-unmae?</i>
Molo	<i>afu/nadzan</i>	<i>katila?</i>	<i>ma?u</i>	<i>mtasa?</i>	<i>petun</i>		<i>n-?unmae?</i>
Amfo'an	<i>naidzan</i>	<i>kalila?</i>	<i>huun</i>	<i>mtasa?</i>	<i>kaka?</i>		<i>na-smaan</i>
Baikeno	<i>naidzaan</i>	<i>kalila?</i>	<i>huun</i>	<i>mee?</i>	<i>petun</i>		<i>na-mnei</i>
Timaus	<i>afidz</i>	<i>katila?</i>	<i>naba?</i>	<i>mee?</i>	<i>oogw</i>	<i>kunkunu-</i>	<i>n-mai</i>
Kopas	<i>afu</i>	<i>katila?</i>	<i>?naba?</i>	<i>mee?</i>	<i>kaka?</i>	<i>?su?i-</i>	<i>na-mnai</i>
Helong	<i>dale</i>	<i>duli?</i>	<i>muus</i>	<i>mea</i>	<i>uun</i>		<i>natloa</i>
Lole (Rote)	<i>dae</i>	<i>dilak</i>	<i>na?u</i>	<i>mbilas</i>	<i>oo</i>	<i>nasuk</i>	<i>me?i</i>
Dela (Rote)	<i>rae</i>	<i>mangou?</i>	<i>uru</i>	<i>mbilas</i>	<i>oo</i>	<i>nasu?</i>	<i>na-lamein</i>
Tetun	<i>rai</i>	<i>ktarak</i>	<i>hae</i>	<i>mean</i>	<i>au</i>	<i>hasan</i>	<i>me?i</i>

[†] In Amarasi *mtasa?* means 'ripe' and *me?e mtasa?* 'maroon'.

[‡] The generic words for bamboo.

[§] In Amarasi *?su?i-* is 'chin' and in Amabunan *kino-* is 'sideburns'.

³ The situation is, in fact, more complex. Amabi, some southern varieties of Fatule'u and Kusa-Manea also have /r/ instead of /l/. Timaus has both /l/ and /r/ (the latter of which has developed from *dʒ). These additional complexities do not enter into the popular discourse about differences.

8.2.1 Realisation of U-forms and M-forms

Another marker of linguistic identity among the Atoni is metathesis: different ways of realising U-forms and M-forms, different environments in which these forms are used and different functions of these forms. Some differences in the realisation of U-forms and M-forms between eight different varieties of Uab Meto are given in Table 8.2, with identical forms indicated by identical colours.

Table 8.2: Variation in U-forms and M-forms[†]

	'three'		'dog'		'wood, tree'		'fire'		'sky, day'	
	U	M	U	M	U	M	U	M	U	\bar{M}
Amarasi _K	<i>tenu</i>	<i>teun</i>	<i>asu</i>	<i>aus</i>	<i>hau</i>	<i>hau</i>	<i>ai</i>	<i>ai</i>	<i>nenog</i>	<i>neengw=</i>
Amarasi _F	<i>tenu</i>	<i>teun</i>	<i>asu</i>	<i>aus</i>	<i>hau</i>	<i>hau</i>	<i>ai</i>	<i>ai</i>	<i>nenog</i>	<i>neengw=</i>
Amanuban	<i>tenu</i>	<i>teun</i>	<i>asu</i>	<i>aos</i>	<i>hau</i>	<i>hau</i>	<i>ai</i>	<i>ai</i>	<i>nenog</i>	<i>neengw=</i>
Baikeno	<i>tenu</i>	<i>teun/teen</i>	<i>asu</i>	<i>aos</i>	<i>haub</i>	<i>hau</i>	<i>aidz</i>	<i>ai</i>	<i>nenog</i>	<i>neengw=</i>
Amfo'an	<i>tenu</i>	<i>teen</i>	<i>asug</i>	<i>asu</i>	<i>haug</i>	<i>hau</i>	<i>aidz</i>	<i>ai</i>	<i>nenog</i>	<i>neengw=</i>
Fatule'u	<i>tenu</i>	<i>teenw</i>	<i>asu</i>	?	<i>haub</i>	<i>hau</i>	<i>aadz</i>	<i>ai</i>	<i>nenog</i>	<i>neengw=</i>
Kopas	<i>tenu</i>	<i>teun/teen</i>	<i>asu</i>	?	<i>haag</i>	<i>hau</i>	<i>aadz</i>	<i>ai</i>	<i>nenog</i>	?
Timaus	<i>tenu</i>	<i>teenw</i>	<i>asidz</i>	<i>asu</i>	<i>haadz</i>	<i>hau</i>	<i>aar</i>	<i>ai</i>	<i>nenugw</i>	<i>neengw=</i>

[†] Amarasi_K = Kotos Amarasi from Koro'oto hamlet, Amarasi_F = Kotos Amarasi from Fo'asa' hamlet, Amfo'an = Naitbelak Amfo'an from Ta'en hamlet, Fatule'u = Bineon-Koa' hamlet, Kopas = Tuale'u hamlet, Timaus = Sanenu hamlet. See §4.5.1.3.2 for more discussion of the word final consonant insertion seen in a number of Uab Meto varieties.

Table 8.2 shows that there is an extensive array of realisations for U-forms and M-forms. The three different processes which occur are: metathesis, consonant insertion and vowel shift or assimilation. Different combinations of these processes not only occur in different Uab Meto varieties, but two particular varieties of Uab Meto do not necessarily treat all words of the same phonotactic shape in the same way.

Nouns undergo metathesis in all (known) varieties before vowel initial enclitics, but with or without insertion of different consonants (which occurs with or without assimilation of final /n/).⁴ A number of varieties mark U-forms ending in a vowel sequence by consonant insertion, though in different varieties different consonants are inserted and are accompanied by different degrees of vowel assimilation. Words which end in CV# can have basic M-forms marked by metathesis (with presence or lack of various kinds of vowel assimilation) or by lack of consonant insertion, with some Uab Meto varieties also showing variation between different word classes.

⁴ Amanuban is the only variety for which consonant insertion is not attested. This may be a limitation of the data. Consonant insertion in Amanuban has been attested for nouns which end in a vowel sequence before vowel initial enclitics, as well as for CV# final verbs before the inceptive enclitic *-en*.

In the context of other linguistic alternations and markers of identity, such differences in the realisation of U-forms and M-forms are an additional strategy for marking linguistic identity. Initial evidence also strongly indicates that they are perceived this way by both insiders and outsiders.

My Amfo'an data was collected on a trip I made with friends from So'e, who are speakers of Amanuban. On the way up to Amfo'an, my friends reported that “all the words there end in /g/”, referring to the process of consonant insertion used to form the U-forms of nouns which end in /o/ and /u/ (§4.5.1.3.2), i.e. Amanuban *nenog* Amfo'an *nenog* ‘day, sky’.

When I later collected a word-list of Amfo'an, I had initially written the name of the language as *Uab Meto* and the dialect as *Amfo'an*. The first word on my word-list to occur with word final consonant insertion was *sisidz* ‘flesh’ (cf. Amarasi *sisi*). It was upon eliciting this word, with its distinctive final insertion of /dz/, that my Amfo'an informants said that I should write the name of their dialect specifically as *Naitbelak Amfo'an*. I later collected the names of about half a dozen different varieties of Amfo'an, all of which were reported to have different a accent/dialect (Indonesian, *logat*), as well as different cloth designs.

Similarly, Amarasi speakers from Koro'oto hamlet know that speakers from Fo'asa' hamlet have different M-forms before enclitics (i.e. Koro'oto *neengw=e*, Fo'asa' *neong=e* ‘the sky, day’). Likewise, when collecting data on Fatule'u, Kopas and Timaus while accompanied by Roni (my main Amarasi informant), the different patterns of metathesis and consonant insertion in these Uab Meto varieties were quite noticeable to him.

Furthermore, initial evidence suggests that differences in the realisation of U-forms and M-forms are quite difficult for speakers of different varieties of Uab Meto to copy. In discussions with Roni after collecting Timaus data, he was generally unable to reproduce the kinds of consonant insertion seen there, despite the correspondences between Amarasi and Timaus being regular.

Similarly, I have overheard speakers of Amanuban attempt, but fail, to correctly copy patterns of metathesis in Amarasi. While Amanuban speakers know there are differences in vocabulary and metathesis between their speech and Amarasi, they are not necessarily able to combine the two together correctly. This is in contrast with other some other differences, such as the use of /r/ in Amarasi where Amanuban has /l/.

Compare examples (1) and (2) below, which shows the same way of saying a number of phrases in Amanuban and Amarasi. In both varieties verbs before vowel initial enclitics undergo consonant insertion, metathesis and vowel assimilation, but with different consonants inserted. Where Amarasi inserts /gw/, Amanuban inserts /w/. Where Amarasi inserts /dz/, Amanuban inserts a palatal glide /y/.

- | | |
|---|--|
| (1) Amanuban: <ul style="list-style-type: none"> a. <i>hai m-faany=en</i>.
hai m-fani=en
1PX 1PX/2-back\̄M=INCEP.
'We'll head back now.' b. <i>hai m-naaw=en</i>.
hai m-nao=en
1PX 1PX/2-go\̄M=INCEP.
'We'll get going now.' c. <i>hai m-finy=en</i>.
hai m-fini=en
1PX 1PX/2-pass\̄M=INCEP.
'We'll keep going now.' | (2) Amarasi: <ul style="list-style-type: none"> a. <i>hai m-faandɟ=en</i>.
hai m-fani=en
1PX 1PX/2-back\̄M=INCEP.
'We'll head back now.' b. <i>hai m-naagw=en</i>.
hai m-nao=en
1PX 1PX/2-go\̄M=INCEP.
'We'll get going now.' c. <i>hai m-koongw=en</i>.
hai m-kono=en
1PX 1PX/2-pass\̄M=INCEP.
'We'll keep going now.' |
|---|--|

In addition to the differences in consonant insertion, there are also differences in vocabulary: Amarasi has \sqrt{kono} 'pass' and Amanuban has \sqrt{fini} 'pass'. While Amanuban speakers are aware of such differences, they are not necessarily able to combine the two together. The top line of example (3) below was said by one of my Amanuban friends when trying to adapt their speech to Amarasi.

- (3) incorrect Amarasi: *hai m-koomɟ=en*. ← hai m-komi=en
 correct Amarasi: *hai m-koongw=en*. ← hai m-kono=en
 correct Amanuban: *hai m-finy=en*. ← hai m-fini=en
 'We'll keep going now.' observation

In this example, the Amanuban speaker has had some success in selecting the correct verb, though has selected the wrong medial nasal with /m/ instead of /n/. They have also correctly identified a rule along the lines of "Amarasi inserts /ɟ/ where we insert /y/". Because of this they have inserted /ɟ/ for this sentence. However, the difference in the quality of the final vowels of Amarasi \sqrt{kono} 'pass' and Amanuban \sqrt{fini} 'pass' means that application of this rule yields an incorrect result in this instance.⁵

8.2.2 Environments for U-forms and M-forms

The realisation of the U-form and M-form of words is one dimension across which speakers of Uab Meto can mark identity. Another dimension is the environments in which U-forms and M-forms occur. For instance, in Kotos Amarasi metathesis is blocked before words which

⁵ Furthermore, the vowel assimilation which occurs after consonant insertion and metathesis (§4.2.3), means that the quality of the final vowel is only partially recoverable. In example (3) above, the Amarasi word closest to incorrect **koomɟ=en* would be *koondɟ=en*, from underlying \sqrt{koni} 'copulate'; certainly not a mistake one would want to make!

begin with a consonant cluster (§4.3), while in Ro'is Amarasi metathesis freely occurs before such words. Examples are given in (4) below.

(4) Ro'is Amarasi $V_1C_1V_2C_2 \rightarrow V_1V_2C_1C_2 / _CC$

Noun	mod.		Ro'is	Kotos	
<i>umi</i>	+ <i>kbubu?</i>	→	<i>uim kbubu?</i>	<i>umi kbubu?</i>	'house + round'
<i>kruru</i>	+ <i>tnana-f</i>	→	<i>kruur tnana-f</i>	<i>kruru tnana-f</i>	'finger + middle'
(?) <i>nima</i> ⁶	+ <i>mneo-f</i>	→	<i>niim mneo-f</i>	<i>?nima mneo-f</i>	'arm + lower'

Similarly, in Kotos Amarasi, word final consonant clusters are not allowed, while in Ro'is Amarasi word final clusters *are* allowed. This means that while CVC# final verbs such as *na-barab* 'prepares' usually occur unmetathesised in Kotos Amarasi (except before vowel initial enclitics, see Chapter 5, such verbs freely occur metathesised in Ro'is. (See §7.1.1 for more details.) Two examples are given in (5) and (6) below.

(5) Ro'is: *sin na-saap=n*.

Kotos: *sin na-sapa=n*.

3PL 3-kick=PL

'They're playing soccer.'

observation 08/10/14, p.113

(6) Ro'is: *raump=ein n-maet=n*.

Kotos: *paku=n n-mate=n*.

light=PL 3-die=PL

'The lights have died.'

observation 09/10/14, p.114

Another dimension across which differences in metathesis can be marked is in the *functions* of U-forms and M-forms. This is the area on which the least data is currently known. This work describes and analyses the functions of U-forms and M-forms in Kotos Amarasi (as spoken in Koro'oto hamlet), while the exact range of functions of these forms in other varieties remains unknown.

Initial data indicates that there are indeed differences, though given the highly preliminary nature of much of this data, it is wise to be cautious. In Insana data cited by the anthropologist Schulte Nordholt (1971), M-forms of nouns appear to be less common when an attributive modifier occurs than would be the case in equivalent Amarasi phrases. One example is Amarasi *moen fe?u* 'son-in-law' which can be compared with Insana cited <*mone fe'u*> (Schulte Nordholt 1971:503). Such differences could be an artefact of the nature of Schulte Nordholt's data collection, or it could be connected with the degree of lexicalisation of different attributive phrases, as may be the case in Mambae (§2.4.4). Similarly, in Molo data presented by Middelkoop (1950; 1972) verbs are almost always given in the U-form, though the reason for this is unclear.

⁶ There appears to be dialect variation in the form of the word for 'arm, hand'. In Kotos Amarasi the word for 'hand' is *?nima* while Ro'is Amarasi has *nima* with no initial glottal stop.

Metathesis is a marker of identity within the Atoni ethno-linguistic group. The presence of metathesis in this language cluster sets it apart from other local groups, such as Tetun and the Rote languages — though not from Helong (§2.4.5) — and the differences between the forms, functions and environments of metathesis between different varieties of Uab Meto serve as a marker of identity between these different varieties.

8.3 Metathesis and Unmetathesis as Complementary Pairs

In addition to marking differences in identity, metathesis — the pairing of two forms which together make a fully grammatical functional whole — also reflects the fundamental Atoni conceptualisation of societal and cosmic organisation. The complementarity of metathesis and unmetathesis in the syntax, and the parallelism of unmetathesis with metathesis in the discourse reflects the Atoni division of the world into complementary pairs.

The relationship between M-forms and U-forms in the syntax (Chapter 6) is represented in Figure 8.5, in which each is one half of a whole with the latter completing the former. Similarly, the relationship between U-forms and M-forms in the discourse (Chapter 7) is visualised in Figure 8.6, with the latter resolving the former.

Figure 8.5: Syntactic Metathesis

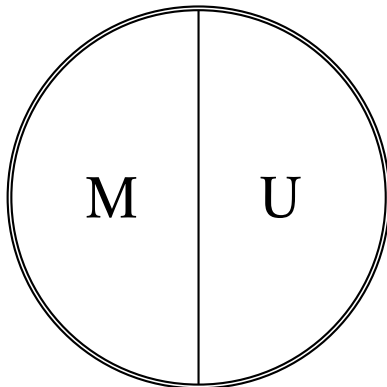
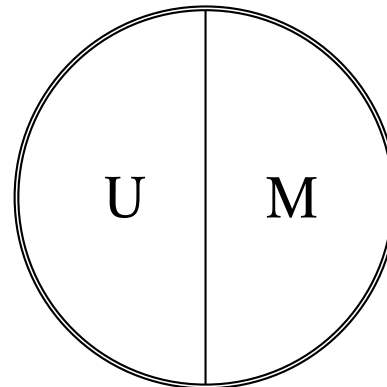


Figure 8.6: Discourse Metathesis



An example of each of these complementary pairs is given below with (7) showing a syntactically conditioned M-form||U-form pair and example (8) showing a discourse driven U-form||M-form pair.

(7) Syntactic metathetic complementarity:

<i>na-tuu?</i>	<i>tain</i>	<i>tuni</i>	<i>tua, =ma</i>
na-tu?u	tani	tuni	tua =ma
3-make.knot	rope\M	gewang.palm\U	ADDR =and

‘(He) ties up a rope made from gewang palm (leaves) and ...’

120923-2, 1.39 🔊

- (8) Discourse metathetic complementarity:

m-ak hai nua =kai m-taikobi =m hai m-maet oke?
 m-ak hai nua =kai m-taikobi =ma hai m-mate oke?
 1PX/2-say 1PX two =1PX.ACC 1PX/2-fall\U =and 1PX 1PX/2-die\M all
 ‘So we two will fall down and (then) both die.’ 130909-6, 0.39

The parallelism and complementarity of U-forms with M-forms and M-forms with U-forms reflects fundamental Atoni philosophical and conceptual notions of the structure of the world as being composed of binary and complementary pairs. One explicit use of these pairs in linguistic structure is in Amarasi poetry.

8.3.1 Metathetic Poetic Parallelism


The role of parallelism in Timor has already been touched on in §7.5 in which I discussed the structure of poetry. Poetry in Amarasi makes use of canonical parallelism (Fox 1988; 2014), the pairing of pre-determined and semantically related words. Amarasi poetry is an explicit use of the complementarity which exists between metathesis and unmetathesis.

Example (9) below, drawn from a performed greeting (*aʔa sramat*), shows the way in which semantic parallelism operates in Amarasi. Nearly every content word co-occurs in the same line in a structurally parallel way with a semantically similar content word, giving four sets of doublets in a single line. Doublets are joined by linking lines.

- (9) Amarasi ritual greeting (*Aʔasramat*): 120715-0


a. *baisenu-t =ma ronaen n-eu muti? =ma mnatu? et nu-*
 baisenu-t =ma ronaen n-eu muti? =ma mnatu? et
 look.up-NML =and greeting 3-DAT silver =and gold IPFV.LOC
nuun mafo? reet mafo?, Teunraen =am nee...
 nunuh mafo? rete mafo? Teunraen =ma nee
 banyan shade blackboard shade T. =and PAUSE
 ‘Respect and honour to (those like) silver and gold under the shade of the banyan tree and the shade of the blackboard tree (in) Teunraen and ...’ 0.15
 b. *BURAEN* 0.21

When the doublet consists of a pair of verbs, it is possible (though not obligatory) for the first verb to occur in the U-form and the second in the M-form. Two examples are given in (10) and (11) below. In both examples the indicated doublets are both semantically and morphologically parallel. Thus, for instance, in example (10) the semantic doublet, *tenu||haof* ‘umbrella||shade’ is also a morphological doublet composed of U-form||M-form.

- (10) *henati?* *m-tenu* =*m* *mu-haof* *too* *tafa?* =*kai*.
 henati? m-tenu =ma mu-hafo too tafa? =kai
 IRR 1PX/2-umbrella\U =and 2SG-shade\M citizen small =1PX.ACC
 ‘So that you might shade [doublet] us small people.’ 130825-3, 1.21 

- (11) *hai m-nona?* =*ma* *m-fee* *fua?туру? re?* *hai*
 hai m-nona? =ma m-fee fua?туру? re? hai
 1PX 1PX/2-hand\U =and 1PX/2-give offering REL 1PX
m-simo =*ma* *m-toup* =*sin* *mi-?ko* *ho* *?nima-m*
 m-simo =ma m-topu =sin mi-?ko ho ?nima-m
 1PX/2-receive\U =and 1PX/2-receive\M =3PL 1PX/2PL-ABL 2SG hand-1PX/2GEN
a-ma-neka-b,
 a-ma-neka-b,
 NML-PROP-love-TR
 We give [doublet] offerings we received [doublet] from your loving hand.’

Another kind of metathetic parallelism occurs in chants of the *a?a sramat* genre. In such chants a leader of a group will chant one line, after which the rest of the group repeats a word from that line. It is common, though not obligatory, for the repeated word to occur in the opposite U-form/M-form compared with the form the leader used. If the leader uses a U-form, the group typically uses an M-form, and vice versa.⁷ One example is given in (12) below, in which a verbal U-form said by the leader is repeated in the M-form by the rest of the group. Such examples are formally identical to the use of metathesis in question-answer pairs (§7.7.4.2). In each instance one speaker uses a verbal U-form which is completed by the next speaker(s) using an M-form of the same verb.

- (12) a. *ka= t-tok~took* =*ma* *tak~t-ak* =*fa* =*te*, *hit ta-?euk* =*ma*
 ka= t-tok~toko =ma tak~t-ak =fa =te, hit ta-?eku =ma
 NEG= 1PI-INTNS~sit\M =and INTNS~1PI-say =NEG =SET 1PI 1PI-encounter\M =and
ta-tefa =*m* *neee...*
 ta-tefa =ma neee
 1PI-meet\U =and PAUSE
 ‘We don’t just sit around and talk, we interact and meet.’ 120715-0, 0.30 
- b. *TA-TEEF*
 ta-tefa
 1PI-meet\M
 ‘We meet.’ 0.35

It is also possible for the repeated word to be a noun. When this occurs, the first instance of the noun occurs with a vowel initial enclitic attached which obligatorily triggers the

⁷ Thanks go to Charles Grimes for bringing this to my attention.

M-form (Chapter 5). The whole group will then repeat the noun without the enclitic; thus in the U-form. Two examples are given in (13) and (14) below, each of which comes from a single prayer. In example (13a) the noun phrase *Asmana Kninu?* ‘Holy Spirit’ is modified by the determiner =a, and thus occurs in the M-form. The final word of this noun phrase is then chanted by the whole group, though in the U-form.

- (13) Prayer composed in poetic language: 140726, 0.21 🔊
- a. *in kuu-n es re? a|n-sia =ma n-naib =ki n-eik in*
in kuu-n es re? n-sia =ma n-nabi =ki n-eki in
3SG self-3SG.GEN one REL 3-lead =ma 3-guide\M =2PL.ACC 3-use\M 3SG
A|smana [Kninu?=a] =m neee...
smana-f kninu?=a =ma neee
spirit\M holy\M=0DET =and PAUSE
‘It is he who leads and guides us with his Holy Spirit’
- b. *RO [KNINU?]*
very holy\U
‘He is very holy.’

Similarly, in example (14a) the noun *arekot* ‘good’ is followed by a vowel initial enclitic and occurs in the M-form. This word is then repeated by the whole group in (14b) in the U-form.

- (14) Prayer composed in poetic language: 140726, 0.27 🔊
- a. *etun hi ar=ki m-mui? reon =ma runat*
etun hi ar=ki m-mu?i reon =ma runat
so.that 2PL all=2PL.ACC 1PX/2-have\M plan =and event
[a-reok-t=a] =m neee...
a-reko-t=a =ma neee
NML-good\M-NML=0DET =and PAUSE
‘So that you will have success in your plan and event.’
- b. *[A-REKO-T]*
NML-good\U-NML
‘It is very good.’

Note the pattern in examples (13) and (14) with paired nominals is U-form||M-form, while with verbs the pattern is M-form||U-form, as seen in (12). The reason noun doublets occur in the order M-form||U-form, and verb doublets occur in the order U-form||M-form is straightforwardly explained by their order in non-poetic speech. In the syntax, an M-form noun signals an incomplete attributive phrase which requires completion from a following form, typically a U-form (see Chapter 6). In the discourse, a U-form occurs first, and requires resolution from a subsequent clause, which typically contains an M-form (see Chapter 7).

The use of alternate M-forms and U-forms in Amarasi poetry is an explicit utilisation of the complementarity which exists between metathesis and unmetathesis.

8.3.2 Cultural and Conceptual Complementarity

As discussed in §8.1, metathesis is a key element of the Amarasi language around which many other linguistic structures are organised. However, more than simply being a key linguistic structure, the complementarity found between metathesis and unmetathesis is paralleled by the Atoni conceptualisation of the world as being composed of complementary parts.

At the beginning of his discussion of the “Political system as approached in Timorese [Atoni] thinking”, Schulte Nordholt (1971) gives a set of complementary concepts, some of which are given in Table 8.3. Of these concepts he states: “All these pairs of opposites fit into one scheme and combine to form one important dichotomy. [...] The one is inconceivable without the other.” (Schulte Nordholt 1971:408)

Table 8.3: Atoni Complementary Concepts (Schulte Nordholt 1971:408)

female	–	male
wife	–	husband
sister	–	brother
female ancestor	–	male ancestor
inside	–	outside
west/north	–	east/south
yellow	–	red

The Atoni conceptualisation of social and cosmic order is classified and arranged around such complementary pairs. A visual analogy of this complementarity can be seen on any piece of Atoni cloth, illustrated in Figure 8.7 below with an Amarasi scarf. Each half of this cloth, along both horizontal and vertical axes, is opposite to and a mirror image of the other half; each half is the complement of the other, and neither is complete without the other.

Figure 8.7: Amarasi Scarf



Dualism and complementarity in the Atoni world goes beyond the simple ‘two-column analysis’ represented in Table 8.3. There are complex relationships between these categories which include asymmetry, analogical cross-over and recursive parallelism (Fox 1989).

Of all complementary pairs, one significant relationship is that of *feto-mone* ‘female-male’. A category classified as *feto* ‘female’ will have a complementary category classified as *mone* ‘male’. The classification of pairs as *feto-mone* ‘female-male’ is not necessarily linked to the

actual biological gender of the members of the pairs, but is rather a way of expressing and describing the complementarity which exists between the two categories.

One instance in which the *feto-mone* relationship holds is in two families related by marriage. When two families are related by marriage, those who have given their daughter in marriage (the wife-givers) are classified as *mone* 'male' in relation to those who have received the woman. Those who have received the woman (the wife-receivers) are classified as *feto* 'female' in relation to the wife givers.

In addition to being complementary, with each completing the other, the relationship between the wife-givers and the wife-receivers is also asymmetrical. Schulte Nordholt (1971) analysed this asymmetry in terms of 'superordination' and 'subordination':

[...] the [female] *ume* [house] receiving a woman (who is the source of life) is inferior in respect of the [male] one which is the giver of life and hence its superior. This relationship of subordination and superordination is expressed in terms of *feto-mone*. But at the same time the term *feto-mone* indicates that the one cannot exist without the other, as life is impossible without the unity of male and female. Thus *feto-mone* groups form each other's complements. (Schulte Nordholt 1971:411)

While Schulte Nordholt accurately identifies the asymmetrical nature of this relationship the language of 'superordination' and 'subordination' may not be the best description of the asymmetry. Instead, as the givers of the gift, the wife-givers are in a relationship of precedence to the *feto* 'female' wife-receivers (Fox 1994; 1999). Because the wife-receivers are *feto* 'female' and the wife-givers are *mone* 'male', in this particular context *mone* 'male' precedes *feto* 'female'. This is an example of categorical asymmetry (Fox 1994:47).

The relationship between *feto* 'female' and *mone* 'male' groups is not fixed. As discussed by Fox (1999), these relationships are fluid and can be reversed. Different groups constantly seek to re-negotiate their relationship, with wife-receivers seeking to return a woman to their wife-givers, and thus reversing their relationship.

A similar conclusion is also reached by McWilliam (2002) in his study of place and precedence in Amanuban. While the domain of Amanuban was politically organised after dual classification following Atoni principles, "these structures tended to be flexible, strategic, and opportunistic" (McWilliam 2002:287). Complementary categories are tools, not restrictions, for Atoni thought and classification.

Another area in which the *feto-mone* 'female-male' complementary pair occurs is in the traditional political structure of Atoni society. In Insana, for instance, the supreme ruler at the centre of a realm was classified as *feto* 'female'. This *feto* ruler was the guardian of the sacred objects and responsible for the proper maintenance of ritual. He was complemented

by another ruler, classified as *mone* 'male'. This *mone* ruler was the executive authority of the realm and had responsibility for warfare (Schulte Nordholt 1971:371ff).⁸

In this context, it would be erroneous to identify the *mone* 'male' ruler as preceding the *feto* 'female' ruler. If anything, it would be the supreme *feto* 'female' ruler at the centre of the domain (around whom all the other parts revolve and who holds all these parts together) who precedes the *mone* 'male' ruler. However, rather than precedence, what is most important in this relationship is the complementarity between the *feto* 'female' ruler and the *mone* 'male' ruler, with both co-existing in balancing roles. The complementarity between *feto-mone* 'female-male', in which each is one half of a whole, is represented in Figure 8.8 below.

Figure 8.8: Female-Male Pair

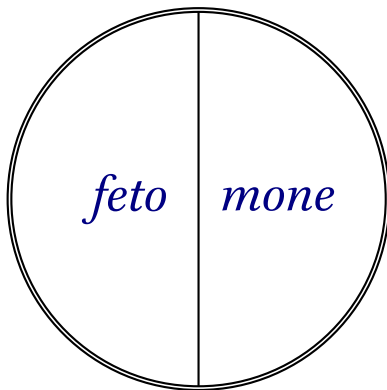
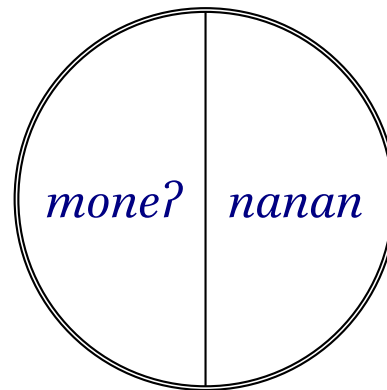


Figure 8.9: Outside-Inside Pair



Another complementary pair in Atoni thought is that of *mone?-nanan* 'outside-inside', or 'periphery-centre'. The *nanan* 'inside, centre' is symbolic of unity between different parts. It is the location of the supreme ruler within a realm, and also the area of a physical house to which agnates (blood relatives) have full access (Cunningham 1964).

Just as the *feto-mone* 'female-male' pair is asymmetrical, so too is the *mone?-nanan* 'outside-inside' pair asymmetrical, with *nanan* 'inside' in precedence to *mone?* 'outside' (Cunningham 1964, Schulte Nordholt 1971, Fox 1989). The relationship between the pair *mone?-nanan* 'outside-inside' is represented in Figure 8.9.

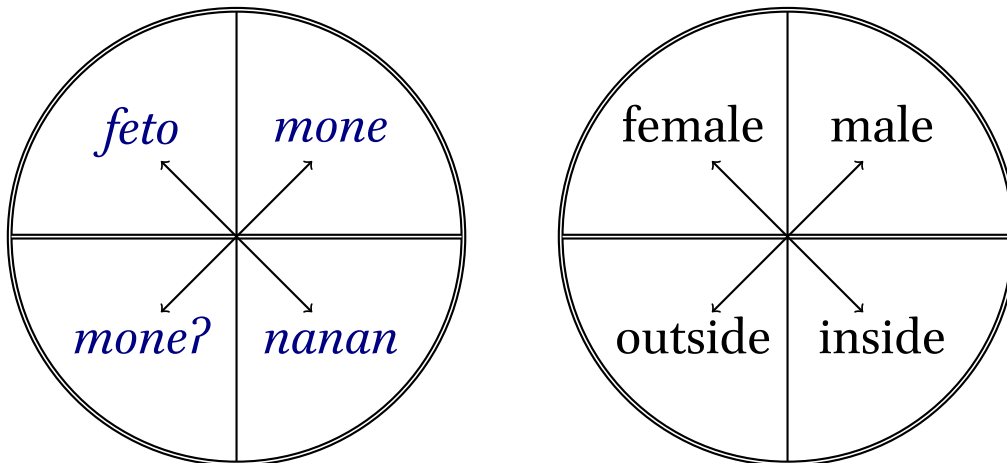
The phonological similarity of the terms *mone* 'male' and *mone?* 'outside' has given rise to a link in Atoni thought between these two terms and has led to what Fox (1989) terms analogical cross-over: "Male [*mone*], which is superior in certain contexts is associated with the outside [*mone?*], which is inferior" (Fox 1989:49). The association between *mone* 'male' and *mone?* 'outside', has also led to an association between the complements of each of these terms, with *feto* 'female' being associated with *nanan* 'inside'.⁹

⁸ Both rulers were biologically male.

⁹ The term *mone* 'male' is a reflex of Proto-Malayo-Polynesian *maRuqanay 'male'. The term *mone?* 'outside' is probably inherited from Proto-Malayo-Polynesian *ma-udehi 'behind', also reflected by Amarasi *na-muni* 'be

This association has led to analogical crossover Fox (1989). The member of each pair with precedence is linked to the member of the other pair which does not have precedence. This analogical cross-over is represented in Figure 8.10 below in which each member of each asymmetrical pair is connected with the opposite member of the other asymmetrical pair.

Figure 8.10: Analogical Cross-over



One instance of this association has been seen in the fact that the *feto* 'female ruler' is located in the *nanan* 'centre' of the realm. Another example of this association in Amarasi is seen in the categorisation of the *tasi* 'sea, ocean', which is classified as consisting of two parts. The *nanan* 'inner' circle of sea near the coast and bays is the *tais fetu* 'female sea', and the distant *mone?* 'outer' part is known as the *tais mone* 'male sea' (Cunningham 1964:50). This means that the northern Savu Sea is the *tais fetu* 'female sea' and the southern Timor Sea is the *tais mone* 'male sea'.

8.3.3 Metathetic Parallel Complementarity

It is within this rich world of symbolic dualistic and complementary classification that I place my analysis of metathesis in Amarasi. Unmetathesised forms and metathesised forms are one another's complements. This is demonstrably a fact of linguistic structure. In the syntax, an M-form cannot occur in isolation and must be completed by a U-form. In the discourse a U-form does not occur alone and must be completed by another form, typically an M-form.

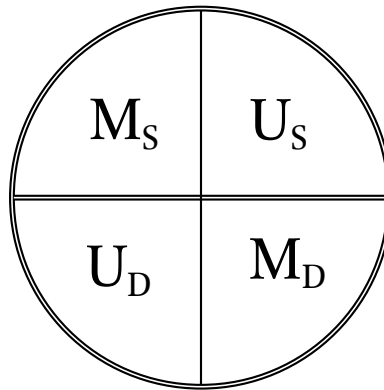
The identification of these U-forms and M-forms as complementary pairs is not merely equivalent to noting that these forms are formal opposites. Instead, this identification is

at the end' and *munif* 'young'. Whatever the ultimate etymology of the terms *mone* 'male' and *mone?* 'outside', it is the folk etymology ascribed to them by speakers which has created (or reinforced) the link between the two (Fox 1989:49).

based on their usage, the fact that each form must occur with the other in certain contexts.¹⁰ Furthermore, in Amarasi poetry — a genre in which complementary forms are all but obligatory — unmetathesised and metathesised forms are explicitly used as complementary pairs, as discussed in §8.3.1 above.

Syntactic M-forms (M_S) are complemented and completed by syntactic U-forms (U_S), and discourse U-forms (U_D) are completed and complemented by discourse M-forms (M_D). In addition, the syntactic $M_S||U_S$ relationship is itself paralleled and complemented by the opposite discourse $U_D||M_D$ relationship. That M-forms require completion in the syntax is paralleled by the fact that in the discourse it is U-forms which require completion. The parallel relationship between the syntactic $M_S||U_S$ pair and discourse $U_D||M_D$ pairs is represented in Figure 8.11 below. With an example of each given in (15) and (16).

Figure 8.11: Metathesis and Unmetathesis in Amarasi



- (15) Syntactic metathetic complementarity $M_S||U_S$:

<i>na-tuu?</i>	<i>tain</i>	<i>tuni</i> ,	<i>tua, =ma</i>	
na-tuʔu	tani	tuni	tua =ma	
3-make.knot	rope\	M_S	gewang.palm\	U_S ADDR =and

‘(He) ties up a rope made from gewang palm (leaves) and ...’ 120923-2, 1.39 🔊

- (16) Discourse metathetic complementarity $U_D||M_D$:

<i>m-ak</i>	<i>hai nua =kai</i>	<i>m-taikobi</i>	<i>=m hai</i>	<i>m-maet</i>	<i>oke?</i>
m-ak	hai nua =kai	m-taikobi	=ma hai	m-mate	oke?
1PX/2-say	1PX two =1PX.ACC	1PX/2-fall\	U_D	=and 1PX	1PX/2-die\

‘So we two will fall down and (then) both die.’ 130909-6, 0.36 🔊

¹⁰ This can be illustrated with a negative example. Within Amarasi phonology the phoneme /b/ and the phoneme /p/ are opposites: /b/ is a voiced obstruent and /p/ is a voiceless obstruent. However, there is no known instance in which these two phonemes are paired together, nor is there any known instance in which the opposite features of /b/ and /p/ are exploited with a cultural meaning. These two phonemes may be opposites, but they are not complements.

This is an example of analogical cross-over similar to the association between *feto-mone* ‘female-male’ and *mone?-nanan* ‘outside-inside’ discussed above. In the case of metathesis, the association is not between two formally similar (and perhaps related) forms but instead it is between two formally identical forms, with the same derivation which occur at different levels of the grammar.

The relationship between the four metathesis forms in Figure 8.11 is an instance of what I term ‘cyclical complementarity’. A syntactic M-form is complemented by a syntactic U-form, which is paralleled by a discourse M-form which is the complement of a discourse U-form, which is paralleled by a syntactic M-form, and so on *ad infinitum*. Such cyclical complementarity is also found in systems of marriage exchange in this region (whether formalised or informal), whereby the wife-receivers will eventually return a woman to their wife-givers, and thereby become the wife-givers, and so on. Among the Atoni, for instance:

[...] it is to the advantage of wife-givers to maintain their asymmetric relation with their wife-takers and to the advantage of wife-takers to reverse this relationship by returning a woman to their wife-givers [...] (Fox 1999:32)

The complementarity between metathesis and unmetathesis in Amarasi and its strong congruence with the conceptual framework, cosmic classification and social organisation of Amarasi speakers raises a number of interesting questions, which I can (unfortunately) only pose up at this point.

Firstly, does the complementarity between unmetathesis and metathesis occur in other Uab Meto varieties? Or has the system only been developed to this highly refined quadripartite level in Amarasi? Speakers of other Uab Meto varieties have the same conceptual frameworks as speakers of Amarasi. Thus, we expect this relationship to hold, even if U-forms and M-forms are formally manifested differently in different places, i.e. to express differences in identity (§8.2). To answer this question will require a detailed study of metatheses across other varieties of Uab Meto.

Secondly, is the prevalence of synchronic (and historic) metathesis in the greater Timor region (see Figure 2.1 on page 17) linked in any way to the prevalence of complementary and dualistic classification in this region? To answer this question will require a study of whether other regions in which complementarity is common also have linguistic structures which are complementary in a way that parallels that of metathesis in Amarasi.

Finally, how did the complementary nature of metathesis and unmetathesis arise in Amarasi? Is it simply an accidental by-product of the environments in which a phonological process became morphological? Or is it a result of speakers (consciously or unconsciously) noticing things about culture and mirroring them in grammar, and vice versa? If the latter, this could indicate that the any grammar-culture barrier is considerably more porous than

some have thought. To answer this question properly will require much more detailed comparative data on the languages and societies of this region.

Perhaps for now, however, the last word on the source and origin as well as the reasons and grounds of the parallelism and complementarity of metathesis and unmetathesis in Amarasi should be given to the Amarasi speakers themselves, as expressed in their own poetic language composed in parallel pairs:

(17) Chant (*aʔa sramat*) performed at a wedding service: 090524 ◀

- a. *ar=kit ta-hiin =ma ta-keo moni-t mansian pasan~pasan,*
ar=kit ta-hini =ma ta-keo moni-t mansian pasan~pasan
 all=1PI.ACC 1PI-know\M =and 1PI-be.aware live\U-NML human FRD~pair,
bifee atoni-ʔ, feto-f nao-f
bifee atoni-ʔ feto-f nao-f
 woman man-U sister-KIN.GEN brother-KIN.GEN
ta-bua ta-ʔ-mees-ʔ=o-k n-bi
1PI-bua ta-ʔ-mese-ʔ=o-k n-bi
 1PI-gather 1PI-TR-one\M-TR=REFL-3PL/1GEN 3-RL.LOC
bare a-reko-t paha =t nee,...
bare a-reko-t paha =t nee
 place NML-good-NML country =SET PAUSE,

‘We all know and are aware that the life of humans comes in pairs; woman and man, sister and brother, gathered together in unity, in places and countries that are good.’

- b. *RO REKO*
 ‘It is very good.’

Appendix A

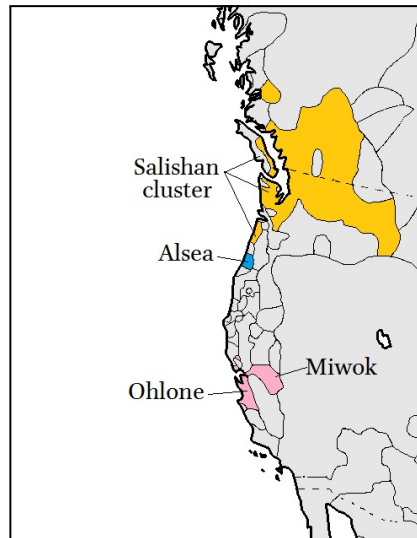
Morphological Metathesis Elsewhere

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A.1 Introduction

In this appendix I discuss reported cases of morphological metathesis not discussed in Chapter 2. That is, all cases of morphological metathesis known to the author outside the areas of the Pacific and greater Timor. Languages for which such a process has been reported include Tunisian Arabic (§A.2), Sierra Miwok (§A.4), Svan (§A.5), Alsea (§A.6) and a number of the Salishan languages (§A.7). All of these languages, with the exception of Tunisian Arabic and Svan, are spoken in western America. A map showing the American languages discussed in this appendix is given in A.1 on the next page.

Figure A.1: Languages of West America with Morphological Metathesis



A.2 Tunisian Arabic

Metathesis in Tunisian Arabic is described by Kilani-Schoch and Dressler (1986). Their discussion begins with the observation that Tunisian Arabic has a process of phonologically conditioned metathesis (§2.2), in which the medial CV sequence of a CCVC stem metathesises before a vowel initial suffix. Examples are given in (1) below.

- (1) $CC_2V_1C \rightarrow CV_1C_2C / _V$ (Kilani-Schoch and Dressler 1986:61)

	Stem		Suffixed Form	
'palms'	<i>nxal</i>	→	<i>naxl-a</i>	'a palm'
'mountain'	<i>dʒbəl</i>	→	<i>dʒabl-i</i>	'mountains'
'he wrote'	<i>ktəb</i>	→	<i>kətb-u</i>	'they wrote'
'month'	<i>ʃħar</i>	→	<i>ʃħr-i:n</i>	'two months'

However, there are a number of verbs in which CV → VC metathesis alone results in a nominalisation, producing what Kilani-Schoch and Dressler call a *nomen actionis* (action noun). Such metathesis only affects words of the shape CCVC. Examples are given in (2) below. (There is also one example of a metathesis with concurrent apophony of the vowel; *ħrəm* 'he prohibited' → *ħarm* 'prohibition'.)

(2) Tunisian Arabic Nominalising Metathesis (Kilani-Schoch and Dressler 1986:62)

	Verb		Noun	
'he understood'	<i>fħam</i>	→	<i>fħm</i>	'understanding'
'he was sick'	<i>mr^ʕað^ʕ</i>	→	<i>mar^ʕð^ʕ</i>	'sickness'
'he owned'	<i>mlək</i>	→	<i>məlk</i>	'asset'
'he lied'	<i>kðəb</i>	→	<i>kəðb</i>	'lying'
'he tightened'	<i>ħs^ʕar^ʕ</i>	→	<i>ħas^ʕr^ʕ</i>	'act of tightening'
'he blasphemed'	<i>kʕr</i>	→	<i>kəʕr</i>	'blasphemy'

An alternate analysis of the same data would be to identify the nouns as the base from which verbs are derived by VC → CV metathesis. Kilani-Schoch and Dressler (1986) adduce both diachronic evidence as well as native speaker judgements in favour of their analysis of metathesis as a nominaliser.

Metathesis is only one of a number of nominalisation strategies in Tunisian Arabic. Another nominalisation strategy is affixation. Nominalising affixes include *-an*, *-(y)a*, *m(a)-* or a combination of *m-...-a*. Examples are given in (3) below. Suffixation with a vowel initial suffix also triggers phonologically conditioned metathesis of CCVC roots, as seen in (1) above.

(3) Tunisian Arabic Nominalising Affixation (Kilani-Schoch and Dressler 1986:63f)

	Verb		Noun	
'he attached'	<i>r^ʕbat^ʕ</i>	→	<i>r^ʕabt^ʕ-a</i>	'act of attaching'
'he read'	<i>qra</i>	→	<i>qra:-ya</i>	'reading'
'he blasphemed'	<i>kʕr</i>	→	<i>kəʕr-an</i>	'blasphemy' ¹
'he asked'	<i>t^ʕləb</i>	→	<i>ma-t^ʕləb</i>	'request'
'he loved'	<i>ħabb</i>	→	<i>m-ħabb-a</i>	'act of loving'

Another nominalisation strategy is apophony, either replacing a short vowel with the equivalent long vowel or replacing it with a vowel of a different quality. Examples are given in (4) below.

(4) Tunisian Arabic Nominalising Apophony (Kilani-Schoch and Dressler 1986:64)

	Verb		Noun	
'he slept'	<i>rqað</i>	→	<i>rqa:d</i>	'sleep'
'he went mad'	<i>xbəð</i>	→	<i>xba:l</i>	'going mad'
'he entered'	<i>dxəð</i>	→	<i>dxu:l</i>	'act of loving'
'he swam'	<i>ʕa:m</i>	→	<i>ʕu:m</i>	'swimming'
'he sold'	<i>ba:ʕ</i>	→	<i>bi:ʕ</i>	'(a) sale'

The final nominalisation strategy is zero derivation; that is conversion of a verb into a noun with no phonological change. Examples are given in (5) below.

¹ Some verbs have multiple nominalising strategies. The verb *kʕr* 'blaspheme' is one such example, either undergoing metathesis, as shown in (2), or suffixation, as shown here in (3).

- (5) Tunisian Arabic Zero Derivation (Kilani-Schoch and Dressler 1986:63,65)

<i>ʕmāl</i>	‘he did’ ~ ‘deed’
<i>ʕtʕasʕ</i>	‘sneeze’ ~ ‘act of sneezing’
<i>nǰʕar</i>	‘he saw’ ~ ‘seeing’
<i>xbar</i>	‘he informed’ ~ ‘informing’

Kilani-Schoch and Dressler (1986:71) carried out two tests to determine how productive each of these nominalisation strategies were for CCVC verbs. In each case metathesis was the most productive nominalisation strategy.

In the first test speakers were presented with ten fictional verbs and a variety of nominalisations formed according to each possible process illustrated in (2)–(5) above. Metathesis was the preferred strategy in 8/10 instances in the first run of this test and was preferred in 9/10 instances in the second run.²

Similar judgements were given for the loan words *nmar* (< French *numéroter*) ‘to number’, *mraf* (< Fr. *marcher*) ‘to march’ and *mrəs* (< Fr. *remercier*) ‘to thank’. Among loanwords the only exception was *blaf* < English *bluff*, for which the preferred nominalisation strategy was zero derivation.

The second test involved choosing either metathesis or zero derivation as the preferred nominalisation strategy. In this test 17/18 responses selected metathesis.

In summary, metathesis in Tunisian Arabic is one of several processes available to nominalise verbs with the structure CCVC. Metathesis is productive and is the preferred nominalisation strategy. That metathesis in Tunisian Arabic is associated with other processes is consistent with the Amarasi data in which metathesis is associated with a large number of additional processes.

However, in Amarasi most of these processes are consequences of metathesis, i.e. vowel assimilation triggered by metathesis (§4.2.3), while in Tunisian Arabic these processes are independent, with the exception of suffixation triggering metathesis.

A.3 Mutsun Ohlone (Costanoan)

Metathesis in the Mutsun variety of Southern Ohlone (a.k.a. Costanoan), a now extinct language of central California (see Figure A.1), is described in Okrand (1979). The same author also wrote a grammar of the language published as Okrand (1977). In both instances data was drawn from material gathered in the early twentieth century from the last fluent speaker.

Verbs in Mutsun have two stems, called the primary stem and the derived stem. The main difference between each stem is that the derived stem is universally consonant final, while

² The other acceptable nominalisation strategy was suffixation with *-an*. There were also two responses in which either metathesis or suffixation with *-an* were judged acceptable.

the primary stem can be either vowel final or consonant final. Okrand (1979) identifies seven types of stems of which stem types II, IV and VII show metathesis. These three stem types are given in Table A.1 (the fourth stem type is poorly attested in the data). In all cases the derived stem is formed from the primary stem by metathesis of the final VC sequence.

Table A.1: Mutsun Primary and Derived Verbal Stems (Okrand 1979:125)

	Primary	Derived	Examples		
II	CVCV ₂ :C ₃	CVCC ₃ V ₂	<i>pasi:k-</i>	<i>paski-</i>	'to greet, visit'
IV	CV:CV ₂ C ₃	CVCC ₃ V ₂	<i>li:wak-</i>		'to hide nearby'
VII	CVC:V ₂ C ₃	CVCC ₃ V ₂	<i>litf:ey-</i>	<i>litfye-</i>	'to stand'

In most cases the use of each stem is either phonologically or morphemically conditioned. A phonologically conditioned use is found before suffixes which begin with a consonant cluster in which case VC → CV metathesis occurs to prevent a cluster of three consonants surfacing. Examples include *pasi:k* 'visit' + *-yni* 'to come to' → *paskiyni* 'come to visit' and *litf:ey* 'to stand' + *-hte* PERFECTIVE → *litfyehte* 'already assumed a standing position'. Likewise, word final consonant clusters are disallowed in Mutsun. As a result derived stems are used before suffixes consisting of a single consonant. One example is *sot:er* 'stick out' + *-y* IMPERATIVE → *sotrey* 'stick out [your foot]!' (Okrand 1979:125).

However, there are also some CV(C) suffixes which only occur with primary stems and other CV(C) suffixes which only occur with derived stems. This is a case of morphemically conditioned metathesis (§2.3), in which metathesis is a partial exponent of the morphological category signalled by the suffix.

Suffixes which take primary stems include the reciprocal suffix *-mu* and the reflexive suffix *-pu*, as seen in *hi:wo* 'scold (s.o.)' + *-mu* RECP → *hi:womu* '(they) quarrel' and *mat:al* 'face down' + *-pu* REFL → *mat:alpu* 'put oneself face down'. One suffix which takes the derived stem and thus triggers metathesis is *-nu* 'positional causative', as seen in *mat:al* 'face down' + *-nu* → *matlanu* 'put (s.o.) face down (into a prone position)' (Okrand 1979:126).

The morphological function of metathesis comes about because the derived stem is used in isolation as a non-past tense and there are a number of cognate nouns which take the primary stem. Examples are given in (6) below.

(6) Mutsun Derivational Metathesis (Okrand 1979:127)

	Noun	Verb	
'a cough'	<i>to:her</i>	<i>tohre</i>	'to cough'
'flute'	<i>lul:up</i>	<i>lulpu</i>	'to play the flute'
'goose'	<i>la:lak</i>	<i>lalka</i>	'gather geese'
'nest'	<i>he:sen</i>	<i>hesne</i>	'make a nest'
'pozole (stew)'	<i>posol</i>	<i>poslo</i>	'to make pozole (stew)'

Given that Mutsun is now extinct, it is hard to tell exactly how productive metathesis was. However, the occurrence of the Spanish loanword *posol* ‘pozole (stew)’ with both metathesised and unmetathesised forms indicates that metathesis was productive.³ It is likely that VC → CV metathesis in Mutsun was used to derive verbs from nouns.

The main similarity between the Mutsun Ohlone data and the Amarasi data is in the distribution of metathesis. In both instances metathesis is phonological in some contexts and morphological in others.

A.4 Sierra Miwok

Sierra Miwok is a language of central California (see Figure A.1) related to Ohlone (§A.3). My summary of Sierra Miwok metathesis is based on the description in Freeland (1951).

As in Ohlone, each verb in Sierra Miwok has multiple stems. There are three derived stems in Sierra Miwok formed from one of four different shapes of the primary (underlying) stem. These different shapes are summarised in Table A.2 below.

Table A.2: Sierra Miwok Verb Stems[†] (Freeland 1951:94f)

	Primary	Second	Third	Fourth	
I	CVC V : C	CVCVC:	CVC:VC	CV CCV	
	<i>tuya:ŋ-</i>	<i>tuyaŋ:-</i>	<i>tuy:aŋ-</i>	<i>tuyŋa-</i>	‘to jump’
II	CV CCV	CVC V C:	CVC: V C	CV CCV	
	<i>wik̥ti-</i>	<i>wikiṭ:-</i>	<i>wik̥iṭ-</i>	<i>wik̥ti-</i>	‘to burn’
III	CVC:V	CVCV?:	CVC: V?	CVC ?V	
	<i>ham:e</i>	<i>hame?:-</i>	<i>ham:e?-</i>	<i>ham?e-</i>	‘to bury’
IV	CV:C	CVC:	CVC: V?	CVC ?V	
	<i>lu:f-</i>	<i>lufi-</i>	<i>luf:u?-</i>	<i>luf?u-</i>	‘to win’

[†] Stress in Sierra Miwok falls on the first heavy syllable; either VCC, V:C or VC: (Freeland 1951:7). Because it is predictable, I do not indicate its presence in this section.

The shape of each derived stem is consistent across all four verb classes, with the exception of the second stem of class IV verbs. The second derived stem has the shape CVCVC:, the third stem CVC:VC and the fourth stem CVCCV.

In all cases the final C-slot is filled by a glottal stop when the root has only two consonants. Similarly, when the root has only a single vowel the final V-slot is filled by /u/ after back rounded vowels, and by /i/ after all other vowels. Both these facts can be seen with the

³ Mutsun *posol* is a loan from Spanish *pozole*, itself a loan from Nahuatl *pozolli*. The Mutsun form *poso:l-e* occurs in the object case (Okrand 1977:127, fn.14). The final final /e/ of the Spanish form has been re-analysed in Mutsun as a suffix.

primary stem *lu:f* ‘to win’ which when assigned a CVC:VC Third stem has the form *lu:f:u?* with the final vowel and consonant occurring to fill the empty V-slot and C-slot.

Final consonant-vowel metathesis is found in three cases; between the primary stem of verb class I and the fourth stem, which is VC → CV metathesis, and between the primary stem of verb class II and the second and third derived stems, which is CV → VC metathesis. It is also possible to analyse the epenthetic glottal stop as undergoing metathesis in the third and fourth stems of class III verbs and class IV verbs.

As in Mutsun, some cases of metathesis in Sierra Miwok are instances of phonologically conditioned metathesis. Before a CC initial suffix the fourth stem is used, thereby avoiding a cluster of three consonants. One example is the class I stem *pol:a:ŋ* ‘to stagger’ + *-yni* DESIDERATIVE → *polŋayni* (Freeland 1951:116).

There are also many instances of morphemically conditioned metathesis with different suffixes of the same phonological shape occurring with different stems. Such instances are extremely numerous and I do not provide examples here.

In addition to phonologically and morphemically conditioned metatheses, there are also instances in which metathesis serves a morphological function. For instance, one nominalisation strategy for class I verbs is to simply use the fourth stem. Examples are given in (7) below, in which nouns are cited with the SUBJECTIVE suffix *-?*

(7) Sierra Miwok Verbalising Metathesis (Freeland 1951:149)

	Verb		Noun	
‘to relate’	<i>ʔu_ɬe:n-</i>	→	<i>ʔu_ɬne-?</i>	‘myth, tale’
‘to tell’	<i>koyo:w-</i>	→	<i>koywo-?</i>	‘words, speech’
‘to run’	<i>hiwa:-t̚-</i>	→	<i>hiw_ɬa-?</i>	‘race’
‘to play’	<i>ʔawi:-n-</i>	→	<i>ʔawni-?</i>	‘game’

The processes in Mutsun Ohlone and Sierra Miwok have much in common, as might be expected from related languages. However, in Mutsun Ohlone VC → CV metathesis is a verbaliser while in Sierra Miwok the same process is a nominaliser.

The Sierra Miwok data has two similarities to the Amarasi data. Firstly, metathesis in Sierra Miwok is phonologically conditioned in some contexts and morphological in others. Secondly, metathesis in Sierra Miwok interacts with empty C-slots and empty V-slots. In Sierra Miwok empty C-slots and V-slots are filled by default segments which then metathesise with each other or with specified segments.

In Amarasi, empty C-slots also occur and metathesise with filled V-slots triggering processes such as consonant insertion and vowel assimilation. The way empty C-slots interact with Amarasi metathesis is discussed in §4.5.1 and evidence for positing empty C-slots is presented in §4.5.1.3.

A.5 Svan

Svan is a Kartvelian language of northern Georgia. Causatives of intransitive verbs are formed in Svan by final VC → CV metathesis. Details in published sources are extremely scarce. Mel'čuk (1997:297) gives the six examples in (8) below. In all six instances metathesis derives a causative from an intransitive verb.⁴

(8) Svan Causative Metathesis (Mel'čuk 1997:297)

	INTR		CAUS	
'go out'	<i>li-deg</i>	→	<i>li-dge</i>	'extinguish'
'break (intr.)'	<i>li-k^wes'</i>	→	<i>li-k^wse</i>	'break (tr.)'
'rot'	<i>li-k^wer</i>	→	<i>li-k^wre</i>	'make/let rot'
'come'	<i>li-qed</i>	→	<i>li-qde</i>	'bring, convey'
'return (intr.)'	<i>li-t'ex</i>	→	<i>li-t'xe</i>	'return (tr.)'
'get dirty'	<i>li-geb</i>	→	<i>li-gbe</i>	'make dirty'

A.6 Alsea

Alsea is a now extinct language of the Oregon coast (see Figure A.1). The only consonants which participate in metathesis in Alsea are sonorants. Metathesis in Alsea is mostly morphemically conditioned (§2.3), occurring with some suffixes.

One suffix which triggers metathesis is the third person object imperative suffix *-t*. Examples are given in (9) below, in which the metathesised stems on the right can be compared with their unmetathesised stems on the left.

(9) Alsea Morphemically Conditioned Metathesis (Buckley 2007:8f)

'had closed it'	<i>tmús-sa-nχ</i>	<i>túms-t</i>	'close it!'
'agreed to it'	<i>t'más-sal-tχ</i>	<i>t'áms-t</i>	'finish it!'
'had been sliding'	<i>stlák-sal-tχ</i>	<i>stálk-t</i>	'slide it!'
'is packing'	<i>tsuláq'n-tχ</i>	<i>tsuálq'n-t</i>	'pack it!'
'is close to shore'	<i>tlúq^w-χ</i>	<i>túlq^w-t</i>	'bring it close to shore!'
'is in act of hiding'	<i>pyáχ-aw-tχ</i>	<i>páyχ-t</i>	'hide it!'
'had pierced'	<i>qtyút-sal</i>	<i>qtúy-t</i>	'prick him!'

That this metathesis is not conditioned by the phonological shape of the suffix is shown by the contrast between suffixes with an identical form, one of which triggers metathesis while the other does not. The intransitive imperative suffix *-χ* triggers metathesis while the completive realis *-χ* suffix does not trigger metathesis. Examples are given in (10) below.

⁴ All six examples in (8) are cited with the prefix *li-* of which Mel'čuk (1997), states "Les exemples ci-dessous sont cités à la forme du nom d'action verbal, appelé *masdar*, dont les rôles syntaxiques sont comparables à ceux de l'infinitif du français."; "The examples below are given in the form of a verbal action noun, called *masdar*, whose syntactic roles are similar to those of the French infinitive."

(10) Alesá Morphemically Conditioned Metathesis (Buckley 2007:8f)

	CMPL.RL	INTR.IMP	
'dances with them'	<i>knáχ-χ</i>	<i>kánχ-χ</i>	'dance with them!'
'are lying in bed'	<i>tsnúš-χ</i>	<i>tsúns-χ</i>	'lie down!'
'is hiding'	<i>pyáχ-χ</i>	<i>páyχ-χ</i>	'hide!'
'is floating'	<i>tspyút-χ</i>	<i>tspúyt-χ</i>	'float!'

In addition to such morphemically conditioned metathesis there are also hints that Alesá had a process of morphological metathesis which signalled aspect. Buckley (2007) gives three potential examples, given in (11) below.

(11) Alesá Morphological Metathesis (Buckley 2007:10)

'keep it shut!'	<i>tmús-t</i>	<i>túms-t</i>	'shut it!'
'is stretched out'	<i>tsáyáq-tχ</i>	<i>tsáyq-tχ</i>	'made it straight'
'was (not) overtaken'	<i>tsq^wnáq^w-tn-χ</i>	<i>tsq^wánq^w-tn-χ</i>	'was being overtaken'

However, such examples come only from elicitation with no indication of the context in which they could be used. Nonetheless, given the (historic) location of Alesá, bordering on the area in which Salishan languages are spoken (see Figure A.1), it would not be surprising if Alesá had also developed a morphological process of morphological metathesis to mark aspect.⁵

A.7 Salishan

The Salishan languages are a family of languages spoken in the Pacific Northwest, around the western border of the United States of America and Canada (see Figure A.1). Most Salishan languages are either critically endangered or have recently become extinct. I discuss metathesis in three Salishan varieties, all of which belong to the Coast Salish group. These varieties include two varieties of straits Salish: Saanich (§A.7.1) and Klallam (§A.7.2), as well as a Central Salishan variety, Halkomelem (§A.7.3). All are spoken in the immediate vicinity of Southern Vancouver island.

In each of these Salishan varieties metathesis signals the so-called actual aspect, a term coined by (Thompson and Thompson 1969:215) which they describe an "action or state in effect at a particular moment". Thompson and Thompson compare this actual aspect to the Slavic imperfective as well as the English *be ...-ing* progressive. I refer to this aspect as the imperfective (IPFV) throughout this section.

In each Salishan language metathesis is only one of a number of processes used to form the imperfective. Other processes include: reduplication, infixation, glottalisation, apocope

⁵ Alesá is not considered genetically related to the Salishan languages.

and apophony (among others). Which process applies can usually, though not always, be predicted based on the phonological shape of the perfective stem.

A.7.1 Saanich

I begin my discussion of Salishan metathesis with Saanich, a variety of Straits Salish. Saanich metathesis is described in Montler (1986; 1989).

Several different processes operate in Saanich to form the imperfective aspect. These processes include infixation, reduplication and metathesis. Which of these processes operates is determined by the shape of the stem, with the goal being to achieve a CVCC word structure for the imperfective. In addition to these processes all non-initial sonorants are glottalised in imperfective forms.

Metathesis occurs in two environments. Firstly, when the root contains no vowels and is suffixed with a vowel initial suffix, metathesis of this vowel and the root final consonant occurs to form the imperfective. Examples are given in (12) below, with the ‘control transitive’ suffix *-ət*.

(12) Saanich $C_1C_2-V_1... \rightarrow C_1V_1C_2...$ (Montler 1989:97)

Root		PFV		IPFV	
\sqrt{sq}	‘tear it’	<i>sq-ət</i>	→	<i>sáq’t</i>	‘tearing it’
$\sqrt{s\chi}$	‘push it’	<i>sχ-ət</i>	→	<i>sáχt</i>	‘pushing it’
\sqrt{fj}	‘whip it’	<i>fj’-ət</i>	→	<i>fǎj’t</i>	‘whipping it’
$\sqrt{tk^w}$	‘break it’	<i>tk^w-ət</i>	→	<i>ták^wt</i>	‘breaking it’
$\sqrt{tq^w}$	‘tighten it’	<i>tq^w-ət</i>	→	<i>táq^wt</i>	‘tightening it’
$\sqrt{t’s}$	‘break it’	<i>t’s-ət</i>	→	<i>t’ást</i>	‘breaking it’
$\sqrt{\theta\chi}$	‘shove it’	<i>θχ-ət</i>	→	<i>θáχt</i>	‘shoving it’

Similarly CCəC roots form the imperfective by metathesis of the second consonant with the following vowel. Examples are given in (13) below. Only stems containing the vowel [ə] undergo metathesis in Saanich.

(13) Saanich $C_1C_2əC_3 \rightarrow C_1əC_2C_3$ (Montler 1986; 1989:93,97)

Root		PFV		IPFV	
$\sqrt{t^{\theta}tək^w}$	‘pinch’	<i>t^θtək^w</i>	→	<i>t^θət^wk^w</i>	‘pinching’
$\sqrt{t^{\theta}pəχ}$	‘scatter’	<i>t^θpəχ</i>	→	<i>t^θəpχ</i>	‘scattering’
$\sqrt{t^{\theta}k^wət}$	‘extinguish it’	<i>t^θk^wət</i>	→	<i>t^θək^wt</i>	‘extinguishing it’
$\sqrt{\theta tək^w}$	‘pierce it’	<i>θtək^w</i>	→	<i>θət^wk^w</i>	‘piercing it’

With stems of other shapes, reduplication or infixation of /ʔ/ occurs. The process of reduplication copies the first consonant of a CVC root and places it after the first vowel. Reduplication applies “[...] when stress is on the root and the root either 1) stands alone as a stem

by itself or 2) is followed by a suffix beginning with a consonant.” (Montler 1989:95). Examples are given in (14) below. Predictable schwas are transcribed as subscript.

(14) Saanich $C_1\acute{V}C_2 \rightarrow C_1\acute{V}C_1C_2$ (Montler 1989:95)

Root		PFV		IPFV	
\sqrt{qen}	‘it’s stolen’	$sqén$	→	$qéq_ən$	‘he’s stealing’
$\sqrt{t^{\theta}e\?}$	‘be on top’	$t^{\theta}é\?$	→	$t^{\theta}ét^{\theta}_ə\?$	‘riding (a horse)’
$\sqrt{q^wəl}$	‘say’	$q^wəl$	→	$q^wəlq^w_əl$	‘saying (sth.)’
$\sqrt{k^wul}$	‘school’	$s-k^wúl$	→	$s-k^wúlk^w_əl$	‘going to school’
\sqrt{tik}^w	‘trip’	$tik^w-sən$	→	$tik^w_ək^w-sən$	‘tripping’

In other cases a glottal stop is infixated after the first vowel. This infixation can also be accompanied by other various phonological process such as apophony. Examples of infixation in which do not involve any additional complications are given in (15) below.

(15) Saanich $C_1VC_2(VC) \rightarrow C_1V\?C_2(VC)$ (Montler 1989:98)

Root		PFV		IPFV	
$\sqrt{?etf}$	‘wipe it’	$?étf-at$	→	$?é(?)\?f-at$	‘wiping it’
$\sqrt{?itən}$	‘eat’	$?itən$	→	$?i(?)\?tən$	‘eating’
$\sqrt{?faq}^w$	‘sweat’	$?fáq^w-əŋ$	→	$?fá(?)\?q^w-əŋ$	‘sweating’
$\sqrt{weqəs}$	‘yawn’	$wéqəs$	→	$wé(?)\qəs$	‘yawning’
$\sqrt{x^wit}$	‘jump’	$x^wít-əŋ$	→	$x^wí(?)\?t-əŋ$	‘jumping’
$\sqrt{?amət}$	‘sleep’	$?ámət$	→	$?á(?)\?m’ət$	‘sleeping’

In Saanich metathesis is one of several processes which occurs to form the imperfective. Other processes include reduplication and infixation. Which process operates is determined by the phonological shape of the stem, with the goal of forming a CVCC word shape in the imperfective.

It may be possible at an abstract level to analyse surface metathesis in Saanich as an artefact of other phonological processes. This is particularly so given that Saanich metathesis only affects roots with schwa /ə/. This is the approach taken by Demers (1974) for similar data in the closely related language Lummi (discussed in §2.5.1.1.1), in which metathesis is analysed as resulting from stress shift with subsequent deletion of unstressed vowels.

A.7.2 Klallam

Klallam is very closely related to Saanich and the data on Klallam metathesis is similar to that in Saanich. Metathesis in Klallam is described by Thompson and Thompson (1969). As in Saanich, there are a number of process for forming the imperfective aspect in Klallam. These processes include infixation of /ʔ/, metathesis and reduplication.

Examples of verbs which form the imperfective by metathesis are given in (16) below. All words are cited with the control suffix *-t*. Predictable schwas are subscript.

(16) Klallam CCV → CVC (Thompson and Thompson 1969:216)

	PFV		IPFV	
'tie up'	<i>q'x^wí-t</i>	→	<i>q'íx^w-t</i>	'tying up'
'scratch'	<i>χíí'-t</i>	→	<i>χíí'-t</i>	'scratching'
'restrain'	<i>qq'í-t</i>	→	<i>qíq'-t</i>	'restraining'
'shoot'	<i>ífk^wú-t</i>	→	<i>íúk^w-t</i>	'shooting'
'throw'	<i>ííú-t</i>	→	<i>íús-t</i>	'throwing'
'shatter'	<i>t'tsá-t</i>	→	<i>t'áts-t</i>	'shattering'
'grasp'	<i>tí'k^wá-t</i>	→	<i>t'ók^w-t</i>	'grasping'
'swallow'	<i>í_aq'á-t</i>	→	<i>í_aq'-t</i>	'swallowing'
'pick up'	<i>m_ak^wá-t</i>	→	<i>m_ak^w-t</i>	'picking up'
'burn'	<i>íq'á-t</i>	→	<i>íáq^w-t</i>	'burning'
'tear'	<i>ííχá-t</i>	→	<i>íáíχ-t</i>	'tearing'
'chop'	<i>q'_am'á-t</i>	→	<i>q'_am[?]-t</i>	'chopping'
'bite'	<i>ts'_aí'á-t</i>	→	<i>ts'_aí[?]-t</i>	'biting'
'put in water'	<i>m_atáq^w-t</i>	→	<i>m_atq^w-t</i>	'putting in water'
'pour'	<i>k^wy'á-t</i>	→	<i>k^wáy[?]-t</i>	'pouring'

Other verbs form the imperfective by infixation of the glottal stop after the first vowel. Some examples are given in (17) below.

 (17) Klallam C₁VC₂(VC) → C₁V?C₂(VC) (Thompson and Thompson 1969:216)

	PFV		IPFV	
'wipe'	<i>íáíí'-t</i>	→	<i>íá(í)íí'-t</i>	'wiping'
'nudge'	<i>ts'út'-t</i>	→	<i>ts'ú(í)t'-t</i>	'nudging'
'make'	<i>íáíí'-t</i>	→	<i>íá(í)íí'-t</i>	'making'
'blow'	<i>púx^w-t</i>	→	<i>pú(í)x^w-t</i>	'blowing'
'set fire'	<i>hún_a-t</i>	→	<i>hú(í)n_a-t</i>	'setting fire'

Metathesis and glottal stop infixation are the two most common ways of forming the imperfective in Klallam. Another strategy is reduplication, as seen in *yáí?t* → *yáyáí?t* 'prepare'. (Reduplication also involves a change in the quality of the root vowel.)

There are also verbs which combine glottal stop infixation with either reduplication or metathesis. When metathesis and infixation are combined, the glottal stop infix ends up after the first consonant of the verb. Examples are given in (18) below.

 (18) Klallam C₁VC₂ → C₁?C₂V (Thompson and Thompson 1969:216)

	PFV		IPFV	
'beat'	<i>q'^wúíí'-t</i>	→	<i>q'^w_a(í)íí'-t</i>	'beating'
'inflate'	<i>síy_a-t</i>	→	<i>s_a(í)yú-t</i>	'inflating'
'command'	<i>sá-t</i>	→	<i>s_a(í)á-t</i>	'commanding'

In Klallam metathesis is one of at least three strategies used to form the imperfective. The fact that a variety of roots — not only those with medial schwa — undergo metathesis to

form the imperfective poses a challenge for analyses of the Klallam data in which metathesis is viewed as an artefact of other processes, such as epenthesis and vowel deletion. See the discussion in (Blevins and Garrett 1998:540) as well as (Thompson and Thompson 1969:217) who state:

This treatment [an analysis with metathesis] has the advantage of not requiring the setting up of special hypothetical base forms like *čukʷut [*tʃukʷut ‘shoot’], with actual and non-actual forms derived by vowel deletion, or positing special stress patterns inserting vowels in different positions with relation to root consonants. The current popular tendency to resort to such abstractions (even where they may be well motivated in historical-comparative terms) is at variance with objective consideration of the facts of particular language structures and tends to obstruct our efforts to understand how languages change and to obscure phenomena important in the consideration of typological similarities. (Thompson and Thompson 1969:217)

A.7.3 Halkomelem

My summary of metathesis in Halkomelem is based on that provided by Urbanczyk (2011), who describes the Hul’q’umi’num’ (Vancouver Island) dialect. As in the other Salishan languages discussed, metathesis in Halkomelem is one of several processes used to form the imperfective. Other processes include vowel apophony, reduplication and vowel deletion. Which process applies is (mostly) determined by the phonological shape of the verb.

Metathesis occurs when the verb root contains two obstruents followed by a vowel. Examples are given in (19) below. As in Saanich, non-initial sonorants are additionally glottalised in the imperfective.

(19) Halkomelem $C_1C_2V \rightarrow C_1VC_2$ (Hukari (1978) in Urbanczyk 2011:477f)

	PFV		IPFV	
‘break it’	<i>pqʷá-t</i>	→	<i>páqʷ-t</i>	‘breaking it’
‘break it’	<i>tʰqʷá-t</i>	→	<i>tʰáqʷ-t</i>	‘breaking it’
‘pull it’	<i>xʷkʷá-t</i>	→	<i>xʷákʷ-t</i>	‘pulling it’
‘tear/split it’	<i>sqʰé-t</i>	→	<i>séqʰ-t</i>	‘tearing/splitting it’

Urbanczyk (2011) compares metathesis to a process of stress shift and schwa insertion, viewing metathesis as a specific instances of this latter process. Examples of imperfectives formed by stress shift and schwa insertion are given in (20) below.

- (20) Halkomelem
- $C_1C_2V \rightarrow C_1\acute{a}C_2\acute{a}$
- (Urbanczyk 2011:478)

	PFV		IPFV	
'tell him/her'	<i>tsse-t</i>	→	<i>tsásə-t</i>	'telling him/her'
'put it near'	<i>tse-t</i>	→	<i>tásə-t</i>	'putting it near'
'count stitches'	<i>kʷfálas-t</i>	→	<i>kʷáfal'əs-t</i>	'counting stitches'
'slice out a piece of weaving'	<i>ts'álas-t</i>	→	<i>tás'al'əs-t</i>	'slicing out a piece of weaving'

When the verb begins with CVC where neither consonant is a laryngeal, or if the verb begins with an obstruent followed by schwa, the first CV is reduplicated as a prefix to form the perfective. If the vowel of the reduplicant is not schwa, stress falls on this vowel and other vowels are reduced to schwa. If the vowel of the reduplicant is schwa, stress falls on the second vowel.

- (21) Halkomelem
- $C_1V_1C_2 \rightarrow C_1V_1C_1\acute{a}C_2$
- (Urbanczyk 2011:474f)

	PFV		IPFV	
'cut it'	<i>títs'at</i>	→	<i>títats'at</i>	'cutting it'
'fight'	<i>kʷíntal</i>	→	<i>kʷíkʷən'tal</i>	'fighting'
'topple down'	<i>yeq'</i>	→	<i>yéy'aq'</i>	'toppling down'
'get near'	<i>təs</i>	→	<i>tátəs</i>	'getting near'
'break'	<i>t'aqʷ</i>	→	<i>t'at'aqʷ</i>	'breaking'
'stretched taut'	<i>θakʷ</i>	→	<i>θathákʷ</i>	'stretching'

When the root begins with a sonorant (L) followed by schwa, the imperfective is reported to be formed by CV reduplication with subsequent reduction of the initial sonorant to /h/. Stress falls on the reduplicant and the following schwa is deleted, resulting in surface metathesis when comparing the perfective and imperfective forms. Examples are given in (22) below.

- (22) Halkomelem
- $L_1\acute{a}C_2 \rightarrow h\acute{a}L_1C_2$
- (Hukari and Peter (1995) in Urbanczyk 2011:475)

	PFV		IPFV	
'fill it'	<i>láts'at</i>	→	<i>hál'ts't</i>	'filling it'
'pile hay'	<i>mákʷels</i>	→	<i>hám'kʷəl's</i>	'piling hay'
'drift downstream'	<i>wáqʷatəm</i>	→	<i>háv'qʷatəm'</i>	'drifting downstream'

The remaining two ways of forming the imperfective are apophony and schwa deletion. Both are found with tri-consonantal roots, the latter only when the suffix is *-m*. Examples are given in (23) below.

- (23) Halkomelem Apophony/Schwa deletion (Urbanczyk 2011:475f)

	PFV		IPFV	
'slurp it'	<i>tap't^h-t</i>	→	<i>tépt'^h-t</i>	'slurping it'
'seek'	<i>səwq'</i>	→	<i>sew'q'</i>	'seeking'
'fall apart'	<i>ts'át'aqʷəm</i>	→	<i>ts'át'qʷəm'</i>	'falling apart'
'fall (leaves)'	<i>tʰépəxəm</i>	→	<i>tʰépχəm'</i>	'falling (leaves)'

In Halkomelem metathesis is one of several processes used to form the imperfective. Other processes include stress shift, reduplication, apophony and apocope. Which process applies is predictable based on the phonological shape of the root. Metathesis affects roots which contain two obstruents.

In the Salishan languages CV → VC metathesis is one of several processes used to form the imperfective from the perfective. The main similarities between the Salishan data and the Amarasi data is that in both instances metathesis is associated with a large number of other processes. In Amarasi these processes are best analysed as being triggered by metathesis, while in the Salishan languages these other processes may have given rise to metathesis (§2.5.1.1).

Appendix B

Selected Amarasi Texts

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B.1 Preface

In this appendix I present three Amarasi texts: a narrative about a recent event (§B.2), a myth or folk-tale about the beginning of the world (§B.3), and a conversation (§B.4).

Each numbered line represents a single intonation unit. Long intonation units are usually broken into multiple lines of a single numbered line with each part of the intonation unit labelled alphabetically. Commas are used to indicate pauses. Glossing follows the same conventions used throughout this thesis, with the exception that the third person singular genitive suffix *-n* is glossed 3GEN rather than usual 3SG.GEN.

The only instances of metathesis which are indicated in the glosses are those which have a morphological meaning: M-forms of nouns modified by an attributive modifier (Chapter 6) and U-forms of vowel final verbs and other word classes which take discourse driven U-forms (Chapter 7). Non-morphological M-forms and U-forms can be detected by comparing the phonemic transcription in the top line with the corresponding underlying forms in the second line.

B.2 The Death of Nahor Bani

B.2.1 Metadata

File-name:	aaz-20130928-1-HeronimusBani-CeritaNahorBaniMati
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	28/09/2013
Speaker(s):	Heronimus Bani
Recorded by:	Heronimus Bani, Owen Edwards
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Charles E. Grimes
Genre:	narrative
Summary:	Roni relates a disagreement over where recently deceased Nahor Bani should be buried

B.2.2 Extended Notes

Heronimus Bani relates about a disagreement over where recently deceased Nahor Bani should be buried. Most families want to bury their loved ones in their yard so they can care for the grave. The government has been pushing for everyone to be buried in designated community graveyards (Indonesian *T.P.U.* = *tempat pemakaman umum*) “for public health reasons”. Culturally in Timor, the *nitu* ‘spirit of the dead’ can disturb, disrupt, cause sickness, crop failure, etc. to the living if angry or neglected. Monitoring and taking good care of the grave is one way to show respect and prevent bad things happening to good people.

B.2.3 The Text

- (1) *nenō ia aam Nahor Bani n-maet.*
 nenō ia ama Nahor Bani n-mate
 day IDEM father\M N. B. 3-die
 ‘Today father Nahor Bani’ died.’ 0.02
- (2) *oras in n-mate =te,*
 oras in n-mate =te
 time 3SG 3-die\U =SET
 ‘When he died,’ 0.06

- (3) *in aan moonɕ=es kaan-n=e, nai?, Fanu,*
 in anah mone=es kana-n=e nai? Fanu
 3SG child\M male=one name-3GEN=3DET Mr. F.
 ‘one of his sons named Fanu’ 0.11
- (4) *a|n-hain n-ain nopu.*
 n-hani n-ani nopu
 3-dig 3-before hole
 ‘had dug the grave beforehand.’ 0.17
- (5) *re?, uaba =m too mfaun re?, kuan=i naan-n=i n-ak =am,*
 re? uaba =ma too mfaun re? kuan=i nana-n=i n-ak =ma
 REL speech =ma populace many REL village=1DET inside-3GEN=1DET 3-say =and
 ‘of which it was said, (by) many people who (are) in this village, (they) said,’ 0.20
- (6) *ehh nopu mnanun.*
 nopu mnanu?
 uhh hole deep
 ‘uhh, the grave was deep/long’ 0.27
- (7) a. *in ka= n-haandɕ=e ruum=ah =fa =te*
 in ka= n-hani=e ruum=ah =fa =te
 3SG NEG= 3-dig=3SG.ACC plain=just =NEG =SET
 ‘He did not just dig it plainly (i.e. with plain dirt walls),’
 b. *n-hani n-raardɕ=e =t n-rame.*
 n-hani n-rari=e =te n-rame
 3-dig 3-finish=3SG.ACC =SET 3-plaster\U
 ‘(when) he finished digging it, he walled/plastered it (with concrete).’ 0.30
- (8) *n-raamdɕ=e reko~reko.*
 n-rame=e reko~reko
 3-plaster=3SG.ACC FRD~good
 ‘He walled it properly.’ 0.33
- (9) *onai =m, re? na-tfeek onai =te,*
 onai =ma re? na-tfeka onai =te
 and.so REL 3-stop and.then
 ‘So, when (the deceased) stopped (drew his last breath) then’ 0.36
- (10) *are? amahonit anaaprenat too mfaun=ein neem na-bua=n =am,*
 are? a-ma-honi-t¹ a-na?a-prena-t² too mfaun=eni nema na-bua=n =ma
 every parent official populace many=PL 3\come 3-gather=PL =and
 ‘all the parents/clan elders, (local) government officials, and many of the populace,
 came and gathered’ 0.43

¹ *amahonit* with variant *mahonit* ‘parent’, lexicalised nominalisation from *a-ma-honi-t* NML-PROP-born-NML

² *anaaprenat* ‘official’, lexicalised historic nominalisation from *a-na?a-prena-t* NML-hold-govern-NML

APPENDIX B. SELECTED AMARASI TEXTS

- (11) *he na-ʔuab=ein n-eu re? he*
 he na-ʔuaba=eni n-eu re? he
 IRR 3-speak=PL 3-DAT GVN.OBJ IRR
 ‘to discuss about’ 0.48
- (12) *t-pafa? ai? t-suba =ma,*
 t-pafa? ai? t-suba =ma
 IPI-protect or IPI-bury\U =and
 ‘Are we going to watch over (the body) or are we going to bury (it) and,’ 0.51
- (13) *on re? mee*
 on re? mee
 like GVN.OBJ how
 ‘how are we going to go about this?’ 0.55
- (14) *oat haagw=i on re? mee, ai? noup paar-n=i, on re? mee,*
 ote hau=i on re? mee ai? noup paar-n=i on re? mee
 cut\M wood=1DET like GVN.OBJ how or hole\M short-3GEN=1DET like GVN.OBJ how
 ‘how should the cutting of the wood (for the casket) be? Or, how should the length
 of the grave hole be?’ 0.57
- (15) *ma nopu mnaun?i =t, on re? mee?*
 ma nopu mnanu?i =te on re? mee
 and hole deep=1DET =SET like GVN.OBJ how
 ‘and how deep should the hole be?’ 1.02
- (16) *onai =te, re? nai? Faangw=i*
 onai =te re? nai? Fanu=i
 then REINT Mr. F.=1DET
 ‘So then this Fanu’ 1.06
- (17) *fee?n=i uab=i, n-ak, on in ka= na-tona=n =fa*
 fe?en=i uaba=i n-ak on in ka= na-tona=n =fa
 earlier=1DET speech=1DET 3-say IRR.LOC 3SG NEG= 3-tell=PL=1DET =NEG
ana?apreent=ein=i, ai? mahoint=ein=i n-eu re? in n-hain n-ain, nopu
 ana?aprenat=eni=i ai? amahonit=eni=i n-eu re? in n-hani n-ani nopu
 official=PL=1DET or parents=PL=1DET 3-DAT GVN.OBJ 3SG 3-dig 3-before hole
 ‘(that I) mentioned earlier, (he) said that he had not told the government officials, or
 the clan leaders that he had (already) dug the grave beforehand,’ 1.10
- (18) *ai? in n-mesel a|n-rari, n-rame n-rari.*
 ai? in n-mesel n-rari n-rame n-rari
 or 3SG 3-grave.cover 3-finish\U 3-plaster 3-finish\U
 ‘or that he had built the grave cover and had plastered it with cement.’ 1.18

APPENDIX B. SELECTED AMARASI TEXTS

- (19) *in n-meerk=o-n.*
in n-merak=o-n
3SG 3-quiet=REFL-3GEN
‘He kept himself quiet.’ 1. 22
- (20) *onai =m anaapreent=ein n-ok*
onai =ma ana?aprenat=eni n-oka
and.so official=PL 3-with
‘So (consequently) the government officials and’ 1. 22
- (21) *nai? Fanu in taat-f=eni*
nai? Fanu in tata-f=eni
Mr. F. 3SG eSi-0GEN=PL\U
‘Fanu’s elder siblings (= brothers, cousins),’ 1. 26
- (22) *aam Simson n-ok aam Ayup nema n-tea=n onai =t,*
ama Simson n-oka ama Ayup nema n-tea=n onai =te
father\M Simson 3-with father\M Ayub 3\come 3-until=PL and.then
‘Mr. Simson (Samson) and Mr. Ayub (Job) came arriving and’ 1. 28
- (23) *n-ak on na-?uab=ein =ama,*
n-ak on na-?uaba=eni =ma
3-say like 3-speak=PL =and
‘thinking like they were going to discuss, and’ 1. 32
- (24) a. *sin he n-nao=n n-suba=n on, bare ?-bua-?*
sin he n-nao=n n-suba=n on bare ?-bua-?
3PL IRR 3-go=PL 3-bury=PL IRR.LOC place NML-gather-NML
‘they were going to go bury him at the gathering place’
b. *re? n-teek=e n-ak, T.P.U.*
re? n-teka=e n-ak T.P.U.
REL 3-call=3SG.ACC 3-say graveyard
‘which is called the T.P.U. (*tempat pemakaman umum* = public burial place)’ 1. 34
- (25) *hee? maans=e n-maeb ia =te,*
hee? manas=e n-mabe ia =te
hey sun=3DET 3-afternoon IDEM =SET
‘So that late this afternoon’ 1. 41
- (26) *uab=i n-fain suurdz=en, na-suri=n.*
uaba=i n-fani suri=en na-suri=n
speech=1DET 3-turn collide=INCEP 3-collide=PL
‘the discussion had turned into a clash, they were at cross purposes.’ 1. 43
- (27) *na-suri=n n-eu re?*
na-suri=n n-eu re?
3-collide=PL 3-DAT GVN.OBJ
‘They were at odds over’ 1. 47

APPENDIX B. SELECTED AMARASI TEXTS

- (28) *aam Fanu in neek-n=i he n-suub*
ama Fanu in neka-n=i he n-suba
father\M F. 3SG feelings-3GEN=1DET IRR 3-bury
‘father Fanu’s desire to bury (him),’ 1.49
- (29) *na-baar re? kintal, na-tuin,*
na-bara re? kintal na-tuin
3-forever GVN.OBJ yard 3-because
‘permanently in the yard because’ 1.51
- (30) *in aam-f=i, es a|n-renu =ma n-hain re? nopu,*
in ama-f=i es n-renu =ma n-hani re? nopu
3SG father-KIN.GEN=1DET one 3-order\U =and 3-dig GVN.OBJ hole
‘his father was the one who ordered (him to), and he had already dug the hole,’ 1.54
- (31) *a|n-raamɔ̃=e n-ok.*
n-rame=e n-oka
3-plaster=3SG.ACC 3-with
‘and had even plastered it’ 1.58
- (32) *onai =m anaapreent=ein n-ma-toof=ein et re? nee n-ok are?*
onai =ma anaʔaprenat=eni n-ma-tofa=eni et re? nee n-oka are?
and.so official=PL 3-RECP-quarrel=PL IPFV.LOC REL 3DEM 3-with every
mahoint=eni=m
mahonit=eni =ma
parents=PL\U =and
‘So (consequently) the government officials, they argued there with all the clan elders,
and...’ 2.01
- (33) *nuuk tua-f=eni, nai? Fanu n-ok are? in tata-f,*
nuka tua-f=eni nai? Fanu n-oka are? in tata-f
grief\M person-0GEN=PL\U Mr. F. 3-with every 3SG eSi-0GEN
‘the bereaved, Mr. Fanu and with all his elder siblings,’ 2.05
- (34) *es~es =ate n-ok in fee in mone,*
es~es =te n-oka in fee in mone
FRD~one =SET 3-with 3SG wife 3SG husband
‘each one (of them) with his wife or her husband,’ 2.09
- (35) *na-suri=n =am...*
na-suri=n =ma
3-collide=PL =and
‘they were at odds and...’ 2.11
- (36) *ka= ta-hiin he suub-t=i on re? mee*
ka= ta-hini he suba-t=i on re? mee
NEG= 1PI-know IRR bury-NML=1DET like GVN.OBJ how
‘We didn’t know how (or where) we were going to bury him.’ 2.13

- (37) *anaapreent=ein n-aiti ?niim-k=ein =am ka= ta-hiin he*
ana?aprenat=eni n-aiti ?nima-k=eni =am ka= ta-hini he
 official=PL 3-lift hand-3PL/1GEN=PL and NEG= 1PI-know IRR
 ‘The government officials lifted their hands (= didn’t want to have anything more to do with it) and we didn’t know whether’ 2.16
- (38) a. *urusan re? he reek hae-f,*
urusan re? he reka? hae-f
 dealings REL IRR order\M messenger-0GEN
 ‘arrangements like sending messengers out (with news of the death),’
- b. *are? tabiru on ahh tiis raargw=i he on re? mee?*
are? tabiru on tisi raru=i he on re? mee
 every work IRR.LOC ahh pour\M palm.wine=1DET IRR like GVN.OBJ how
 ‘every detail that had to be attended to, like, uhh, pouring palm-wine, was going to happen how?’ 2.28
- (39) *maut hena? ta-tniin =sin.*
maut hena ta-tnina =sin
 let IRR 1PI-listen 3PL
 ‘We really should listen to them.’³ 2.33
- (40) *aam Nahor Bani n-maet, in rais-n=i ?tet~teta? kuu-n.*
ama Nahor Bani n-mate in rasi-n=i ?tet~teta? kuu-n
 father\M N. B. 3-die 3SG issue-3GEN=1DET INTNS~different alone-3GEN
 ‘Father Nahor Bani died, and his issue (relating to his death) is entirely different and unique.’ 2.35

³ Deliberately left vague as to which group =*sin* ‘they’ refers to.

B.3 Moo'-Hitu

B.3.1 Metadata

File-name:	aaz-20120715-4-Nekmese-KusnawiBani-2
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	15/07/2015
Speaker(s):	Taniel Feni, Kusnawi Bani, Heronimus Bani
Recorded by:	Daniel Kaufman, Heronimus Bani
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Yedida Ora
Free English by:	Owen Edwards
Genre:	folk-tales
Summary:	Story of Moo'-Hitu, a mythical snake who created the world

B.3.2 Extended Notes

The complete original recording contains a number of separate folktales and stories. I present here only the first story: the story of Moo'-Hitu. This may be a conflation of two separate myths. The first is a creation myth about how Moo'-Hitu, a snake-like being, separates the sky, land and sea. The second myth is about how a python copulated with women and is, perhaps, an explanation for the origin of men.⁴

The main narrator is Taniel Feni, though Kusnawi Bani and Heronimus Bani occasionally interject to offer clarifications or ask questions. Sentences spoken by Kusnawi Bani are preceded by 'K', sentences spoken by Heronimus Bani are preceded by 'R' and sentences spoken by Taniel Feni are unmarked except in sections where there are multiple speakers, in which case Taniel's utterances are marked 'T'.

The video of this story can be found on the YouTube channel of the Endangered Language Alliance: https://www.youtube.com/watch?v=Z_2D9WhYuuM&list=PLcXFPx-z7B0q_2Ns3iYHigEY77DG4kXSU&index=15.

The information in the myth is incredibly dense in parts and certain information is left unexplained and/or assumed to be known by the hearers. Footnotes provide additional explanations as well as possible alternate readings.

⁴ In Timorese thought the human world cannot exist without women, who are the source of life. This leaves unexplained the origin of men.

B.3.3 The Text

- (1) *nenō naa paha ʔpina-n ia, a|n-kobub on bare meseʔ*
 nenō naa paha ʔpina-n ia n-kobub on bare meseʔ
 day 0DEM land below-3GEN 1DEM 3-piled.up IRR.LOC place one
 ‘At that time this world was all piled up in one place’ 0.05
- (2) *ka= n-muiʔ =fa maanuan.*
 ka= n-muʔi =fa mainuan
 NEG= 3-exist =NEG open
 ‘there was no openness/space.’ 0.10
- (3) *ka= n-muiʔ =fa oe.*
 ka= n-muʔi =fa oe
 NEG= 3-exist =NEG water
 ‘There was no water.’ 0.13
- (4) *ʔ-aaʔ oodʒ=i n-mees, ka= t-iit =fa auf metoʔ*
 ʔ-aʔa oe=i n-mese ka= t-ita =fa afu metoʔ
 1SG-speak.poetry water=1DET 3-alone NEG= 0-see =NEG ground\M dry
 ‘I say, there was only water, there was no dry ground.’⁵ 0.14
- (5) K: *afu =m neno n-ma-naaʔ*
 afu =ma neno n-ma-naʔa
 ground =and sky 3-RECP-hold
 ‘The ground and sky held on to one another.’ 0.17
- (6) T: *afu =m neno n-ma-naaʔ, meisʔookn=i n-naaʔ*
 afu =ma neno n-ma-naʔa meisʔokan=i n-naʔa
 ground =and sky 3-RECP-hold dark=1DET 3-hold
 ‘The ground and sky held on to one another, darkness held (fast).’ 0.18
- (7) *tapi, ahh, reʔ kaunaʔ ia in n-moni n-bi oodʒ=e naan-n=i,*
 tapi reʔ kaunaʔ ia in n-moni n-bi oe=e nana-n=i
 but ahh REL snake 1DEM 3sg 3-live 3-loc water=3DET inside-3GEN=1DET
 ‘but as for this snake, he was living inside the water,’⁶ 0.20
- (8) *noki-noki =te, in na-skeke n-fena n-hake =ma*
 noki-noki =te in na-skeke n-fena n-hake =ma
 eventually =SET 3SG 3-suddenly 3-rise 3-stand\U =and
 ‘after a while, he suddenly stood up and’ 0.24

⁵ Line (4): The meaning of initial phonetic [ʔa:ʔ] is currently unclear. It may be from the root *ʔaʔa* ‘ritual speech, poetic speech’ and could, perhaps, mean something like ‘I am telling it according to tradition’. In some other varieties of Uab Meto *ʔaʔa* simply means ‘speak, talk’.

⁶ Line (7): The snake is Moo'-Hitu. The narrator has been instructed to “Tell the story of Moo'-Hitu.”

- (9) a. *in in n-feen es mee =t neengw=i na-siri? na-siri?*
in in n-fena es mee =te neno=i na-siri? na-siri?
3SG 3SG 3-rise IPFV.LOC where =SET sky=1DET 3-spread 3-spread
‘as he went up to somewhere, the sky kept spreading and spreading (upwards)’⁷
- b. *sampe in n-tea re? =at neno nee msa? in na-tuin=e =ma*
sampe in n-tea re? =te neno nee msa? in na-tuin=e =ma
until 3SG 3-up.to REL =SET sky 3DEM also 3SG 3-follow=3SG.ACC =and
‘until as he arrived where (it was), the sky was also there, he followed it and,’⁸ 0.27
- (10) *a|n-hake ?ro~roo =t es naa, neengw=e na? a|n-ma-na?a =ma*
n-hake ?ro~roo =te es naa neno=e na? n-ma-na?a =ma
3-stand INTNS~far =SET IPFV.LOC 0DEM sky=3DET then 3-RECP-hold\U =and
‘when he had stood up for a long time there, only then the sky held fast (in relation to him) and,’ 0.34
- (11) *na? n-sanu n-fani kre?o~kre?o =ma n-fani n-bi in bara-n.*
na? n-sanu n-fani kre?o~kre?o =ma n-fani n-bi in bara-n
then 3-descend 3-return FRD~a.bit =and 3-return 3-RL.LOC 3SG place-3GEN
‘then (he) slowly went back down bit by bit to his place’ 0.37
- (12) a. *n-fani n-bi in baar-n=i,*
n-fani n-bi in bara-n=i
3-return 3-RL.LOC 3SG place-3GEN=1DET
‘(he) went back to his place,’
- b. *in baar-n=e et ood?e =e nana-n.*
in bara-n=e et oe=e nana-n
3SG place-3GEN=3DET IPFV.LOC water=3DET inside-3GEN
‘his place inside the water’ 0.40
- (13) a. *n-bi~bi ood?e =e naan-n=e onai =te,*
n-ni~bi oe=e nana-n=e onai =te
3-INTNS~loc water=3DET inside3GEN=3DET then
‘after he had been in the water for a while then,’
- b. *a|nmo?e =ma npood?e =en a|n-bi meto?*
n-mo?e =ma n-poi=en n-bi meto?
3-do\U and 3-exit=INCEP 3-RL.LOC dry
‘(he) made (dry land) and went out onto dry land,’ 0.43
- (14) *n-poi n-bi meot?=e onai =te in ka= n-mui? =fa bare he na-tua =m,*
n-poi n-bi meto?=e onai =te in ka= n-mu?i =fa bare he na-tua =m
3-exit 3-RL.LOC dry=3DET then 3SG NEG= 3-exist =NEG place IRR 3-live =and
‘having gone out onto the dry land, he didn’t have a place to live and,’ 0.47

⁷ Lines (9) and (10) are an explanation of how Moo'-Hitu pushes up the sky and separates it from the water.

⁸ Line (9b): A difficult line. It is unclear if the snake is the subject and the sky is the object (as translated) or visa-versa. I have translated it with the snake as subject as this is consistent with the following line.

- (15) *he na-tua =te he- baer mainuan,*
 he na-tua =te bare mainuan
 IRR 3-live top place\M open
 'he would (have to) live in an open place,' 0.51
- (16) *na-tua =te baer ko?u,*
 na-tua =te bare ko?u
 3-live =SET place\M big
 'live in a big place,' 0.53
- (17) a. *ahirnya, ahh, n-aim naan baardz=es =am namaika? an-,*
 ahirnya n-ami naan bare=es =ma na-maika?
 in.the.end ahh 3-look.for 2DEM place=one =and 3-stay
 'in the end, (he) looked there for a place and settled,'
 b. *na-maika? n-bi Smara? tunan*
 na-maika? n-bi Smara? tuna-n
 3-stay 3-RL.LOC Sm. top-3GEN
 '(he) settled on top of Smara' (a headland on the southern Amarasi coast) 0.57
- (18) *na-maika? n-bi Smara? tuun-n=e =ma*
 na-maika? n-bi Smara? tuna-n=e =ma
 3-stay 3-RL.LOC Sm. top-3GEN=3DET =and
 'settled on top of Smara' and' 1.01
- (19) a. *in, re? fee mnais unu? =ma nai? unu? n-nao na-kbatu=n a|n-bi tasi,*
 in re? fee mnasi? unu? =ma na?i unu? n-nao na-kbatu=n n-bi tasi
 3sg REL wife old\M past and PF\M past 3-go 3-shell=PL 3-RL.LOC sea
 'he (was) where the old women of past times and the old men of past times went
 and collected shells by the sea,
 b. *n-tea uab reu?f=idz=en =ama ahh*
 n-tea uaba re?uf=i=en =ma
 3-arrive speech\M bad=1DET=INCEP =and ahh
 'he went there (to do things which are) bad to talk about.'⁹ 1.05
- (20) a. *in feedz=e msa? nua sin huma? mese? tapi bifeedz=e bifee biasa,*
 in fee=e msa? nua sin huma? mese? tapi bifee=e bifee biasa
 3sg wife=3DET also two 3PL kind one but woman=3DET woman normal
 'he and his wife were the same, but the woman was a normal woman'¹⁰

⁹ Line (19b) is obscure. It probably foreshadows that the actions Moo'-Hitu is about to carry out are bad to talk about. Just after this line Kusnawi Bani says one or two inaudible words.

¹⁰ Line (20a): The wife (apparently of Moo'-Hitu) has not been introduced before. The reference to her being a 'normal woman' is probably a contrast with the fact that Moo'-Hitu is a snake-like being.

- b. *suma atoin?=ein=e n-teek=e =te n-ak: Moo?-Hitu.*
 suma atoni?=eni=e n-teka=e =te n-ak Moo?-Hitu
 only man=PL=3DET 3-call=3SG.ACC =SET 3-say M.-H.
 ‘only the men called him Moo’-Hitu’¹¹ 1.10
- (21) *Moo?-Hitu re? naan in, kauna?*
 Moo?-Hitu re? naan in kauna?
 M.-H. REINT 2DEM 3SG snake
 ‘that Moo’-Hitu was/is a snake’ 1.16
- (22) *kauna? mes huum atoni?, on re? hit*
 kauna? mes huma? atoni? on re? hit
 snake but face\M man like GVN.OBJ IPI
 ‘(he was) a snake but (he had) a human face/form like us’ 1.19
- (23) *cuma in kaan-n=e ese? nai? Moo?-Hitu*
 cuma in kana-n=e es re? nai? Moo?-Hitu
 only 3SG name3GEN=3DET one REL Mr. M.-H.
 ‘it was only his name which was Moo’-Hitu’ 1.22
- (24) a. *in n-fena n-hake =t mo?ok hitu,*
 in n-fena n-hake =te mo?ok hitu
 3SG 3-rise 3-stand\U =SET section seven\U
 ‘If he stood up (there would be) seven sections,’¹²
- b. *mes ho mu-hiin he moo?k=es =at, he mnaun?=i ba?uk.*
 mes ho mu-hini he mo?ok=es =te, he mnanu?=i ba?uk
 but 2SG 2SG-know IRR section=one =SET IRR long=1DET several
 ‘but if you (could) know (the length of) one section, it would be very long’¹³ 1.24
- (25) a. *ahirnya in n-hake n-bi Smara? tuun-n=e =te*
 ahirnya in n-hake n-bi Smara? tuna-n=e =te
 in.the.end 3SG 3-stand 3-RL.LOC Sm. top-3GEN=3DET =SET
 ‘in the end while he was standing on top of Smara?’
- b. *bifee=ngwin na-kbatu=n n-bi nahen nee kboa? ko?u.*
 bifee=eni na-kbatu=n n-bi nahe-n nee kbo?es ko?u
 woman=PL 3-shell-PL 3-RL.LOC down-3GEN 3DEM clump\M big
 ‘the women were collecting sea shells down there in a big clump’ 1.30
- (26) *in n-aim ranan huma?~huma? ahirnya*
 in n-ami ranan huma?~huma? ahirnya
 3SG 3-look.for road FRD~kind in.the.end
 ‘he was looking for various ways, and in the end’ 1.34

¹¹ Line (20b): Probably a reference to Moo’-Hitu’s phallic shape and/or nature.

¹² Line (24a): an explanation of the name Moo’-Hitu. It is from the root *mo?ok* ‘section of something long, i.e. joints of a finger, nodes of bamboo’ and *hitu* ‘seven’.

¹³ Line (24b): Moo’-Hitu is so long, that it is hard to know how long even a single section of him would be.

- (27) a. *parmisi =m re? in nahh hihh*
 parmisi =ma re? in
 excuse.me =and REL 3SG ahh ahh
 ‘excuse me and it was where he,’¹⁴
- b. *in n-nao n-peo? afu n-moa? on umeekɔ=i =ma*
 in n-nao n-pe?o afu n-mo?e on umeke=i =ma
 3SG 3-go 3-go.by ground 3-do like snake=1DET =and
 ‘he went along the ground he doing it like the *umeke* snake’¹⁵ 1. 37
- (28) a. *in, in tua-n=i n-bi ata ?toe?f=e tuun-n=e =t*
 in in tua-n=i n-bi ata ?to?ef=e tuna-n=e =te
 3SG self-3GEN=1DET 3-RL.LOC above mountain=3DET top-3GEN=3DET =SET
 ‘while his self was up on top of the mountain,’
- b. *in ao-n=e es a-nao-t =ma*
 in ao-n=e es a-nao-t =ma
 3SG body-3GEN=3DET one NML-go-NML =and
 ‘his body (was the) one which went’ 1. 42
- (29) *in n-koin re? bifee=ɲgwin n-bi tasi,*
 in n-koni re? bifee=eni n-bi tasi
 3SG 3-copulate GVN.OBJ woman=PL 3-RL.LOC sea
 ‘He copulated with those women at the sea’ 1. 46
- (30) *ka= na-keo=n =fa*
 ka= na-keo=n =fa
 NEG= 3-aware=PL =NEG
 ‘They weren’t aware of it.’ 1. 48
- (31) a. *in, in, in a|?-mae-n=i es a|n-peo? afu*
 in in in ?-mae-n=i es n-pe?o afu
 3SG 3SG 3SG NML-shame-3GEN=1DET one 3-go.by ground
 ‘his private part was the one which went along the ground.’
- b. *in n-moo?ɔɔ=o-n on kauna?i =ma*
 in n-mo?e=o-n on kauna?i =ma
 3SG 3-do=REFL-3GEN like snake=1DET =and
 ‘it made itself like a snake and,’
- c. *n-nonok a|n-peo? aafgw=i =ma*
 n-nonok n-pe?o afu=i =ma
 3-crawl 3-go.by ground=1DET =and
 ‘crawled along the ground and,’ 1. 49

¹⁴ Line (27a): The narrator uses *permisi* to signal to the hearers that he is about to talk of sexual matters.

¹⁵ Line (27b): *umeke* = ‘a kind of red snake’

APPENDIX B. SELECTED AMARASI TEXTS

- (32) a. *n-nao-b a|n-tama =m, in n-koin re? bifee=ngwin*
n-nao-b n-tama =ma in n-koni re? bifee=eni
3-go-TR 3-enter\U =and 3SG 3-copulate GVN.OBJ woman=PL
‘(he) made (it) go and went in and he copulated with the women’
- b. *sin ka= na-keo=n =fa*
sin ka= na-keo=n =fa
3PL NEG= 3-aware=PL =NEG
‘they weren’t aware of it’ 1.55
- (33) *n-bi taasɟ=e =m*
n-bi tasi=e =ma
3-RL.LOC sea=3DET =and
‘he was at the sea and’ 1.58
- (34) R: *na-hoin?=ein?*
na-honi?=eni
3-born=PL
‘Did they give birth?’ 1.58
- (35) T: *ya?*
yes
‘What?’ 2.00
- (36) R: *na-hoin?=ein?*
na-honi?=eni
3-born=PL
‘Did they give birth?’ 2.00
- (37) T: *na-hoin?=ein.*
na-honi?=eni
3-born=PL
‘They gave birth.’ 2.01
- (38) R: *in aanh=ein es on re? mee?*
in anah=eni es on re? mee
3sg child=PL one like GVN.OBJ how
‘What were the children like?’ 2.03
- (39) T: *awii, wii su lupa*
oh oh already forget
‘Oh! I’ve forgotten.’ 2.04
- (40) a. *na-hoin?=ein mese?*
na-honi?=eni mese?
3-born=PL but
‘They gave birth but ’

- b. *sin ka= na-hini=n n-eu he on ma-honi-ʔ üɟ=ah=en*
 sin ka= na-hini=n n-eu he on ma-honi-ʔ ia=ah
 3PL NEG= 3-know=PL 3-DAT IRR like PROP-born-PROP IDEM=just=INCEP
 ‘they didn’t know how they had become pregnant here’
- c. *sin n-ok atoniʔ na-ʔko mee,*
 sin n-oka atoniʔ na-ʔko mee
 3PL 3-with man 3-ABL where
 ‘(or) where the man they were (pregnant) with was from’ 2.06
- (41) K: *na-ʔko mee.*
 na-ʔko mee
 3-ABL where
 ‘where he was from’ 2.10
- (42) T: a. *ahirnya ahh, areʔ riʔaanʔ=ein a|n-poi=n nema=n =at*
 ahirnya areʔ riʔanaʔ=eni n-poi=n nema=n =te
 in.the.end ahh every child=PL 3-exit=PL 3\come=PL =SET
 ‘in the end, when each of the children came out’
- b. *huum-k=ein on reʔ atoniʔ reʔ ia*
 humaʔ-k=eni on reʔ atoniʔ reʔ ia
 face-3PL/1GEN=PL like GVN.OBJ man REINT IDEM
 ‘their faces were like this man’ 2.14
- (43) *ahh reʔ naiʔ Mooʔ-Hitu hum-n=i, in ao-n.*
 reʔ naiʔ Mooʔ-Hitu humaʔ-n=i in ao-n
 ahh GVN.OBJ Mr. M.-H. face-3GEN=1DET 3SG body-3GEN
 ‘(Like) Moo’-Hitu’s face, (and) his body’ 2.18
- (44) *mes sin ka= na-hini=n he sin n-tupa=n n-bi bare mee,*
 mes 3PL NEG= na-hini=n he sin n-tupa=n n-bi bare mee
 but 3pl NEG= 3-know=PL IRR 3PL 3-sleep=PL 3-RL.LOC place where
 ‘But they didn’t know where they would sleep.’ 2.21
- (45) *suma, atoniʔ reʔ n-hake n-bi ʔtoeʔf=e tuun-n=i*
 suma atoniʔ reʔ n-hake n-bi ʔtoʔef=e tuna-n=i
 only man REL 3-stand 3-RL.LOC mountain=3DET top-3GEN=1DET
 ‘but the man who stood on top of the mountain’ 2.23
- (46) a. *in, in ao-n=e n-mese n-nao n-peoʔ aafgw=i =m*
 in in ao-n=e n-mese n-nao n-peʔo afu=i =ma
 3sg 3sg body-3GEN=3DET 3-alone 3-go 3-go.by ground=1DET =and
 ‘His body went along the ground by itself and,’
- b. *in n-nao =ma n-koin reʔ bifee=ɲgwin*
 in n-nao =ma n-koni reʔ bifee=eni
 3SG 3-go =and 3-copulate GVN.OBJ woman=PL
 ‘he went and copulated with those women’

- c. *n-bi taasɟ=e naan-n=e,*
n-bi tasi=e nana-n=e
 3-RL.LOC sea=3DET inside-3GEN=3DET
 ‘at the sea’ 2.26
- (47) K: *sin ka= na-hini=n =fa*
sin ka= na-hini=n =fa ya
 3PL NEG= 3-know=PL =NEG
 ‘They didn’t know.’ 2.32
- (48) T: *sin ka= n-naeb=n=ein*
sin ka= n-nabe=n=eni
 3PL NEG= 3-feel=PL
 ‘they didn’t feel it’ 2.32
- (49) K: *ya*
 ‘Yes.’
- (50) R: *in noeb-n=e et naa fe??*
in nobe-n=e et naa fe?
 3SG tracks-3GEN=3DET IPFV.LOC 0DEM still
 ‘Are his tracks still there?’ 2.33
- (51) T: *noeb-n=e et naa fe?*
nobe-n=e et naa fe?
 tracks3GEN=3DET IPFV.LOC 0DEM still
 ‘His tracks are still there.’ 2.34
- (52) *mes of ai? hena?*
 but later or IRR
 ‘But maybe that’s how it should be.’ 2.36
- (53) K: ???
 (Kusnawi says something I cannot make out.) 2.38
- (54) *ahh au ka= ?-oka =f*
au ka= ?-oka =fa
 ahh 1SG NEG= 1SG-with\U =NEG
 ‘Aah, I’m not going to go along with it.’ 2.39

B.4 A Car Accident

B.4.1 Metadata

File-name:	aaz-20130911-2-DominggusBani-HenkiOra-CeritaOtoJato
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	11/09/2013
Speaker(s):	Dominggus Bani, Heronimus Bani, Henki Ora, Sefnat Bois and occasional others
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	conversation
Summary:	conversation about a car accident

B.4.2 Extended Notes

This text is a conversation about a recent car crash. As is to be expected from natural, free flowing conversation, there are many instances in which more than one person is speaking at once. Given this, it was not possible for the transcriber (Heronimus Bani) to transcribe every voice at every point in the recording. I have listened through the entire text several times and edited where necessary. Where there is doubt over the exact transcription, I have deferred to the original.

The three dominant participants are Dominggus Bani (D), Heronimus Bani (R) and Henki Ora (H). Names of other participants are given in full before their contributions. When a speaker makes multiple consecutive contributions, only the first contribution is marked. The recording begins after the conversation has begun and the topic of conversation has been established.

B.4.3 The Text

- (1) R: a. *onai =t, onai =t, ma, ma, saa? na,*
 onai =te onai =te ma ma saa? na
 and.then and.then and and what well
 ‘and then, and then, and, and what, well’ 0.00
- b. *kedalaman, ma?boik? =e, kefn=i mnanu?*
 kedalaman ma?boki? =e kefan=i mnanu?
 interior suspended=3DET gap=1DET deep
 ‘the interior (of the car) was suspended, the gap was deep.’ 0.03
- (2) D: a. *re? na-toon=i n-ak =am,*
 re? na-tona=i n-ak =ma
 REL 3-tell=1DET 3-say =and
 ‘That’s what they said,’ 0.05
- b. *pas a|n-ritu? n-eu re? mnaun? =id? =en =am,*
 pas n-ritu? n-eu re? mnanu? =i =en =ma
 exact 3-roll 3-DAT GVN.OBJ deep=1DET=INCEP =and
 ‘and it rolled exactly into the deep space’
- c. *ka= ta-hini mnaun? =i basik =at,*
 ka= ta-hini mnanu? =i basik =te
 NEG= 1PI-know depth=1DET how.much =SET
 ‘we don’t know how deep it was’
- d. *ka= ta-hiin, neor hit t-oka =m es he ta-hiin.*
 ka= ta-hini nero hit t-oka =ma es he ta-hini
 NEG= 1PI-know not 1PI 1PI-with\U =and one IRR 1PI-know
 ‘we don’t know, we weren’t with (them) to know’ 0.10
- (3) *mnanu?, ootgw=e, n-ak sin na? na-teut oto.*
 mnanu? oto=e n-ak sin na? na-tetu oto
 deep car=3DET 3-say 3PL then 3\TR-upright car
 ‘(It was) deep, the car, they said they then stood the car upright’ 0.12
- (4) R: *sekau es n-eki?*
 sekau es n-eki
 who one 3-bring\U
 ‘Who was driving?’ 0.15
- (5) Sefnat Bois:
suma neh, mana =fa =te n-moofgw=en =ate.
 suma mana =fa =te n-mofu=en =te
 only err like.that =NEG =SET 3-fall=INCEP =SET
 ‘Only, umm, when (it was) like that it fell’ 0.16

APPENDIX B. SELECTED AMARASI TEXTS

- (6) R: *reem=e na-ah mes*
 reem=e na-ah mes
 brakes=3DET 3-eat but
 ‘the brakes failed? but...’ 0.18
- (7) H: *reem=e na-ah, sementara n-ʔantareek.*
 reem=e na-ah sementara n-ʔantareek
 brakes=3DET 3-eat during 3-backing
 ‘The brakes failed, while they were backing.’ 0.19
- (8) R: *ohh, sementara n-ʔantareek*
 sementara n-ʔantareek
 oh during 3-backing
 ‘Oh, while they were backing.’ 0.21
- (9) H: *jadi in ka= nauhh ka= na-keo =fa mnaun he-*
jadi in ka= ka= na-keo =fa mnanuʔ
 so 3SG NEG= umm NEG= 3-be.aware =NEG deep\M
 ‘So, he wasn’t, wasn’t aware (it was) deep’ 0.23
- (10) *posisi n-ʔantareek in ka= bisa n-bi =fa nee, saap maʔbakeʔ,*
posisi n-ʔantareek in ka= bisa n-bi =fa nee saap maʔbakeʔ
 posisi 3-backing 3SG NEG= able 3-RL.LOC =NEG 3DEM because narrow
 ‘His position was backing, he couldn’t get there because it was narrow.’ 0.25
- (11) *bait in he n-aim bare henaʔ n-ʔantareek =at, bisa.*
bait in he n-ami bare henaʔ n-ʔantareek =te bisa
 actually 3SG IRR 3-look.for place IRR 3-backing =SET able
 ‘Actually if he had looked for a place to back, he could have’ 0.28
- (12) R: *in na-reen=o-n =ma n-ʔantareek a|n-bi n-*
in na-rena=o-n =ma n-ʔantareek n-bi
 3SG 3-force=REFL=3GEN =and 3-backing 3-RL.LOC
 ‘He forced himself, and went back into it, he was in...’ 0.31
- (13) H: *na-bara maʔbakeʔ*
na-bara maʔbakeʔ
 3-forever\U narrow
 ‘He was stuck in the narrow (place)’ 0.32
- (14) Sefnat Bois:
in he n-bibi
in he n-bibi
 3SG IRR 3-shrink \U
 ‘He would’ve wanted to shrink (the car)’ 0.34

APPENDIX B. SELECTED AMARASI TEXTS

- (15) D: a. *n-ak, ootgw=i, na-snii m-ak, =am, na-kamaf =am,*
n-ak oto=i na-snii m-ak =ma na-kamaf =ma
3-say car=1DET 3-slope 1PX/2-say and 3-what's.it =and
‘he said, the car was sloping, you think, and what’s it and’ 0.35
- b. *na-snii n-taikobi n-koon, na? na-tetu*
na-snii n-taikobi n-kono na? na-tetu
3-slope 3-fall 3-keep.on then 3\TR-upright\U
‘it was sloping, fell over, kept on and only then he got the car upright’ 0.38
- (16) H: *onai =ma srutun re? ia, in n-moofgw=en.*
onai =ma srutun re? ia in n-mofu=en
and.so suddenly REL 1DEM 3SG 3-fall=INCEP
‘and suddenly this one, it fell down’ 0.40
- (17) Sam Ora:
ohh, m-ak, ootgw=i in n-mese n-nao kuu-n
m-ak oto=i in n-mese n-nao kuu-n
oh 1PX/2-say car=1DET 3SG 3-alone 3-go alone-3GEN
‘Oh, you think the car went by itself’ 0.42
- (18) R: *m-ak ahh, sofir=i n-moofgw=en?*
m-ak sofir=i n-mofu=en
1PX/2-say driver=1DET 3-fall=INCEP
‘Do you think, umm, the driver fell?’ 0.43
- (19) Stef Ora:
tua
ADDR
‘yes’ 0.45
- (20) R: *tua-n?*
owner-3GEN
‘(did you say) it’s owner?’ 0.46
- (21) H: *onai =m in n-meo =t, ootgw=i in n-mese n-taikob~koib*
onai =m in n-meo =te oto=i in n-mese n-taikob~kobi
and.so 3SG 3-see =SET car=1DET 3SG 3-alone 3-INTNS~fall
‘And so when he saw it, the car fell down by itself’ 0.47
- (22) D: *onai =te oir-f=i n-ok aanh=i sin n-bi=n a|blakan*
onai =te ori-f=i n-oka anah=i sin n-bi=n blakan
and.then ySi-0GEN=1DET 3-with child=1DET 3PL 3-RL.LOC=PL back
‘and his younger brother with his child they were in the back (of the car)’ 0.52
- (23) R: *ori-f Joni.*
ori-f Joni
ySi-0GEN J.
‘the younger brother was Johnny.’ 0.52

APPENDIX B. SELECTED AMARASI TEXTS

- (24) D: *tua-n=i, n-naben =at oni? maineun?=en =ate.*
 tua-n=i n-naben =te oni? mainenu?=en =te
 owner-3GEN=1DET 3-feel =SET maybe wide.length=INCEP =SET
 ‘The owner, maybe he felt as though there was enough space.’ 0.52
- (25) a. *tua-n=i n-naben =at mnaun?=en,*
 tua-n=i n-naben =te mnanu?=en
 owner-3GEN=1DET 3-feel =SET deep=INCEP
 ‘The owner felt it was (too) deep,’ 0.55
- b. *ro in n-rete n-poi kuu-n.*
 ro in n-rete n-poi kuu-n
 must 3SG 3-jump 3-exit alone-3GEN
 ‘he had to jump out by himself’
- (26) R: *aina, in na-sae-b ba?-ba?uk atoin=ein?*
 aina in na-sae-b INTNS-ba?uk atoni?=eni
 mother 3SG 3-go.up-TR prd-several man=PL
 ‘Oh my, how many people was he carrying?’ 1.00
- (27) D: *moLak =am mu-hiin he*
 moLak =ma mu-hini he
 log and 2SG-know IRR
 ‘(he was carrying) logs, and you know..’ 1.01
- (28) R: *ma?fena?*
 ma?fena?
 heavy
 ‘heavy’ 1.04
- (29) H: *in n-ak, fe? na-sae-ba=n naan tuka? bo?=es aa?*
 in n-ak fe? na-sae-ba=n naan tuka? bo?=es aa,
 3SG 3-say still 3\TR-go.up-TR=PL 2DEM slice ten=one Q
 ‘he said, he was carrying ten of them, right?’ 1.05
- (30) R: *tuka? bo? es, mes mainenu?!*
 tuka? bo? es mes mainenu?
 slice ten one but wide.length
 ‘Ten of them. But that’s too much!’ 1.09
- (31) H: *onai =t n-ak, posisi n-?antareek in na-sae-ba? n-teni?*
 onai =te n-ak posisi n-?antareek in na-sae-TR n-teni?
 and.then 3-say position 3-backing=1DET 3SG 3\TR-go.up-TR 3-again
 ‘And then he said he was backing, he was carrying more’ 1.10
- (32) R: *he n-teni?*
 he n-teni?
 IRR 3-again
 ‘He wanted more.’ 1.13

APPENDIX B. SELECTED AMARASI TEXTS

- (33) D: *ta-sae-ba? molak on re? needz=a =t, ma?fena?*
 ta-sae-ba? molak on re? nee=a =te ma?fena?
 0-go.up-TR log like GVN.OBJ 3DEM=0DET =SET heavy
 ‘carrying logs like that, it’s heavy’ 1.13
- (34) Rehuel Nakmofa:
ma?fena?, papan re?
 heavy plank REL
 ‘heavy, planks which ...’ 1.15
- (35) D: *mahh-, papan, fe? noo nautn-, papan noo nautn=es, ma?kafa? fe?*
 papan fe? noo papan noo natun=es ma?kafa? fe?
 umm plank still COUNT plank COUNT hundred=one light still
 ‘Umm, planks, still a hundred, a hundred planks is still light!’ 1.17
- (36) H: *onai =t na? hi mi-saah m-iit noo nautn=es.*
 onai =te na? hi mi-saha m-ita noo natun=es
 and.then 2PL 1PX/2PL-carry 1PX/2-try COUNT hundred one
 ‘Well then, why don’t you try and carry a hundred planks?’ 1.21
- (37) [*laughter*] 1.23
- (38) D: *aah, hit ta-reta? n-ok ootgw=e =ma hit ta-?uab ...*
 hit ta-reta? n-oka oto=e =ma hit ta-uaba
 ah 1PI 1PI-story 3-with car=3DET =ma 1PI 1PI-speak
 ‘Ah yes! But we’re talking about the car! And we’re talking ...’ 1.24
- (39) [*laughter*] 1.26
- (40) H: *au ?-ak hi m-soba? noo nautn=es*
 au ?-ak hi m-soba? noo natun=es
 1SG 1SG-say 2PL 1PX/2-try COUNT hundred=one
 ‘I said, you try (and carry) a hundred of them’ 1.28
- (41) D: *sonde, noo nautn=es =at, ootgw=i ma?kaaf?=i n-aena =t, mainenu?*
 sonde noo natun=es =te oto=i ma?kafa?=i n-aena =te mainenu?
 not COUNT hundred=one =SET car=1DET light=1DET 3-run\U =SET excessive
 ‘No, a hundred of them, (in) the car is light, (the car) goes quickly, too much’ 1.30
- (42) R: *onai =m, mhh, a-meen-t=e n-eu =ha nai? Firgo.*
 onai =m a-mena-t=e n-eu =ha nai? Firgo
 and.so umm NML-sick-NML=3DET 3-DAT =only Mr. F.
 ‘And so, umm, the only one injured is Firgo.’ 1.33
- (43) Rehuel Nakmofa:
Firgo n-mees
 Firgo n-mese
 F. 3-alone
 ‘Just Firgo.’ 1.35

- (44) R: a. *on nehh, Dusun, eh, t-ak a-saun-t=e,*
on Dusun t-ak a-sanu-t=e
IRR.LOC nehh county IPI-say NML-descend-NML=3DET
‘Like, umm, the county (head), the one who fell down,’ 1.36
- b. *nua sin oir-f=i ka= saa?*
nua sin ori-f=i ka= saa?
two 3PL ySi-0GEN=1DET NEG= what
‘nothing happened to those two kids.’ 1.36
- (45) Rehuel Nakmofa:
n-ak, ka= saa? =fa.
n-ak ka= saa? =fa
3-say NEG= what =NEG
‘they said nothing happened (to them)’ 1.40
- (46) Adi Bani:
n-ok keun?=a =t, ean?=e na-soin
n-oka kenu?=a =te eno?=e na-soni
3-with fortune=0DET =SET door=3DET 3-open
‘It’s fortunate, the door opened’ 1.41
- (47) R: *n-eu reko.*
n-eu reko
3-DAT good
‘Well, good.’ 1.43

Appendix C

Text Index

This appendix gives a list of all the texts referenced in this thesis. It is arranged according to the chronological order in which the texts were recorded. Each text is headed by the unique code by which it is cross-referenced in example sentences in this thesis (see §1.4).

090524

File-name:	aaz-20090524-Natoni-Nikah Massal-B
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	24/05/2009
Speaker(s):	Amarasi school children
Recorded by:	Charles E. Grimes
Transcribed by:	Heronimus Bani, Charles E. Grimes, Yedida Ora
Interlinear by:	n./a.
Free Indonesian/Kupang:	n./a.
Free English by:	Heronimus Bani, Charles E. Grimes, Yedida Ora
Genre:	ritual language
Summary:	Traditional Amarasi chant performed by local children at the mass wedding service at the Ebenhaezer, Naimuti' church, Nekmese' village
Length:	
Notes:	composed by Heronimus Bani, performed by Amarasi school children of Nekmese'

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120715-0

File-name:	aaz-20120715-0-Nekmese-Natoni-2
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	24/05/2009
Speaker(s):	Amarasi school children
Recorded by:	Daniel Kaufman, Katharine Gosling
Transcribed by:	Heronimus Bani, Charles E. Grimes, Yedida Ora
Interlinear by:	n./a.
Free Indonesian/Kupang:	n./a.
Free English by:	Charles E. Grimes, Yedida Ora
Genre:	ritual language
Summary:	Traditional Amarasi chant performed by local children of Koro'oto, Nekmese', to welcome Dan Kaufman and participants from the July 2015 LangDoc Workshop
Length:	
Notes:	Composed by Heronimus Bani, performed by Amarasi school children of Nekmese' video online: https://www.youtube.com/watch?v=TBqXhan5j14&list=PLcXFPx-z7B0q_2Ns3iYHigEY77DG4kXSU&index=10

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120715-1

File-name:	aaz-20120715-1-Nekmese-Oma-1
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	15/07/2015
Speaker(s):	Yedida Ora
Recorded by:	Daniel Kaufman, Katharine Gosling
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Yedida Ora
Free English by:	Owen Edwards
Genre:	narrative
Summary:	Yedida Ora introduces herself and gives a short history of Nekmese' village
Length:	1.40
Notes:	video online: https://www.youtube.com/watch?v=MwyNRk11nBE&list=PLcXFPx-z7B0q_2Ns3iYHigEY77DG4kXSU&index=13

120715-2

File-name:	aaz-20120715-2-Nekmese-Oma-2
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	15/07/2015
Speaker(s):	Yedida Ora
Recorded by:	Daniel Kaufman, Katharine Gosling
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Yedida Ora
Free English by:	Owen Edwards
Genre:	procedural
Summary:	explanation about how the villagers of Nekmese' farm
Length:	1.39
Notes:	video online https://www.youtube.com/watch?v=NnjA1ncqyV4&index=12&list=PLcXFPx-z7B0q_2Ns3iYHigEY77DG4kXSU

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120715-3

File-name:	aaz-20120715-3-Nekmese-KusnawiBani-1
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	15/07/2015
Speaker(s):	Taniel Feni, Kusnawi Bani
Recorded by:	Daniel Kaufman, Heronimus Bani
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Yedida Ora
Free English by:	Owen Edwards
Genre:	folk-tale
Summary:	a folk-tale about people who live on the moon
Length:	1.28
Notes:	video online: https://www.youtube.com/watch?v=H33aViriqy4&index=14&list=PLcXFPx-z7B0q_2Ns3iYHigEY77DG4kXSU

APPENDIX C. TEXT INDEX

120715-4	
File-name:	aaz-20120715-4-Nekmese-KusnawiBani-2
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	15/07/2015
Speaker(s):	Taniel Feni, Kusnawi Bani, (Heronimus Bani)
Recorded by:	Daniel Kaufman, Heronimus Bani
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Yedida Ora
Free English by:	Owen Edwards
Genre:	folk-tales
Summary:	a series of folk-tales: 1. Moo'-hitu: a mythical snake who created the world (0.00–3.03) 2. Brao stones: explanation of the source of a landscape feature (3.03–4.23) 3. Nii Obe': the king of Koro'oto (4.26–5.19) 4. How the village of Koro'oto got its name (5.27–6.30) 6. How the village of Ansaof got its name (6.34–7.33) 7. How the village of Kiu Mabanat got its name (7.35–8.11)
Length:	8.33
Notes:	video online: https://www.youtube.com/watch?v=Z_2D9WhYuuM&list=PLcXFPx-z7B0q_2Ns3iYHigEY77DG4kXSU&index=15

APPENDIX C. TEXT INDEX

120923-1

File-name:	aaz-20120923-1-MelkiasMnao-Nekmese-biku
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	23/09/2012
Speaker(s):	Melkias Mna'o, (Heronimus Bani)
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	n./a.
Free English by:	Owen Edwards
Genre:	narrative
Summary:	Melkias tells Roni about a time someone cast the <i>biku</i> curse. He does so to discourage others from doing likewise. He also partially explains the method by which it is cast after Roni asks.
Length:	13.14
Notes:	Melkias Mna'o has lived in Binoni-Aufme'e hamlet (village Oenoni 2) for quite some time

APPENDIX C. TEXT INDEX

120923-2

File-name:	aaz-20120923-2-MelkiasMnao-Nekmese-bunu
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	23/09/2012
Speaker(s):	Melkias Mna'o, (Heronimus Bani)
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	procedural
Summary:	Melkias Mna'o explains how one can use <i>bunu</i> to protect their crops from being stolen
Length:	7.05
Notes:	Melkias Mna'o has lived in Binoni-Aufme'e hamlet (village Oenoni 2) for quite some time

APPENDIX C. TEXT INDEX

130821-1

File-name:	aaz-20130821-1-Nekmese-Funeral
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	21/08/2013
Speaker(s):	Heronimus Bani
Recorded by:	Owen Edwards
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	narrative
Summary:	1. Heronimus Bani explains to an audience that Owen Edwards has come to stay in Nekmese' village to learn Amarasi 2. Heronimus Bani gives the genealogy of his recently deceased maternal aunt, Sarlina
Length:	10.10
Notes:	

130822-1

File-name:	aaz-20130822-1-HeronimusBani-Kuareno
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	22/08/2013
Speaker(s):	Heronimus Bani
Recorded by:	Owen Edwards
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	n./a.
Free English by:	Owen Edwards
Genre:	narrative
Summary:	explanation of how the village Kuareno' got its name
Length:	0.41
Notes:	

APPENDIX C. TEXT INDEX

130823-2

File-name:	aaz-20130823-2-YurmemisOra-Kuareno
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	23/08/2013
Speaker(s):	Yurmemis Ora
Recorded by:	Owen Edwards
Transcribed by:	Yedida Ora, Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	narrative
Summary:	explanation of how the village Kuareno' got its name
Length:	1.15
Notes:	

130823-5

File-name:	aaz-20130823-5-EliotNubatonis
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	23/08/2013
Speaker(s):	Eliot Nubatonis
Recorded by:	Owen Edwards
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	n./a.
Free English by:	Owen Edwards
Genre:	auction
Summary:	an auction of some rice and pork
Length:	1.23
Notes:	

APPENDIX C. TEXT INDEX

130823-8

File-name:	aaz-20130823-8-menangis
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	23/08/2013
Speaker(s):	
Recorded by:	Owen Edwards
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	mourning
Summary:	a woman mourns for her recently deceased grandmother
Length:	9.45
Notes:	

130823-9

File-name:	aaz-20130823-9-GersonNee
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	23/08/2013
Speaker(s):	Gerson Nee
Recorded by:	Owen Edwards
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	narrative
Summary:	how the hamlet of Naet got its name
Length:	0.43
Notes:	

APPENDIX C. TEXT INDEX

130825-3

File-name:	aaz-20130825-3-LukasOra-Nekmese
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	25/08/2013
Speaker(s):	Lukas Ora
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	Poetry
Summary:	greeting for new government officials
Length:	2.54
Notes:	high wind and feedback from the loudspeaker reduce recording quality

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130825-6

File-name:	aaz-20130825-6-JonathanNamah-1
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	25/08/2013
Speaker(s):	Jonathan Namah, Heronimus Bani, several others interrupt
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards (only first seven minutes)
Genre:	narrative, (conversation)
Summary:	1. story about Church (0.00-5.46) 2. story about the time Jonathan went to Jakarta, up until the time he was on the plane from Kupang
Length:	23.10
Notes:	continued as 130825-7 (see below) loud background music and people often interrupt/talk over Jonathan. Roni did a <i>fantastic</i> job transcribing this!

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130825-7

File-name:	aaz-20130825-7-JonathanNamah-2
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	25/08/2013
Speaker(s):	Jonathan Namah, Heronimus Bani, several others interrupt
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Jonathan relates his experience in the hotel in Jakarta
Length:	4.01
Notes:	continuation of 130825-6 above, loud background music and people often interrupt/talk over Jonathan.

130825-8

File-name:	aaz-20130825-8-JonathanNamah-3
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	25/08/2013
Speaker(s):	Jonathan Namah, Heronimus Bani, several others interrupt
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Jonathan relates his experience in the hotel in Jakarta
Length:	2.20
Notes:	continuation of 130825-7 above, loud background music and people often interrupt/talk over Jonathan.

APPENDIX C. TEXT INDEX

130902-1

File-name:	aaz-20130902-1-HeronimusBani-Cerita-JumatSenin
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	02/09/2013
Speaker(s):	Heronimus Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Heronimus Bani relates the things he and Owen Edwards did over the past few days
Length:	4.38
Notes:	

130902-7

File-name:	aaz-20130902-7-HeronimusBani-IsakFeni-BahasaAdat
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'to hamlet, Ro'is; Buraen village
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	02/09/2013
Speaker(s):	Heronimus Bani (Kotos), Isak Feni (Ro'is)
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	ritual speech
Summary:	formal conversation about marriage arrangements
Length:	5.50
Notes:	

APPENDIX C. TEXT INDEX

130905-1

File-name:	aaz-20130905-1-HeronimusBani-arahan-pilkada-bupati-kupang
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Neknese' village, Amarasi, SW Timor, Indonesia
Date:	05/09/2013
Speaker(s):	Heronimus Bani
Recorded by:	Owen Edwards
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	procedural
Summary:	Heronimus Bani gives instructions on how to vote for the Kupang bupati (regent)
Length:	1.47
Notes:	recording starts part way through, entirety videoed

130906-1

File-name:	aaz-20130906-1-JakopBani-percakapan
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Neknese' village, Amarasi, SW Timor, Indonesia
Date:	06/09/2013
Speaker(s):	Jakop Bani, Heronimus Bani, (Lena Bani)
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	
Length:	6.11
Notes:	

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130907-3

File-name:	aaz-20130907-3-FransBani-Cerita-1
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	07/09/2013
Speaker(s):	Frans Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards Heronimus Bani
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Frans Bani (Roni's dad) tells his life story from the time he was at school up until the birth of his first child
Length:	15.37
Notes:	faint recording, people sifting rice loudly in background

130907-4

File-name:	aaz-20130907-4-FransBani-Cerita-2
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	07/09/2013
Speaker(s):	Frans Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards Heronimus Bani
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Frans Bani talks about his children's schooling
Length:	4.07
Notes:	faint recording, people sifting rice loudly in background

APPENDIX C. TEXT INDEX

130907-4

File-name:	aaz-20130907-4-FransBani-Cerita-3
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	07/09/2013
Speaker(s):	Frans Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards Heronimus Bani
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Frans Bani talks about working for the Church
Length:	2.04
Notes:	faint recording, people sifting rice loudly in background

130909-5

File-name:	aaz-20130909-5-AlfonsusTakain-OmongMasala-3
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	09/09/2015
Speaker(s):	Alfonsus Takain
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Alfonsus relates a mistake made in the counting and collection of Church offertories
Length:	1.10
Notes:	

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130909-6

File-name:	aaz-20130909-6-ObetBani-CeritaKeluargaDiRumah
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	09/09/2013
Speaker(s):	Heronimus Bani, Obet Bani, Ema Bani,
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	conversation about Obet's life at home without his children (who are working elsewhere)
Length:	4.14
Notes:	

130911-2

File-name:	aaz-20130911-2-DominggusBani-HenkiOra-CeritaOtoJato
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	11/09/2013
Speaker(s):	Dominggus Bani, Heronimus Bani, Sefnat Bois, Henki Ora, occasional others
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Owen Edwards
Genre:	conversation
Summary:	conversation about a car which crashed and came off the road
Length:	1.43
Notes:	

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130912

File-name:	aaz-20130912-HeronimusBani-cerita-pulang-dari-orang-mati
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	12/09/2013
Speaker(s):	Heronimus Bani, Rehuel Nakmofa, Sem Saebesi
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	conversation about someone who recently died
Length:	1.01
Notes:	

APPENDIX C. TEXT INDEX

130913-1

File-name:	aaz-20130913-1-ItkaNenoharan-MerpatiTakain-Cerita
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet, Fo'asa' hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	13/09/2013
Speaker(s):	Heronimus Bani, Itka Nenoharan, Merpati Takain, Justus Mantolas
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	a conversation about a man who has already made preparations for his funeral, even though he's still fit and healthy
Length:	3.03
Notes:	Itka Nenoharan is from Fo'asa', Justus Mantolas is originally from Amanatun. (Hence, the phoneme /l/.) He has lived in Nekmese' since 1981.

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130914-1

File-name:	aaz-20130914-1-MateldaBani-cerita-kerja-tenun
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	14/09/2013
Speaker(s):	Metelda Bani, Heronimus Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	conversation about how to weave
Length:	3.03
Notes:	

130914-2

File-name:	aaz-20130914-2-Regina-Sarai-Sarmolina-cerita-ternak-lepas
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet, Fo'asa' hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	14/09/2016
Speaker(s):	Regina, Sarai, Sarmolina
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	conversation about some pigs which escaped
Length:	1.36
Notes:	Regina is from Fo'asa' hamlet

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130914-3

File-name:	aaz-20130914-3-Sarmolina-Lena-cerita-jalan-pi-Sontraen
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	14/09/2013
Speaker(s):	Sarmolina, Lena Bani, Regina
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	conversation about when Sarmolina went to Sonraen
Length:	2.21
Notes:	

130920-1

File-name:	aaz-20130920-1-HeronimusBani-CeritaTtgFinalCheck
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	20/09/2013
Speaker(s):	Heronimus Bani
Recorded by:	Owen Edwards
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	narrative
Summary:	Roni talks about his work over the past week proofreading books of the Bible and cheking them for naturalness with a group of villagers from Nekmese'
Length:	5.17
Notes:	recorded in studio to get a high quality recording

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130921-1	
File-name:	aaz-20130921-1-YedidaOra-CeritaTtgFinalCheck
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	21/09/2013
Speaker(s):	Yedida Ora
Recorded by:	Owen Edwards
Transcribed by:	Yedida Ora
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	n./a.
Free English by:	Owen Edwards
Genre:	narrative
Summary:	Oma talks about her work over the past week proofreading books of the Bible and cheking them for naturalness with a group of villagers from Nekmese'
Length:	2.17
Notes:	recorded in studio to get a high quality recording
130925-1	
File-name:	aaz-20130925-1-AlbertBani-et-al-PencurianSapi
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	25/09/2013
Speaker(s):	Albert Bani, Metheos Ora, Alfrid Bani, Heronimus Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	conversation about someone who was stealing cows
Length:	4.50
Notes:	

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130926-1

File-name:	aaz-20130926-1-RidolfNeno-OmonglisBelis
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	26/09/2013
Speaker(s):	Ridolf Neno, Heronimus Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	n./a.
Genre:	conversation
Summary:	Roni and Ridolf discuss bride-price arrangements
Length:	4.20
Notes:	final half minute not transcribed

130928-1

File-name:	aaz-20130928-1-HeronimusBani-CeritaNahorBaniMati
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	28/09/2013
Speaker(s):	Heronimus Bani
Recorded by:	Heronimus Bani
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	Heronimus Bani
Free English by:	Charles E. Grimes
Genre:	narrative
Summary:	Roni relates a disagreement over where recently deceased Nahor Bani should be buried
Length:	2.51
Notes:	

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140726

File-name:	aaz-20140726-A'asramat-Casuarina-UCA
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Darwin, Northern Territory
Date:	26/07/2014
Speaker(s):	Heronimus Bani, Yedida Ora
Recorded by:	Charles E. Grimes
Transcribed by:	Heronimus Bani
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	n./a.
Free English by:	Charles E. Grimes
Genre:	ritual language
Summary:	Prayer for the people of Casuarina in poetic ritual language
Length:	1.00
Notes:	composed by Heronimus Bani, Performed by Yedida Ora (leader) Heronimus Bani and Charles Grimes

160326

File-name:	aaz-20160326-Roni-NekmeseHistory
Language:	Amarasi [aaz]
Dialect:	Kotos; Koro'oto hamlet
Location:	Nekmese' village, Amarasi, SW Timor, Indonesia
Date:	26/03/2016
Speaker(s):	Heronimus Bani
Recorded by:	Owen Edwards
Transcribed by:	Owen Edwards
Interlinear by:	Owen Edwards
Free Indonesian/Kupang:	n./a.
Free English by:	Owen Edwards
Genre:	narrative
Summary:	a history of Koro'oto hamlet and Nekmese' village
Length:	20.18
Notes:	several ambiguities in transcription checked by Heronimus Bani and Charles E. Grimes

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