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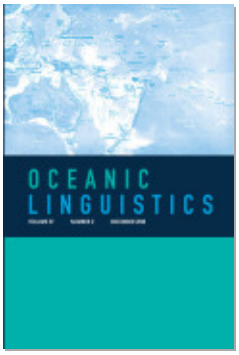

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Parallel Histories in Rote-Meto

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I make a bottom-up reconstruction of the historical phonology and a portion of the lexicon of the Rote-Meto languages of western Timor. The regular sound correspondences of these languages necessitate reconstruction to Proto-Rote-Meto of a large amount of material that cannot be fully explained by Austronesian inheritance. The nature of this material indicates that it is substrate retention from pre-Austronesian languages of the region. This substrate can be detected by application of the comparative method alone. The bottom-up reconstruction also provides evidence for subgrouping Meto with both West Rote and East Rote and I propose that this is because Meto has shared a period of common development with both groups that involves a synthesis of the tree model and wave model of historical linguistics.

1. INTRODUCTION.[1] In this paper, I apply the comparative method to two Austronesian (AN) language clusters of Western Timor: Rote and Meto. I identify regular sound correspondences and make a bottom-up reconstruction of Proto-Rote-Meto (PRM). While the Rote-Meto languages are demonstrably AN, we cannot properly account for all elements of PRM by inheritance from Proto-Malayo-Polynesian (PMP).

As well as the identifiably AN content, with its patterns of mostly regular sound correspondences, the bottom-up reconstruction shows additional regular sound correspondences that are either completely unaccounted for by AN inheritance or not attested in AN inheritances in a regular and systematic way.

1. I would like the thank Charles Grimes, John Wolff, Marian Klamer, and three anonymous reviewers for valuable comments on earlier versions of this paper that have greatly improved the analysis and presentation of the data. I would also like to thank Thersia Tamelan for providing me with her Dela data. Thanks also go to Pieter Sjioen and Yulius Iu who were my main informants for Oepao and Landu, respectively, as well as Paulus Nako who organized and accompanied me on fieldwork in Rote.

All data in this paper that come from my own fieldwork were collected under the auspices of the Language and Culture Unit (UBB) in Kupang, whose support is gratefully acknowledged. The analysis, interpretation, and presentation of all data in this paper, as well as any errors, remain entirely my own.

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This necessitates reconstruction of a number of protophonemes to PRM without a robust AN source. In particular, the regular sound correspondences in the Rote-Meto languages necessitate reconstruction of prenasalized plosives *mb, *nd, and *ŋg, as well as implosives *ɓ and *ɗ.

Furthermore, the sound changes affecting these "non-AN" protophonemes provide subgrouping evidence that contradicts that of protophonemes expected from a top-down perspective. While inheritance from PMP only provides evidence for a West Rote-Meto subgroup, the bottom-up reconstruction provides evidence both for a West Rote-Meto and an East Rote-Meto subgroup.

The large amount of nonsuperficial material in PRM that cannot be explained by inheritance from PMP points to intimate contact between pre-RM and one or more non-AN languages of the region. The putative non-AN material is substrate. It consists of features and parts of non-AN languages that were brought over into PRM after language shift from a non-AN language.

The apparently contradictory subgrouping evidence points to a period of common development after the break-up of PRM between Meto and West Rote, as well as a period of common development shared between Meto and East Rote.

The structure of this paper proceeds as follows. I begin in section 2 with discussion of some necessary background information. This is followed in section 3 by a summary of the top-down phonology of the Rote-Meto languages, published with detailed discussion and exemplification as Edwards (2018). The historical phonology of Rote-Meto as revealed by comparing preexisting PMP reconstructions with their modern reflexes provides evidence for a West Rote-Meto subgroup containing Dela-Oenale, Dengka, and Meto.

The bulk of this paper is taken up by section 4, which is a bottom up reconstruction of Proto-Rote-Meto. I identify the regular sound correspondences of the Rote-Meto languages and reconstruct the PRM phoneme inventory and a portion of its lexicon. This reveals a large amount of material not fully accounted for by top-down inheritance from PMP.

In section 5 I discuss the origins of the parts of PRM not fully accounted for by inheritance from PMP. This chiefly consists of an examination of the phonology of PRM. I show that while much of this phonology does not derive regularly from PMP, it is consistent with the regional typology of languages of the region. This points to the kind of influence that comes about in language shift with carry-over of substrate features rather than superficial borrowing.

In section 6, I examine the internal subgrouping of the Rote-Meto languages. In particular, the position of Meto is problematic. There is good evidence for subgrouping it with both West Rote and East Rote. I propose that Meto subgroups with both West Rote *and* East Rote as it underwent a period of common development with both. This proposal involves a synthesis of the tree model and wave model of historical linguistics. Instead of being mutually contradictory, as has been sometimes claimed, these different models should be used in conjunction with one another to capture different aspects of the social history of a language family.

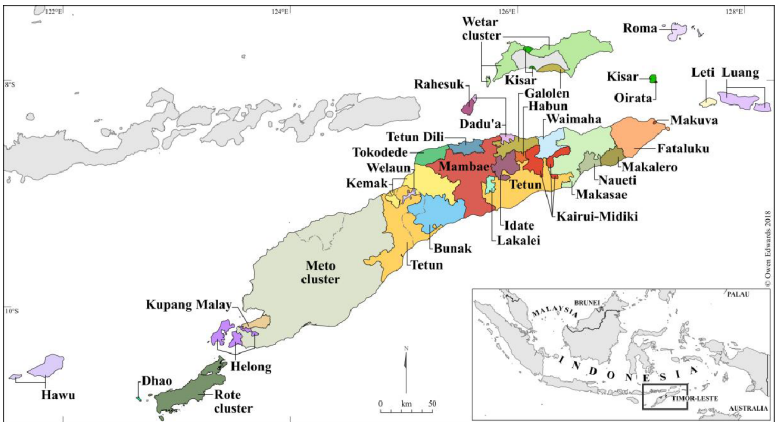
I summarize my findings in section 7 and point out avenues to be followed in future research. Most important among my findings is that (in some situations) application of the comparative method alone is sufficient to establish prehistoric contact. Indeed, in situ-

ations in which the putative source languages have become extinct, the comparative method is our only reliable tool to establish such contact.

2. BACKGROUND

2.1 SPEECH VARIETIES. The Rote languages are spoken on the island of the same name immediately to the southwest of the island of Timor. The Meto cluster is spoken in the western part of Timor including the enclave of Oecusse, which is politically part of Timor-Leste. The locations of the Rote and Meto clusters along with other languages of Timor are shown in map 1. The identity of languages in Timor-Leste in map 1 is based largely on Williams-van Klinken and Williams (2015).

MAP 1. LANGUAGE GROUPS OF TIMOR



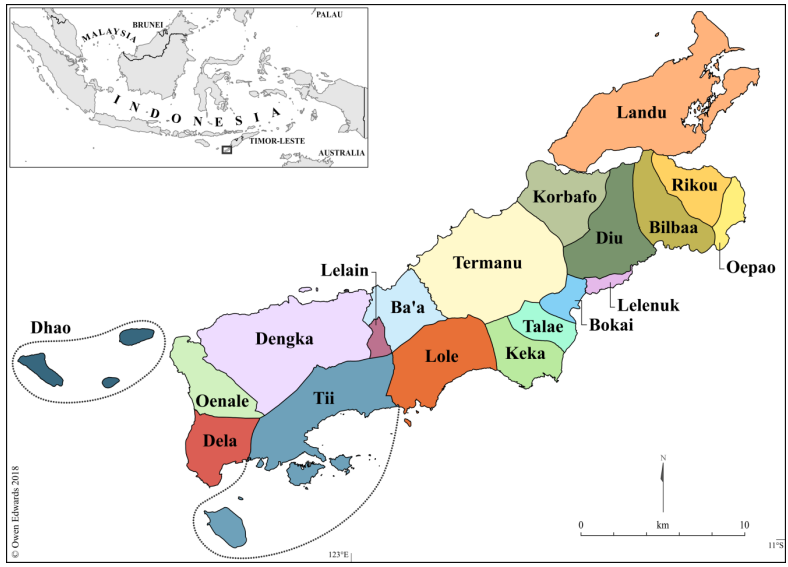
2.1.1 Rote. The island of Rote is divided into nineteen political units known in the anthropological literature as domains (*nusa-k* or *nusa-ʔ* in the languages of Rote), and many speakers claim that each domain has its own language (Fox 2016:233). A map of the domains of Rote is given as map 2. (The language of Dhao is not part of the Rote cluster.)

The Rote cluster is a language/dialect chain like the Romance or West Germanic continua in Europe. Fox (2016:233) summarizes the complexity stating: "Speakers in neighbouring domains are generally able to understand one another, but for speakers in domains separated from one another intelligibility is reduced. Domains at a distance from one another find mutual intelligibility difficult or impossible. Based on these criteria Rotenese [*sic*] consists of more than one language."

The earliest published classification of the speech varieties of Rote is that of Manafe (1889), a Rote school teacher and Rote speaker from Ba'a. Manafe (1889) identifies nine different Rote *lagu* (Malay = 'song, tune, dialect'): (1) Oepao, Rikou, and Landu;[2] (2)

2. The population of Landu was decimated in 1756 by the Dutch. The area was eventually resettled, mainly from Rikou (Fox 2016:236). During my own fieldwork, Landu speakers reported that genuine/native Landu was spoken in the western/central villages (*desa*) of Sotimori, Bolatena, and Nifuleu. Rikou is spoken in other areas.

MAP 2. POLITICAL DOMAINS OF ROTE ISLAND



Bilbaa, Diu, and Lelenuk; (3) Korbafo; (4) Termanu, Keka, and Talae; (5) Bokai; (6) Ba'a and Lole; (7) Dengka and Lelain; (8) Tii; (9) Dela and Oenale.

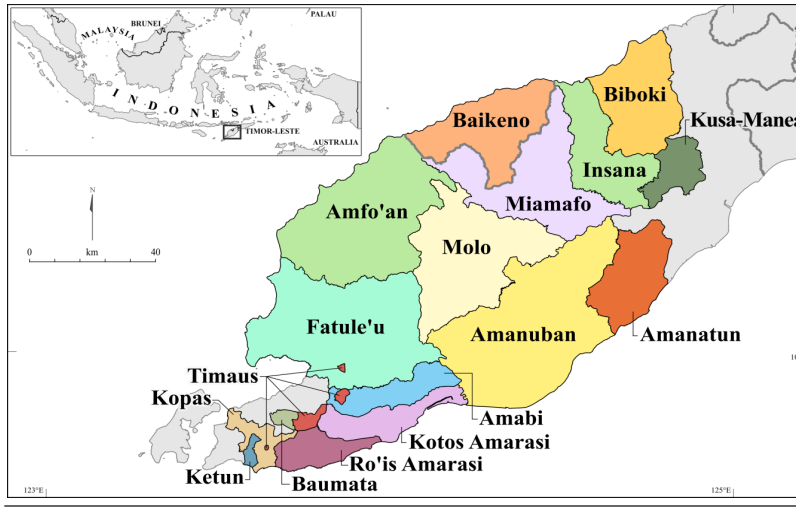
The most recent classification is that of Fox (2016), who to some extent follows that of Manafe (1889), though Fox groups related dialects together rather than differentiating them. Fox (2016) identifies six groupings: (1) *Eastern dialect area*: Rikou, Oepao, and some of Landu; (2) *East-Central dialect area*: Bilbaa, Diu, Lelenuk, Korbafo, and some of Landu; (3) *Central dialect area*: Termanu, Keka, Talae, Ba'a, Lelain, and Bokai (4) *South-Western dialect area*: Tii and Lole; (5) *North-Western dialect area*: Dengka; and (6) *Western dialect area*: Dela and Oenale.

Examining only the historical phonologies of the different speech varieties of Rote, we can identify twelve distinct varieties: (1) Dela and Oenale; (2) Dengka; (3) Tii; (4) Lole; (5) Ba'a; (6) Termanu, Keka, and Talae; (7) Korbafo; (8) Bokai; (9) Bilbaa, Diu, and Lelenuk; (10) Rikou; (11) Landu; and (12) Oepao. Varieties in each of these twelve groupings currently appear to have undergone the same sound changes.[3]

2.1.2 Meto. Meto—also known as Uab Meto, Dawan(ese), Timorese, or Atoni—is a cluster of closely related speech varieties spoken in the western part of Timor. Meto speakers usually identify their speech as a single language and call it *uab meto?*, *molok meto?*, *(bahasa/uab) Timor*, or occasionally, to outsiders, *(bahasa) Dawan*. Speakers of Meto recognize more than a dozen named varieties. 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 Meto varieties is given in map 3.

3. Whether Lelain is grouped with Dengka, Ba'a, or forms its own group is unclear due to lack of data.

MAP 3. SELF-IDENTIFIED VARIETIES OF METO



Based only on the historical phonologies of Meto, we can identify four different varieties, each of which is (currently) known to have undergone different sound changes: (1) Ro'is Amarasi; (2) Kotos Amarasi, Amabi, and Kusa-Manea; (3) Amanuban and Amanatun; and (4) all other varieties.[4] While the historical sound changes within each of these groupings are mostly the same, there are significant differences in the forms and functions of the morphophonemic processes of metathesis, consonant insertion, vowel assimilation, and/or diphthongization between different varieties.

2.1.3 Synchronic phonologies. Different varieties of Rote have different phoneme inventories. All (known) varieties have the five vowels /i e a o u/. Consonants occur at four places: labial, coronal, velar, and glottal, with up to seven manners of articulation: voiceless stop, prenasalized stop, voiced stop (often implosive), fricative, nasal, and trill/tap.

Four voiceless stops /p t k ʔ/, two voiced stops /b d/, and three fricatives /f s h/ are present in all varieties. Among other series of consonants, there is variation in which segments different varieties attest. Some varieties have two liquids /l r/, while others have only a single liquid /l/. Some varieties have only two nasals /m n/, while others have /ŋ/ in addition. Some varieties have a full series of prenasalized stops /mb nd ŋg/, while others have only a partial series or lack prenasalization entirely.

There are also differences in the phonetic qualities of these consonants. In the western Rote languages Dela-Oenale and Tii, voiced plosives are usually lightly imploded in all word positions (Thersia Tamelan p.c. May 2017; Unit Bahasa & Budaya 2016). For these languages, we can identify voiced imploded stops /ɓ/ and /ɗ/ as phonemes. Based on two Dengka recordings made available to me by Thersia Tamelan, it appears that

4. Kopas, Ketun, Baumata, and Timaus probably originate from northern areas. Thus, for instance, Timaus speakers trace their origin to Timau mountain in Amfo'an. This origin is corroborated by Dutch historical records (Hägerdal 2012:206f).

Dengka /b/ is usually unimploded [b] while the alveolar voiced plosive is usually lightly imploded [ɗ].

In Termanu, voiced plosives are reported as imploded only medially: thus /b/ → [ɓ] / V_V and /d/ → [ɗ] /V_V. During my fieldwork on Bilbaa, Landu, and Oepao, I did not record implosion for /b/, but did occasionally record light implosion for intervocalic /d: thus /b/ → [b] and /d/ → [d]~[ɗ] /V_V. The phonetics of voiced plosives in other Rote varieties is currently unknown.[5] Similarly, regarding prenasalization, in Ba'a the bilabial prenasalized stop is voiceless /mp/, while in other varieties it is voiced /mb/.

Sample consonant inventories from five different varieties of Rote are given in table 1 for comparison.

TABLE 1. CONSONANT INVENTORIES IN FIVE ROTE VARIETIES

	Dela-Oenale				Dengka				Termanu				Bilbaa				Rikou			
Stop [–v]	p	t	k	ʔ	p	t	k	ʔ	p	t	k	ʔ	p	t	k	ʔ	p	t	k	ʔ
Prenasal	mb	nd	ŋg		mb	nd	ŋg			nd	ŋg							nd		
Stop [+v]	ɓ	ɗ			b	ɗ			b	d			b	d			b	d		
Fricative	f	s		h	f	s		h	f	s		h	f	s		h	f	s		h
Nasal	m	n	(ŋ)		m	n			m	n	ŋ		m	n	ŋ		m	n		
Lateral		l				l				l				l				l		
Rhotic		r																r		

All Meto varieties have the ten consonants /p t k ʔ b f s h m n/, to which most add only a single liquid /r/ or /l/, though some have both /r/ and /l/. In addition to these core consonants, most varieties also have the voiced obstruent /ʤ/, and some also have the voiced obstruent /gw/.[6] These voiced obstruents mainly occur only in certain morphophonemic environments: before vowel initial enclitics and/or phrase finally. Voiced obstruents are realized as stops or fricatives in Meto.

Most (known) Meto varieties have five vowels /i e a o u/. The mid vowels are usually phonetically mid-low [ɛ ɔ] but are raised to mid high [e o] in certain environments, particularly before high vowels. In some varieties of Meto this difference is becoming phonemic. See Edwards (2016a) for a more detailed description of the phonetics and phonology of the Kotos Amarasi variety of Meto.

Meto varieties have a synchronic process of final CV → VC metathesis, as seen, for instance, in *fatu* → *faut* 'stone, rock' and *nope* → *noep* 'cloud'. Metathesis in Kotos Amarasi is a morphological process marking a construct case (attributive phrase) in the syntax and a resolved state of affairs in the discourse. For comparative purposes, this means that the first part of a compound in Meto is usually metathesized. Thus, for instance, Dela-Oenale *ma**nu**_lai* 'rooster' can be compared with Kotos Amarasi *ma**un**_nai* 'rooster'. Edwards (2016b) provides a detailed description of the forms and functions of metathesis in Kotos Amarasi.

Rote and Meto vowel initial roots begin with an automatic glottal stop in certain environments. However, in other environments they maintain a contrast between vowel ini-

5. Jonker (1908) does not record the phonetic differences in the realization of voiced plosives. No variety of Rote is known to contrast plain voiced stops and imploded voiced stops.
6. Some varieties of Amanuban have the glides /j/ and /w/ instead of obstruents /ʤ/ and /gw/.

tial and glottal stop initial roots. This means that we can distinguish between rules such as *p > Ø /#_ and *p > ʔ /#_.

In Rote languages, the contrast between glottal stop and vowel initial roots only emerges phrase medially. Phrase initially, all vowel initial roots take an automatic glottal stop. The difference can be illustrated with Rikou *uraʔ* [ˈʔʊraʔ] 'scorpion' and *ʔuse-ʔ* [ˈʔʊsɛʔ] 'navel', each of which is realized with a glottal stop phrase initially, including in isolation. However, phrase medially, no glottal stop occurs before vowel initial *uraʔ* 'scorpion', thus, *au ura-ʔ* [ˌʔawˈʊraʔ] 'my scorpion', but a glottal stop does occur before *ʔuse-ʔ* 'navel', thus, *au ʔuseʔ* [ˌʔawˈʔʊsɛʔ] 'my navel'.

In Meto, glottal stop insertion occurs word initially in all environments (including phrase medially) with the contrast surfacing only after prefixation, as shown by the difference between vowel initial *isa-t* [ˈʔisɐ̟t] 'most-NMLZ' → *n-isa* [ˈnisɐ] '3SG/3PL-most', and glottal stop initial *ʔaʔat* [ˈʔaʔɐ̟t] 'poetry-NMLZ' → *n-ʔaʔa* [ˈnʔaʔɐ] '3SG/3PL-poetry'. See Edwards (2017) for a full discussion of glottal stop insertion in the Kotos Amarasi variety of Meto.

2.2 DATA. Throughout this paper, I present data from the different varieties of Rote and Meto according to geographic location from west to east. Data from the westernmost speech variety is cited first and that from the easternmost variety is cited last.

Glosses in tables are usually for the Proto-Rote-Meto reconstructions and not their reflexes. Where the reflexes have different glosses this is usually indicated in a table note. An empty table cell indicates that a language has no known reflex of the reconstruction. Unless otherwise stated, Austronesian reconstructions are from the online *Austronesian comparative dictionary* of Blust and Trussel (ongoing).

2.2.1 Sources. Most of the Rote data in this paper come from the works of the Dutch linguist Johann C. G. Jonker, in particular his 806-page dictionary (Jonker 1908). Jonker used the speech of Termanu as the basis for his dictionary but very often cites cognates from seven other "dialects": Oenale, Dengka, Tii, Ba'a, Korbafo, Bilbaa, and Rikou. He also occasionally includes forms from other "sub-dialects": Lole, Keka, and Oepao.

Another source of Rote data comes from work carried out by linguists associated with the Kupang based Language and Culture Unit (UBB). Particularly important are data on Dela collected and provided by Thersia Tamelan, which, in addition to having forms not found in Jonker (1908), provides information on the contrast between vowel initial and glottal stop initial words. Data from Dela and Oenale are given as "Dela-Oenale" and are drawn from both Jonker (1908) and the work of Thersia Tamelan.

The final source of data for Rote comes from a week's worth of fieldwork I carried out at the beginning of November 2017 in Bilbaa, Landu, Rikou, and Oepao. All Landu and Oepao data in this paper are from my own field notes.

Meto data in this paper have two sources. First, there is data collected by the author. This data comes from about a year's worth of fieldwork, of which about eight months were spent collecting data on Kotos Amarasi. In addition, I have carried out at least a week's worth of fieldwork on each of Kopas, Timaus, Ro'is Amarasi, Amanuban, and Kusa-Manea, as well as having collected less comprehensive data on Fatule'u, Amfo'an, Amanatun, Molo, and Baikeno.

The second kind of Meto data in this paper come from Middelkoop (1972), an unpublished 673-page draft dictionary of the Molo variety of Meto. This dictionary has occasional notes on forms in other varieties.

2.2.2 Transcription. Throughout this paper, data from modern day languages are transcribed phonemically according to standard IPA conventions. PMP reconstructions are transcribed with the conventional symbols used in AN historical linguistics as exemplified in Blust (2009:546). Letters with non-IPA realizations are: *z = [ʤ], <*j> = [ɟ], *R = [ʀ], *r = [ɾ], <*ñ> = [ɲ], and <*y> = [j].[7]

Morphemes of a single word are separated by a hyphen. Phonological material analyzed as a historic morpheme, but which is not synchronically independent, is separated from the stem with a pipe. One example is PMP *gatəl > Meto *ma|hata|ʔ* 'itchy', in which the initial /ma/ and final /ʔ/ are reflexes of historic morphemes.

Historic compounds that cannot be analyzed as synchronic compounds due to one (or both) of the elements not occurring independently are separated by an underscore. One example is Dela-Oenale *manu_lai* 'rooster' from *manu* 'chicken' + *lai,* which is from PMP *laki 'male' but has no known independent use in Dela-Oenale.

Data from Middelkoop (1972) and Jonker (1908) have been retranscribed according to phonemic principles wherever possible.[8] The only difficulty in this regard is due to underrepresentation of the glottal stop phoneme /ʔ/ in each of these works.

Wherever possible, I have added untranscribed glottal stops to data from Middelkoop (1972) where I have evidence justifying this. Thus, for instance, Middelkoop gives 'heavy' as <*mafena*> but this word has the form *maʔfenaʔ* with two glottal stops in my own Molo data. Where there is still doubt over the exact form of a particular word in Middelkoop (1972), it is given in angled brackets. One example is Molo <*fule*> 'foam', where cognates from other varieties such as Kotos Amarasi *ʔfuriʔ* and Timaus *ʔfulaʔ* 'foam' indicate the possible, but unconfirmed, presence of glottal stops in the Molo form, too.

As discussed in 2.1.3, Rote languages have a process whereby all vowel initial words begin with an automatic glottal stop phrase initially, such as Rikou *uraʔ* 'scorpion' → [ˈʔʊraʔ] initially but [ˈʊraʔ] phrase medially. Such words contrast with those in which a glottal stop occurs in all environments, such as Rikou *ʔuse-ʔ* 'navel' → [ˈʔʊsɛʔ]. Jonker (1908) does not distinguish between vowel initial and glottal stop initial words and transcribes them all with an initial vowel; he, thus, gives Rikou <*uṛa*> 'scorpion' and <*uṣe*> 'navel'.

In this case, I draw on my own field notes for Rikou and follow the analysis of Thersia Tamelan (p.c. May 2017) for Dela-Oenale. Distinctive initial glottal stops are transcribed in both these varieties. When an initial glottal stop is distinctive in these varieties and cognates in other varieties of Rote are likely to have distinctive (but unconfirmed) glottal stops, this is indicated by a bracketed glottal stop. Thus, Dela-Oenale and Rikou *ʔali* 'dig' is cognate with Dengka *(ʔ)ali* 'dig', other Rote *kali* 'dig'.

7. Wolff (2010) analyzes PMP <*j> as a voiced velar stop [g] and PMP *R as a voiced velar fricative [ɣ]. I follow the analysis of Blust (2009), which appears to align with that of most other authors. Note also that the consonant *r [ɾ] is not unambiguously accepted as a valid part of the PMP inventory (Wolff 1974).
8. Both Middelkoop (1972) and Jonker (1908) transcribe sequences of two identical vowels with a single orthographic letter. In Jonker (1908) such double vowels are also marked with an acute or grave accent in certain cases according to the quality of the vowel and the placement of stress.

3. TOP-DOWN: PMP TO ROTE-METO. In Edwards (2018), I provide a full discussion of Rote-Meto historical phonology from a top-down perspective. This work compares preexisting Proto-Malayo-Polynesian (PMP) reconstructions with reflexes in the Rote-Meto languages and identifies the sound changes that have occurred. The main sound changes between PMP and the Rote-Meto languages are summarized in table 2.

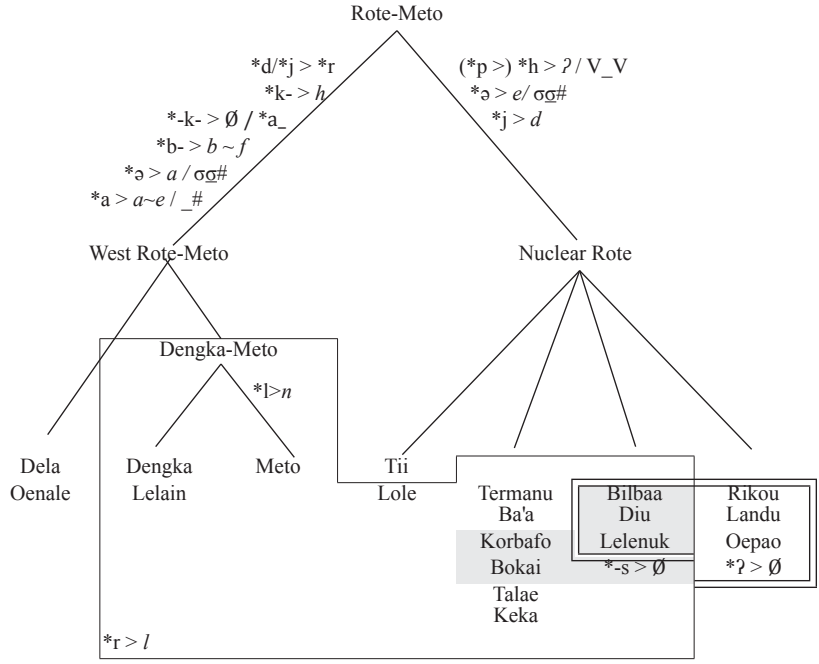
TABLE 2. ROTE-METO REFLEXES OF PMP†

PMP	env.	Dela-O.	Dengka	Tii	Lole	Termanu	Bokai	Bilbaa	Rikou	Kotos	Molo
*p	#_	h/Ø/ʔ	h/Ø/ʔ	h	h	h	h	h	h	hØ	h/Ø
	V_V	Ø	Ø	ʔ	ʔ	ʔ	ʔ	Ø	Ø	Ø/h	Ø/h
*t		t	t	t	t	t	t	t	t	t	t
*k	#_	h	h	Ø	Ø	Ø	Ø/k	Ø/k	Ø	h	h
	#_	ʔ	ʔ	k	k	k	k	k	ʔ	h	h
	a_V	Ø/ʔ	Ø/ʔ	ʔ	ʔ	ʔ	ʔ	k/Ø	ʔ/Ø	Ø	Ø
	V_V	ʔ/k	ʔ/k	ʔ/k	ʔ/k	ʔ/k	ʔ/k	k	ʔ/Ø/k	k/ʔ	k/ʔ
*q		Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
*b	#_	ɓ	b	ɓ	ɓ	b	b	b	b	b/f	b/f
	#_	f	f	ɓ	ɓ	b	b	b	b	f	f
	#_	f	f	f	f	f	f	f	f	f	f
	V_V	f	f	f	f	f	f	f	f	f	f
*d	#_	r	l	ɗ	ɗ	d	d	d	d	n	n
	V_V	r	l	r	r	l	l	l	r	n	n
*g	#_	ʔ	ʔ	k	k	k	k	k	ʔ	h/k	h/k
*j [gʲ]	V_V	ɗ	ɗ	ɗ	ɗ	d	d	d	d	r	l
	V_V	r	l	ɗ	ɗ	d	d	d	d	n	n
*z [ʤ]		ɗ	ɗ	ɗ	ɗ	d	d	d	d	r	l
*m		m	m	m	m	m	m	m	m	m	m
*n, *ñ, *ŋ		n	n	n	n	n	n	n	n	n	n
*s		s	s	s	s	s	s	s	s	s	s
*h		Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
*R [r]		Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
*r [ɾ]		r	l	r	r	l	l	l	r	n	n
*l		l	l	l	l	l	l	l	l	n	n
*a		a	a	a	a	a	a	a	a	a	a
	/_#	a/e	a/e	a	a	a	a	a	a	a/e	a/e
*u		u	u	u	u	u	u	u	u	u	u
	/_R	o	o	o	o	o	o	o	o	o	o
*i		i	i	i	i	i	i	i	i	i	i
	/_R	e	e	e	e	e	e	e	e	e	e
*ə	/σ̲σ#	e	e	e	e	e	e	e	e	e	e
	/σσ̲#	a	a	e	e	e	e	e	e	a	a
*wa	#_	o/fa	o/fa	fa/o	fa/o	fa/o	fa/o	fa/o	fa/o	o/fa	o/fa
*wa,*aw,*au	_#	o	o	o	o	o	o	o	o	o	o
*ya		e/a	e/a	e/a	e/a	e/a	e/a	e/a	e/a	e/a	e/a
*ay,*ai		e	e	e	e	e	e	e	e	e	e
*yu,*uy		i	i	i	i	i	i	i	i	i	i
*iw		u/i	u/i	i	i	i	i	i	i	u	u

† Where multiple correspondence sets attest the same protophoneme, this is indicated by an additional row with any environment conditioning each set. Repeated environments indicate unconditioned splits. Thus, PMP *k has undergone an unconditioned split word initially.

On the basis of these sound changes, the top down approach allows identification of a West Rote-Meto subgroup consisting of Dela-Oenale, Dengka, and Meto, as well as a Nuclear Rote subgroup with the other Rote languages. The family tree of Rote-Meto yielded by a top-down approach is given in figure 1. Sound changes that spread by diffusion are given at the bottom of the tree.

FIGURE 1. TOP-DOWN ROTE-METO FAMILY TREE



The detailed exposition and discussion of the top-down historical phonology is available in Edwards (2018) and I do not repeat it in this paper. The most important results of this analysis are the sound changes summarized in table 2 and the evidence for a West Rote-Meto subgroup on the basis of the following six sound changes:

- merger of *d with a half of the instances of *j to Proto-West Rote-Meto *r
- initial *k- > *h* in at least ten forms
- loss of *k word medially after *a
- initial *b > *f* in a dozen forms where other Rote languages have *b = *b*
- *ə > *a* in most final syllables
- partially unconditioned split of *a > *a~e* in final open syllables

Note that nearly all the changes that define West Rote-Meto are not complete in all varieties. Meto often has instances of these changes in forms where Dela-Oenale and Dengka do not. I return to this point in 6.1.

4. BOTTOM-UP: ROTE-METO TO PROTO-ROTE-METO. The focus of this paper is a bottom-up reconstruction of Proto-Rote-Meto (PRM). I identify regular correspondences between the languages of Rote and Meto and reconstruct the phoneme inventory of PRM and a portion of its lexicon. This bottom-up reconstruction is made on the basis of a database of 1,069 cognate forms in the Rote-Meto languages.

The criteria for reconstruction to nodes below that of PMP were as follows: if a cognate occurs in both Meto and Nuclear Rote, it was reconstructed to PRM. If it occurs in Dela-Oenale, Dengka, and Meto, it was reconstructed to Proto-West Rote-Meto.

If a cognate occurs in one of the Rote-Meto languages and another language of the region and borrowing can be ruled out as a likely explanation, a reconstruction was made to PRM and often also a higher node, such as Proto-Timor or Proto-Central Malayo-Polynesian (PCMP), depending on the distribution of the cognate set.

Although I often note connections with PMP in this section, overall I take a "naïve" approach to the data. My PRM reconstructions are justified on the basis of the observed correspondence sets in the Rote-Meto languages with higher nodes providing only external evidence.

The correspondence sets in the Rote-Meto languages are given in table 3, along with the PRM protophoneme I reconstruct for each set. The reconstructed PRM phoneme inventory established on the basis of these correspondence sets is given in table 4. Examples and discussion exemplifying these sets are given in the following sections.

TABLE 3. ROTE-METO CORRESPONDENCE SETS†

PRM	env.	Dela-O.	Dengka	Tii	Lole	Ba'a	Termanu	Korbafo	Bokai	Bilbaa	Landu	Rikou	Oepao	Ro'is	Kotos	Molo
*p		p	p	p	p	p/mp	p	p	p	p	p	p	p	p	p	p
*t		t	t	t	t	t	t	t	t	t	t	t	t	t	t	t
*k	#_	ʔ	ʔ	k	k	k	k	k	k	k	k/ʔ	ʔ	ʔ	k	k/ʔ	k/ʔ
	#_	k	k	k	k	k	k	k	k	k		k/ʔ	k/ʔ	k	k	k
	#_	k	k	k	k	k	k	k	k	k	k/ʔ	ʔ	ʔ	h	h	h
	#_	h	h	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	h	h	h
	#_	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	k	ʔ	ʔ
	V_V	k	k	k	k	k	k	k	k	k	k	*k*/ʔ	*k*/ʔ	k	k	k
	V_V	ʔ	ʔ	k	k	k	k	k	k	k	ʔ	*k*/ʔ/Ø	*k*/ʔ/Ø	ʔ/Ø	ʔ/Ø	ʔ/Ø
	V_V	ʔ/k	ʔ/k	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	k	k/ʔ	ʔ/*k*	ʔ/*k*	ʔ	ʔ	ʔ
	V_V	ʔ/Ø	ʔ/Ø	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	k	k	*k*/ʔ	*k*/ʔ	k	k	k
	V_V	Ø/ʔ	Ø/ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	k	ʔ	ʔ	ʔ	Ø	Ø	Ø
*ʔ		ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	Ø	Ø	ʔ/Ø	ʔ/Ø	ʔ	ʔ	ʔ
*b		f	f	ɓ	ɓ	b	b	b	b	b	b	b	b	f	f	f
*d		r	l	ɗ	ɗ	d	d	d	d	d	d	d	d	n	n	n
*ɓ		ɓ	b	ɓ	ɓ	b	b	b	b	b	b	b	b	b	b	b
*ɗ		ɗ	ɗ	ɗ	ɗ	d	d	d	d	d	d	d	d	r	r	l
*mb		mb	mb	mb	mb	mp	p	p	p	p	p	p	p	p	p	p
*nd	#_	nd	nd	nd	nd	nd	nd	nd	l	l	nd	r	r	r	k	k
	V_V	nd	nd	nd	nd	n	n	n	n	n	nd	nd	r	r	k	k
*ŋg	#_	ŋg	ŋg	ŋg	ŋg	ŋg	ŋg	ŋg	ŋ	ŋ	k	k	k	k	k	k
	V_V	ŋg	ŋg	ŋg	ŋg	ŋg	ŋ	ŋ	ŋ	ŋ	k	k	k	k	k	k
*f		f	f	f	f	f	f	f	f	f	f	f	f	f	f	f

TABLE 3. ROTE-METO CORRESPONDENCE SETS† (CONTINUED)

PRM	env.	Dela-O.	Dengka	Tii	Lole	Ba'a	Termanu	Korbafo	Bokai	Bilbaa	Landu	Rikou	Oepao	Ro'is	Kotos	Molo
*s		s	s	s	s	s	s	s	s	s	s	s	s	s	s	s
*h	#_	h/Ø	h/Ø	h	h	h	h	h	h	h	h	h	h	h/Ø	h/Ø	h/Ø
	V_V	Ø	Ø	ʔ	ʔ	ʔ	ʔ	ʔ	ʔ	Ø	Ø	Ø	Ø	h/Ø	h/Ø	h/Ø
*m		m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
*n		n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
*ŋ		n	n	n	n	n	n	n	n	n	n	n	n	k	k	k
*l		l	l	l	l	l	l	l	l	l	l	l	l	n	n	n
*r		r	l	r	l	l	l	l	l	l	r	r	r	n	n	n
		r	l	r	l	l	l	l	l	l	r	r	r	r	r	l
*i		i	i	i	i	i	i	i	i	i	i	i	i	i	i	i
*e		e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
*a		a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
	/_#	a	a	a	a	a	a	a	a	a	a	a	a	a	a	a
	/_#	e	e	a	a	a	a	a	a	a	a	a	a	e	e	e
*ə	/o̲o	e	e	e	e	e	e	e	e	e	e	e	e	e	e	e
	/oo̲#	a	a	e	e	e	e	e	e	e	e	e	e	a	a	a
*o		o	o	o	o	o	o	o	o	o	o	o	o	o	o	o
*u		u	u	u	u	u	u	u	u	u	u	u	u	u	u	u

† Where multiple correspondence sets attest the same PRM protophoneme, this is indicated by an additional row indicating the environment conditioning each set. Where an environment is repeated, this indicates an unconditioned split. Thus, PRM *k has undergone an unconditioned split with five different correspondence sets initially and medially.

TABLE 4. PROTO-ROTE-METO PHONEME INVENTORY

	Consonants				Vowels			
	Labial	Alveolar	Velar	Glottal		Front	Central	Back
Voiceless Plosives	*p	*t	*k	*ʔ	High	*i		*u
Voiced Plosives	*b	*d			Mid	*e	*ə	*o
Implosives	*ɓ	*ɗ			Low		*a	
Prenasalized Plosives	*mb	*nd	*ŋg					
Fricatives	*f	*s		*h				
Nasals	*m	*n	*ŋ					
Lateral		*l						
Rhotic		*r						

4.1 STRAIGHTFORWARD PROTOPHONEMES. The reflexes of PRM *t, *s, *m, *n, *l, *i, *e, *o, and *u do not present any challenges and do not require detailed discussion. In all daughter languages, they are usually retained without change, apart from occasional loss word finally. Examples of each are given in table 5.

4.2 PRENASALIZED STOPS. A full series of prenasalized stops is reconstructed to PRM: *mb, *nd, *ŋg. The reflexes of these prenasalized stops provide evidence for nested subgroups containing the languages of eastern Rote and Meto. Prenasalization is present in western Rote and progressively lost as one heads eastwards. This subgrouping is discussed in 4.2.4.

TABLE 5. EXAMPLES OF PRM *t, *s, *m, *n, *l, *i, *e, *o, *u

PRM	*gloss	Dela-O.	Dengka	Termanu	Bilbaa	Rikou	Kotos
***t**ula*	‘gebang palm’	tule	tule	tula	tula	tula	tune, tuni
*ra**t**es	‘grave’	rates	lates	lates	late-ʔ		nate
***s**edɗo-k*	‘mix’	se~sedɗo-ʔ	se~sedɗo-ʔ	se~sedok	se~sedo-ʔ	se~sedo-ʔ	n-sero|ʔ
*ro**s**e*	‘rub, wipe’	rose	lose	lose	lose	rose	n-nose
*elu**s***	‘rainbow’	elus	elus	elus	elu-ʔ	elus	enus
***m**eŋge*	‘red snake’	meŋge	meŋge	meŋe	meŋe	meke	u|meke
*kale**m**a*	‘sea-snake’	lema-ʔ	lema-ʔ	lema-k		lema-ʔ	k|neme
*ka-**n**iit*	‘crab’	niit	nii-ʔ, niit	nii-k	nii-ʔ	nii-ʔ	k|niit
*mbi**n**u*	‘snot’	mbinu	mbinu	pinu	pinu	pinu	pinu
***l**asi*	‘forest’	lasi	lasi	lasi	lasi	lasi	nasi
*heŋ**g**e*	‘hang, tie’		heŋge	heŋe	heŋe	heke	naʔ|heke
*k**o**dɗo*	‘swallow’	ʔodɗo	(ʔ)odɗo	kodo	kodo	ʔodɗo	n-ʔoro
*l**u**ku*	‘brood’	luʔu	luʔu	luʔu	luku	luʔu	n-nuʔu

4.2.1 *mb. PRM *mb = *mb* in Dela-Oenale, Dengka, Tii, and Lole. In Ba'a, *mb > *mp*. In varieties of Rote east of Ba'a, as well as Meto, *mb > *p*. Ba'a *mp* probably represents a form intermediate between *mb* and *p*, thus, the complete change in varieties with *p* was probably *mb > *mp > *p*. Examples of PRM *mb are given in table 6.

TABLE 6. EXAMPLES OF PRM *mb

*gloss		‘nose, tip’	‘palm leaf’	‘mushroom’	‘pull taut’	‘shrimp’	‘Job’s tears’
PRM	*mb	*mbana-k	*mboro	*mbuku	*mbii†	*ka-mboes	*mbela-k‡
Dela-O.	mb	mbana-ʔ	mboro-ʔ	mbuʔu	nakambii	mboe-ʔ	mbela-ʔ
Dengka	mb	mbana-ʔ		mbuʔu	na-ka-mbii	mboe-ʔ	mbela-ʔ
Tii	mb	mbana-k	mboro-k	mbuku	na-ka-mbii	mboe-k	mbela-k
Ba'a	mp	mpana-k	mpolo-k	mpuku	na-ka-mpii	mpoe-k	mpela-k
Termanu	p	pana-k	polo-k	puku	na-ka-pii	poe-k	pela-k
Bokai	p	pana-k	polo-k	puku	na-ka-pii	poe-k	pela-k
Bilbaa	p	pana-ʔ	polo-ʔ	puku	na-ka-pii	poe-ʔ	pela-ʔ
Rikou	p		polo-ʔ	puku	na-ka-pii	poe-ʔ	pela-ʔ
Ro'is	p	pana-f	pono	puʔu	pii_koete-f	k|poes	pena|ʔ
Kotos	p	pana-f	pono	puʔu	pii_ʔote-f	poes	pena|ʔ
Molo	p	pana-f	pono	<pu' >	pii_ʔote-f	poes	pena|ʔ

† The Meto forms mean ‘Achilles’ tendon’. Kotos Amarasi also has *n-pii* ‘pull tight’ and *na-ʔ-pii* ‘tie up’.

‡ Reflexes of *mbela-k in the modern languages mean ‘maize’. When introduced, maize was assimilated to the category of sorghum, which, in turn, was assimilated to the category of Job’s tears (Fox 1991:250). The edible kind of Job’s tears, *Coix lacryma-jobi* var. *ma-yuen*, is introduced, but was probably named after the native wild subspecies, *Coix lacryma-jobi* var. *lacryma-jobi* (Verheijen 1984:14).

4.2.2 *ŋg. PRM *ŋg = *ŋg* in Dela-Oenale, Dengka, Tii, Lole, and Ba'a. In Bokai and Bilbaa, *ŋg > *ŋ* in all word positions. Termanu and Korbafo are intermediate between these varieties with *ŋg = *ŋg* initially and *ŋg > *ŋ* medially. Landu, Rikou, Oepao, and Meto have *ŋg > *k* in all word positions. Examples of PRM *ŋg initially are given in table 7 and examples medially are given in table 8.

There is evidence that the change *ŋg > *k* in eastern Rote went through an intermediate *ŋ stage as is attested in Bokai and Bilbaa. This evidence comes from a number of

TABLE 7. EXAMPLES OF INITIAL PRM *ŋg-

*gloss		'sow'	'scratch'	'light [a]/quick [b]'	'agati tree'†	'shave'	'startle(d)'
PRM	*ŋg	*ŋgari	*ŋgai	*ŋgafat	*ŋga~ŋgala	*ŋgeu	*saŋgeŋger
Dela-O.	ŋg	ŋgari	ŋgai	[a]ŋgafat, [b]ŋgafaʔ	ŋga~ŋgale, ŋga~ŋgala	ŋgeu	ŋgeŋger
Dengka	ŋg	ŋgali	ŋgai	[a,b] ŋgafa-ʔ	ŋga~ŋgale	ŋgeu	ŋgeŋge
Tii	ŋg	ŋgari	ŋgai	[b] ŋgafa-k	ŋga~ŋgala	ŋgeu	ŋgeŋger
Ba'a	ŋg	ŋgali	ŋgai	[b] ŋgafa-k	ŋga~ŋgala	ŋgeu	ŋgeŋge
Termanu	ŋg	ŋgali	ŋgai	[b] ŋgafa-k	ŋga~ŋgala	ŋgeu	ŋgeŋe
Bokai	ŋ	ŋali	ŋai	[b] ŋafa-k	ŋa~ŋala	ŋeu	ŋeŋe
Bilbaa	ŋ	ŋali	ŋai	[b] ŋafa-ʔ	ŋa~ŋala	ŋeu	ŋeŋe
Rikou	k	kari	kai	[a,b] kafa-ʔ	ka~kala	keu	**k**eke
Ro'is	k			[a] maʔ|kafa|ʔ		n-keu	na-s**k**eke
Kotos	k	n-kaniʔ	n-kai	[a] maʔ|kafa|ʔ	ʔ|kane	n-keu	na-s**k**eke
Molo	k		n-kai	[a] <n-ma|kafa>	ʔ|kane	n-keu	na-s**k**eke

† *Sesbania grandiflora*, a kind of drought-resistant tree with edible flowers. Dela has *ŋga~ŋgale* and Oenale has *ŋga~ŋgala.*

TABLE 8. EXAMPLES OF MEDIAL PRM *-ŋg-

*gloss		'startle'	'head'	'red snake'	'eat s.t. hard'	'snap off'
PRM	*ŋg	*saŋgeŋger	*ka-laŋga	*meŋge	*heŋgu	*seŋgi
Dela-O.	ŋg	ŋgeŋger	laŋga-ʔ	meŋge	heŋgu	seŋgi
Dengka	ŋg	ŋgeŋge	laŋga-ʔ	meŋge	heŋgu	seŋgi
Tii	ŋg	ŋgeŋger	laŋga	meŋge	heŋgu	seŋgi
Ba'a	ŋg	ŋgeŋge	laŋga	meŋge	heŋgu	seŋgi
Termanu	ŋ	ŋgeŋe	laŋa	meŋe	heŋu	seŋi
Bokai	ŋ	ŋeŋe	laŋa		heŋu	seŋi
Bilbaa	ŋ	ŋeŋe	laŋa	meŋe	heŋu	seŋi
Landu	k	ke**k**er	laka-ʔ	meke		
Rikou	k	ke**k**e	laka	meke	heku	seki
Oepao	k		laka-ʔ	meke		
Ro'is	k	na-ske**k**e	naka-f	uu_meke	n-eku	
Kotos	k	na-ske**k**e	ʔ|naka-f	u|meke	n-eku	n-seki
Molo	k	na-ske**k**e	ʔ|naka-f	u|meke	n-eku	n-seki

forms in which *ŋ* in another language corresponds to *k* in Meto. One example is Helong *ŋala* 'name, clan' and Meto *kana-f* 'name, clan'. While these forms are both ultimately reflexes of PMP *ŋajan 'name', Meto *kana-f* shows irregular PMP *ŋ > *k*. The normal reflex of PMP *ŋ in Meto is *n*, as attested by forms such as PMP *ŋis(ŋ)is 'grin, show the teeth' > Meto *nisi-f* 'teeth' and *hanjin > *anin* 'wind'.

Irregular PMP *ŋ > *k* in the Meto form *kana-f* 'name, clan' can be explained by positing that this form is a borrowing of Helong *ŋala* 'name, clan', before Meto underwent *ŋ > *k* and *l > *n*. Additional evidence that this term is a borrowing in Meto comes from the fact that the extended meaning 'clan' is not found in the Rote languages: Dela-Oenale *nara-ʔ*, Dengka *nala*ʔ, other Rote *nade-k*/*-ʔ* all mean only 'name'.[9]

9. There are many other borrowings between Meto and Helong. Two examples are Helong *nale-n* 'daughter-in-law', Meto *nane-f* 'daughter-in-law, opposite sex sibling's daughter' and Helong *blapas* 'ribcage, side', Meto *bnapa-f* 'side, ribs'. In many cases, the direction of borrowing is unclear.

Additionally, there is evidence for reconstructing *ŋ to PRM. The usual reflex of PRM *ŋ in Meto is *k*. Two examples are *deŋen > Meto *neke* 'kapok tree' and *ŋato > Kotos Amarasi *n-katon*, Molo *n-kato* 'insert'. The data attesting PRM *ŋ are discussed in more detail in 4.7.

All these data provide evidence that *ŋ > *k* has taken place in Meto. This, combined with the fact that PRM *ŋg is reflected as *ŋ* in languages of central Rote, strongly indicates that the change *ŋg > *k* in eastern Rote and Meto went through an intermediate *ŋ stage.

The change of PRM *ŋg > ŋ > *k* is shared between Meto and languages of eastern Rote. It, thus, provides evidence for an East Rote-Meto subgroup. Within this group, Meto is most closely related to Landu, Rikou, and Oepao, as all three of these languages have *ŋg > *ŋ > *k*.

4.2.3 *nd. Word initially, PRM *nd = *nd* in noneastern varieties of Rote, as well as Landu. In Rikou and Oepao, initial *nd- > *r*, and in Bokai and Bilbaa, initial *nd- > *l*. Ro'is Amarasi has *nd > *r,* and other varieties of Meto have *nd > *k*. Examples of PRM *nd word initially are given in table 9.

TABLE 9. EXAMPLES OF INITIAL PRM *nd-

*gloss		'draw water'	'lightning'	'ravine'	'nettle'	'cut'	'nape of neck'
PRM	*nd	*ndui	*ndelat†	*ndefa‡	*ndesi	*ndaru#	*ka-ndou§
Dela-O.	nd	ndui	ndelas	nde~ndefa-ʔ	ndesi	ndaru	ndo~ndou-ʔ
Dengka	nd	ndui	ndelas	nde~ndefa-ʔ	ndesi	ndalu	ka|ndou-ʔ
Tii	nd	ndui	ndelas	ndefa	ndesi	ndaru	ndo~ndou-k
Ba'a	nd	ndui	ndelas	ndefa	ndesi	ndalu	ka|ndou-k
Termanu	nd	ndui	ndelas	ndefa	ndesi	ndalu	ka|ndou-k
Bokai	l	lui	lela-k	lefa	lesi	lalu	ka|lou-k
Bilbaa	l	lui	lela-ʔ	lefa	lesi		ka|lou-ʔ
Landu	nd		ndelas	ndefa			ka|ndou-ʔ
Rikou	r	rui	relas	refa	resi	ralu	ka|rou-ʔ
Oepao	r		na-rela				ka|rou-ʔ
Ro'is	r	n-rui	renet	refe|k		n-ranu	k|roo-n
Kotos	k	n-kui	kenat	kefa|n		n-kanu	ko_tore-f
Molo	k	n-kui	kenat	<kefa>	<kese>	<kanu>	ʔ|koo-n

† *ndelat has undergone semantic shift to 'gun' in the Meto languages. Kotos Amarasi also has *na-kena* 'loud thunder and lightning' and Molo has *keen neno* (from *kenat* + 'sky') 'clap of thunder'.

‡ The nonreduplicated reflexes of *ndefa in Rote mean 'deposit into a chasm, like earth or stones of a mountain; collapse'. Other forms mean 'ravine, cliff'.

Reflexes of *ndaru in Rote mean 'cut off, cut the end off'. In Meto, the meaning is 'cut open a new field'. Rikou has irregular medial *r > *l,* perhaps sporadic dissimilation from earlier *raru.

§ Kotos Amarasi *ko_tore-f* is a historic compound of *ka-ndou > *ʔ|koo + *tore*, with reduction of initial *ʔ|koo > *ko*. The element *tore* is a reflex of PRM *todə 'stick out' (e.g., Termanu *tode* 'stick out lengthwise'). Molo has *ʔ|ko_tole-f* 'the protuberance on the back on one's head'.

In Dela-Oenale, Dengka, Tii, Landu, and Meto, medial and initial reflexes of *nd are identical: *nd = *nd* in these Rote languages, *nd > *r* in Ro'is Amarasi, and *nd > *k* in other varieties of Meto. In Rikou, medial *nd = *nd*, while in Oepao, medial *nd > *r*. The difference in reflexes of medial *nd in Rikou and Oepao is the main phonological difference between these two varieties of Rote.

Word medial PRM *nd > *n* in the following central Rote languages: Ba'a, Termanu, Bokai, and Bilbaa. This is also the usual reflex of medial *nd after *ə in Tii, Rikou, and Oepao (see 4.8.1 for more discussion of *nd > *n* /ə_). Examples of medial PRM *nd are given in table 10.

TABLE 10. EXAMPLES OF MEDIAL PRM *-nd-

*gloss		'ribcage'	'dry season'	'spindle'	'banana'	'star'	'pandanus'	'bring'
PRM	*nd	*tendək†	*fandu	*kinde‡	*hundi#	*fanduun#	*hendam#	*əndi§
Dela-O.	nd	tenda-ʔ	fandu-ʔ	(ʔ)inde	hundi	nduu-ʔ	ʔenda-ʔ	n-endi
Dengka	nd	tenda-ʔ	fandu-ʔ	(ʔ)inde	hundi	nduu-ʔ	(ʔ)enda-ʔ	n-endi
Tii	nd	tende-k	fandu-k	(ʔ)inde	hundi	nduu-k	henda-k	n-eni
Ba'a	n	tene-k	fanu-k	(ʔ)ina	huni	nduu-k	hena-k	n-eni
Termanu	n	tene-k	fanu-k	(ʔ)ine	huni	nduu-k	hena-k	n-eni
Bokai	n	tene-k	fanu-k	(ʔ)ine	huni	luu-ʔ	hena-k	n-eni
Bilbaa	n	tene-ʔ	fanu-ʔ	kini	huni	luu-ʔ	hena-ʔ	n-eni
Landu	nd	tende-ʔ	fandu-ʔ	ʔindi	hundi	fanduu-ʔ	henda-ʔ	
Rikou	nd	tende-ʔ	fandu-ʔ	ʔinde	hundi	ruu-ʔ	henda-ʔ	n-eni
Oepao	r	tere-ʔ	faru-ʔ	ʔiri	huri	ruu-ʔ	hera-ʔ	n-eni
Ro'is	r	tere-f	faur_nais	kiri	uri	fruun	eram,erem	n-eri
Kotos	k	teka-f	fauk_nais	ʔike	uki	kfuun	ekam	n-eki
Molo	k	teka-f	fauk_nais	ʔike	uki	kfuun,fkuun	ekam	n-eki

† Dela-Oenale and Dengka *tenda-ʔ* = 'chest'. Kotos Amarasi *teka-f* = 'lungs'. Molo *teka-f* = 'heart muscle'.
‡ PRM *kinde is ultimately connected with Malay *kincir* 'spinning wheel; spool, reel'.
# PRM *hundi, *fanduun, and *hendam are probably reflexes of PMP *punti, *bituqən, and *paŋdan, respectively: *bituqən > *fanduun requires irregular *t > *nd (but compare Malay *bintang* with medial *nt*) and *paŋdan > *hendam requires irregular *a > *e and *n > *m.
§ With regular *nd > n /*ə_ in Tii and Rikou.

The change *nd > *k* in varieties of Meto apart from Ro'is Amarasi is unusual and provides strong evidence that these varieties form a subgroup, which I call Nuclear Meto. The first split in the Meto language family is between Nuclear Meto and Ro'is Amarasi.

While I know of no other examples of *nd > *k* in languages of the world, the change *r > *k* is attested, though rarely. Two languages that attest *r > *k* are Mekeo, an Oceanic language of Papua (Ross 1988:206), and South Marquesan of French Polynesia (Charpentier and François 2015:93). Given this, as well as *nd > *r* in Ro'is Amarasi, it is likely that *nd > *k* in other varieties of Meto went through an intermediate stage of *r; thus, *nd > *r > *k*.

The subgrouping evidence provided by the reflexes of *nd is more complex than that provided by the other prenasalized stops. Nonetheless, within this complexity, there is evidence for identifying a subgroup containing Rikou, Oepao, and Meto. The different reflexes of *nd are summarized in (1) below.

(1) *nd > *n* V_V Ba'a, Termanu, Korbafo, Bokai, Bilbaa
*nd > *r* #_ Rikou
*nd > *r* > *l* #_ Bokai, Bilbaa
*nd > *r* #_, V_V Oepao, Ro'is Amarasi
*nd > *r* > *k* #_, V_V Nuclear Meto (Meto apart from Ro'is Amarasi)

The first change is medial *-nd- > *n*. This change occurred in Ba'a, Termanu, Korbafo, Bokai, and Bilbaa; languages that do not otherwise form a subgroup. It is likely that

medial *-nd- > *n* spread by diffusion across speaker groups rather than being inherited from a common ancestor, similar to the way the change *r > [ʀ] ~ [ʁ] probably spread in Europe (Trudgill 1974:220ff).

The second change is initial *nd- > *r*. This change occurred in Bokai, Bilbaa, Rikou, Oepao, and Meto. Oepao and Meto also underwent medial *-nd- > *r*, with subsequent *r > *k* in Nuclear Meto (varieties other than Ro'is Amarasi). At some point after word initial *nd- > *r*, Bokai and Bilbaa underwent *r > *l*.[10]

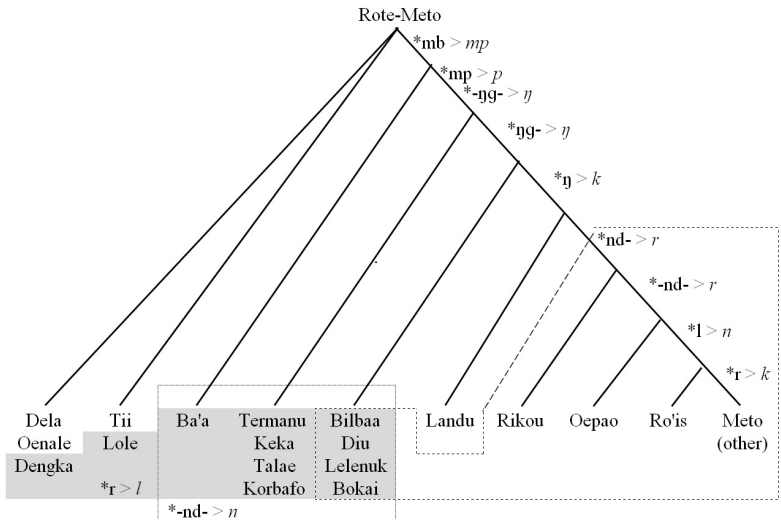
The change of *nd > *r,* thus, provides evidence for an East Rote-Meto subgroup. Bokai, Bilbaa, Rikou, Oepao, and Meto all share initial *nd- > *r*, with Oepao and Meto further sharing medial *nd- > *r*. However, Landu has preserved *nd = *nd* in all word positions and would, thus, have to be excluded from this subgroup. This contradicts the evidence provided by *mb and *ŋg, which subgroup Landu with Rikou, Oepao, and Meto.

This is resolved by positing that *nd > *r* spread by diffusion in a way similar to that of medial *nd- > *n*. The most likely scenario is that initial *nd- > *r* occurred in Proto-Rikou-Oepao-Meto and spread by diffusion into Bokai and Bilbaa, or vice versa.

Despite the complexities involved in the reflexes of PRM *nd, the changes this protophoneme has undergone provide support for a subgroup containing Rikou, Oepao, and Meto. Within this subgroup, the change of medial *-nd- > *r* is exclusively shared between Oepao and Meto.

4.2.4 Nested subgrouping. The changes affecting the prenasalized plosives provide evidence for an East Rote-Meto subgroup within which we can identify several nested subgroups. This is illustrated in figure 2.

FIGURE 2. EAST ROTE-METO FAMILY TREE



10. The change *r > *l* affects all instances of *r in Bokai and Bilbaa (see 4.3.3). The change *r > *k* in Meto affects only instances of *r derived from *nd.

The largest group contains all the Rote-Meto languages except for Dela-Oenale, Dengka, Tii, and Lole. This group is defined by the change *mb > *mp. Within this group, all languages except Ba'a form a subgroup based on the subsequent changes *mp > *p* and word medial *-ŋg- > *ŋ*.

Termanu and Korbafo retain word initial *ŋg = *ŋg*, while Bokai, Bilbaa, Landu, Rikou, Oepao, and Meto all underwent initial *ŋg- > *ŋ*, with Landu, Rikou, Oepao, and Meto subsequently also undergoing *ŋ > *k*. Within the group defined by *ŋ > *k*, Oepao and Meto are most closely related as they share the change of *nd > *r* in all word positions. Next most closely related is Rikou, which shares *nd- > *r* word initially. As discussed in 4.2.3, the change of initial *nd- > *r* probably diffused from Proto-Rikou-Oepao-Meto to Proto-Bilbaa-Bokai or vice versa.

After initial *nd > *r* occurred in Bilbaa-Bokai, *nd > *n* arose somewhere in central-eastern Rote and spread among Ba'a, Termanu, Korbafo, Bilbaa, and Bokai. These languages also acquired *r > *l*, which also affected reflexes of initial *nd in Bilbaa and Bokai.

4.3 LABIAL OBSTRUENTS *ɓ, *b, *f, AND *p. In addition to prenasalized *mb, four labial obstruents can be reconstructed to PRM: a voiced imploded stop *ɓ, a plain voiced stop *b, a voiceless labiodental fricative *f, and a voiceless bilabial plosive *p. Their reflexes are summarized in table 11.

TABLE 11. PRM *ɓ, *b, *f, AND *p†

PRM	Dela-O., Dengka	Ba'a	other Rote	Meto
*ɓ	b	b	b	b
*b-	f~b	b	b	f~b
*f	f	f	f	f
*p	p	p/mp	p	p

† Dela-Oenale and Tii have imploded *ɓ* in all environments. Termanu has /b/ → [ɓ] /V_V.

As discussed in 2.1.2, implosion is a noncontrastive feature of voiced stops in Rote. In Dela-Oenale and Tii, voiced bilabial plosives have been described as imploded in all word positions. In Termanu, /b/ is reported as imploded word medially. Based on current data, /b/ is unimploded in Dengka, Bilbaa, Landu, Rikou, and Oepao. The quality of /b/ in other Rote languages is unknown. In Meto, /b/ is realized as either a plosive [b] or fricative [β].

4.3.1 *ɓ. PRM *ɓ is reflected as a voiced bilabial plosive in all the Rote-Meto languages in all word positions. Examples of reflexes of PRM *ɓ in the Rote-Meto languages are given in table 12.

4.3.2 *f. PRM *f = *f* in all languages in all word positions. Many examples of PRM *f are reflexes of PMP *b, which underwent a split to PRM *b~*f word initially, but became *f medially in PRM. Examples of PRM *f (in words not known to be connected with PMP) are given in table 13.

4.3.3 *b. When one of Dela-Oenale, Dengka, and/or Meto have *f* and other Rote languages have *b*, I reconstruct PRM *b. In most examples, PRM *b > *f* in Dela-Oenale,

TABLE 12. EXAMPLES OF PRM *ɓ

*gloss		'sugar palm'	'fruit bat'	'bury'	'step'	'hot'	'branch'
PRM	*ɓ	*ɓole	*ka-ɓau-k	*suɓa†	*taɓu‡	*toɓi#	*saɓake-k§
Dela-Oenale	ɓ	ɓole	ɓau-ʔ	suɓa	taɓu	ma-toɓi-ʔ	
Dengka	b	bole	bau-ʔ	suba	tabu	ma-tobi-ʔ	
Tii	ɓ	ɓole	ɓau-k	suɓa	taɓu	ma-toɓi-k	ɓaʔe-k
Termanu	b	bole	bau-k	suba	tabu	ma-tobi-k	baʔe-k
Bilbaa	b	bole	bau-ʔ	suba	tabu	ma-tobi-ʔ	bake-ʔ
Rikou	b	bole	bau-ʔ	suba	tabu	ma-tobi-ʔ	bake-ʔ
Kotos	b	bone	bkaʔu	n-suba	tabu		sbake|ʔ
Molo	b	bone	ʔ|baʔu	n-suba	tabu	<na-tobe>	sbake|ʔ

† In Rote, the meaning is 'totally engrossed in something, so that one forgets everything else'. For the semantic shift, compare English phrases such as: *She's completely buried in her book/work.*
‡ *taɓu 'step' has shifted to 'moment, time' in Meto. Amfo'an has <*ntabo*> 'treads' (Middelkoop 1972).
# The reflex of PRM *toɓi in Molo means 'steam cooked'.
§ Reflexes of *saɓake-k mean 'forked branch' in Meto and 'big branch of a tree' in Rote.

TABLE 13. EXAMPLES OF PRM *f

*gloss		'scour'	'moringa tree'†	'persuade'	'pool'	'powder'‡	'kamala tree'#
PRM	*f	*fora	*kai_foo	*fuɗi	*lifu	*ŋgafur	*ɓalafo-k
Dela-O.	f	fora	ai_foo-ʔ	fu~fuɗi	lifu	ŋga~ŋgafur	
Dengka	f	fola	ai_foo-ʔ	fu~fuɗi	lifu	ŋgafu	hau_lafo-ʔ
Tii	f	fora	kai_foo-k	fu~fudi	lifu	ŋgafu	
Termanu	f	fola	kai_foo-k, ka_foo-k	fu~fudi	lifu	ŋgafu	kai_lafo-k
Bilbaa	f	fola	kai_foo-ʔ	fu~fudi	lifu	ŋafu	kai_lafo-ʔ
Rikou	f	fora	ai_foo-ʔ	fu~fudi	lifu	kafu	ai_lafo-ʔ
Kotos	f	n-fona	uta_ʔ|foʔo	n-furi	nifu	kafuʔ	bnafo|ʔ, bnafu|ʔ
Molo	f	n-fona	<hau_fo' >	n-fuli	nifu	kafuʔ	<benafo>

† *Moringa oleifera,* the leaves of which are eaten as a vegetable. Usually compounded in Rote-Meto with reflexes of PMP *kahiw > PRM *kaiu 'tree, wood'.
‡ The reflexes of *ŋgafur in Rote are given as meaning 'shake out, beat out (dust, etc.)'.
# Reflexes of PRM *ɓalafo-k designate *Malletus philippensis* in Meto.

Dengka, and Meto, and is reflected as a voiced bilabial plosive in other varieties of Rote. There are three examples in which PRM *b = ɓ/b in Dela-Oenale and Dengka but *b > *f* in Meto.

Nearly all instances of PRM *b are reflexes of earlier PMP *b. There is no strong evidence for reconstructing PRM *b word medially, due to the near universal change of medial PMP *-b- > PRM *f. Examples of PRM *b along with their PMP etyma are given in table 14.

I also reconstruct PRM *b for three cognate sets in which Meto has *b = *b* but all Rote languages have *b > *f*. An example is PRM *balu 'widow, widower' (from PMP *balu) > all Rote *falu*, Kotos Amarasi *banu|ʔ*, Molo <*banu*>.

4.3.4 *p. There is some evidence for reconstructing *p to PRM, though there are only fourteen possible examples of PRM *p in my database. PRM *p = *p* in all Rote-Meto

TABLE 14. EXAMPLES OF PRM *b

PMP *gloss		'moon'	'pig'	'stone'	'new'	'calf (leg)'	'sea hibiscus'
PMP		*bulan	*babuy	*batu	*baqəRu	*bitiəs	*baRu
PRM	*b	*bulan	*bafi	*batu	*beu-k	*biti	*bau
Dela-Oenale	f	fulan	fafi	fatu	feu-ʔ	fiti_isi	ɓau
Dengka	f	fula-ʔ	fafi	fatu	feu-ʔ	fiti_ɓoa-ʔ	bau
Tii	ɓ	ɓula-k	ɓafi	ɓatu	ɓeu-k	ɓiti_ɓoa-k	ɓau
Termanu	b	bula-k	bafi	batu	beu-k	biti_boa-k	bau
Bilbaa	b	bula-ʔ	bafi	batu	beu-ʔ	biti_boa-ʔ	bau
Rikou	b	bula-ʔ	bafi	batu	beu-ʔ	biti_boa-ʔ	bau
Kotos	f	funan	fafi	fatu	feʔu	fiti-f	
Molo	f	funan	fafi	fatu	feʔu	fiti-k	<fau>

languages with the exception of Ba'a, in which *p > *p~mp*. Examples of PRM *p are given in table 15.

As can be seen from the table notes for table 15, some instances of PRM *p may be reflexes of PMP *p. However, the usual reflex of PMP *p in PRM is *h (see 4.6.1), with 33 instances of PMP *p > PRM *h, compared with only five instances of PMP *p = PRM *p.

That some instances of PRM *p are irregular reflexes of PMP, combined with the small number of examples of PRM *p that can be confidently reconstructed, indicates either that *p was only a peripheral part of the PRM phoneme inventory and/or that these forms with PRM *p are a result of later borrowing from other languages.

TABLE 15. EXAMPLES OF PRM *p

*gloss	'fat'	'base, pad'	'grate'	'k.o. basket'	'blowpipe'	'pinch, clamp'
PRM	*poko†	*ka-peni-k	*paru‡	*ka-kapir#	*pupu§	*hapi%
Dela-O.	tei_poko-ʔ	peni-ʔ	paru	kapi-ʔ	pupu	hapi, api
Dengka		peni-ʔ	palu	kapi-ʔ	pupu	hapi
Tii	tei_poʔo-k		paru		pupu	na-ka-hapi
Ba'a	tei_mpoʔo-k	peni-k	palu	kapi-k	fumpu	hapi
Termanu	tei_poʔo-k	peni-k	palu	kapi-k	fupu	hapi
Bilbaa	tei_poko-ʔ	peni-ʔ	palu	kapi-ʔ	fupu	
Rikou	tei_poko-ʔ	peni-ʔ	paru		fupu	
Kotos	n-pook	ʔ|peni|ʔ	ʔ|panu|ʔ	ʔ|kapi|ʔ		n-hapi
Molo	n-pook	<peni>	<panu>	<kabi>	pupu-t	n-hapi

† The Rote reflexes given here are compounded with *tei-k/-ʔ* 'belly' and mean 'stomach (of people and some animals)'. The Meto reflexes are metathesized forms of either *poko or *poka.

‡ The Meto reflexes of *paru mean 'hard inner coconut shell' and occur with the nominalizer *ʔ-…-ʔ*. PRM *paru is probably a reflex of PMP *parud [parud] with irregular *p = *p.

PRM *ka-kapir is connected with PWMP *kampil 'plaited bag or pouch'. Molo has irregular PRM *p > *b*. Final *r is reconstructed on the basis of Ro'is Amarasi *kaipir*.

§ PRM *pupu has irregular initial *p > *f* in varieties of Rote east of Tii. It is probably a reflex of PMP *putput 'puff, blow, expel air rapidly, as in using a blowgun'.

% PRM *hapi is perhaps connected with PMP *kapit, though with irregular *k > *h and *p = *p. The form given in the Termanu row is actually from Keka.

4.4 VOICED ALVEOLAR CONSONANTS *l, *r, *d, AND *ɗ. The reflexes of the voiced alveolar consonants *l, *r, *d, and *ɗ have partially overlapping reflexes in

the Rote-Meto languages. The reflexes of these three proto-phonemes are summarized in table 16.

TABLE 16. PRM *r, *d, AND *ɗ

PRM	Dela-O.	Dengka	Tii	Landu, Rikou, Oepao	other Rote	Amarasi, Amabi, Kusa-Manea	other Meto
*r	r	l	r	r	l	n	n
*l	l	l	l	l	l	n	n
*d	r	l	ɗ	d	d	n	n
*ɗ	ɗ	ɗ	ɗ	d	d	r	l

Of these four consonants, only *r, *d, and *ɗ require more detailed discussion. The reflexes of PRM *l are straightforward. It is reflected as *l* in all the Rote languages and *l > *n* in Meto. It, thus, merged with *r in those Rote languages with *r > *l*. It also merged with *d and *r in Meto as *n*. Two examples of PRM *l are *lasi 'forest' > all Rote *lasi* 'wilderness, forest', Meto *nasi* 'forest', and *ɓole 'aren palm, *Arenga pinnata*' > Dela-Oenale, Tii *ɓole*, other Rote *bole*, Meto *bone*.

4.4.1 *r. In Dela-Oenale, Tii, and Rikou, PRM *r = *r.* In other varieties of Rote, *r > *l*. In Meto *r > *n*, thus merging with *l, which also became *n*. The simplest explanation of this is to posit *r > *l in Meto followed by *l > *n*. Examples of PRM *r are given in table 17.

TABLE 17. EXAMPLES OF PRM *r

*gloss		'grave'	'rub'	'crawl, slither'	'tart, sour'	'loop around'	'fig tree'†
PRM	*r	*rates	*rose	*roɗok	*ma-ka-rekət‡	*reo	*ka-ralum
Dela-O.	r	rates	rose	roɗoʔ	ma-ʔa-reʔa	na-reo	ralu
Dengka	l	lates	lose		ma-ʔa-leʔa	na-leo	lalu
Tii	r	rates	rose	roɗok	ma-ka-reʔe	na-reo	laru < *ralu
Termanu	l	lates	lose	lodo	ma-ka-leʔe-k	na-leo	lalu
Bilbaa	l	late-ʔ	lose	lodo	ma-ka-leke	na-leo	lalu
Rikou	r		rose	rodo	ma-reʔe	na-reo	ralu
Kotos	n	nate	n-nose	n-nonok	ma|ʔ|neʔat		ʔ|nanum
Molo	n	naten	n-nose	n-nonok	ma|ʔ|neʔat	n-neo	<nanum>

† Probably the variegated fig tree, *Ficus variegata*.
‡ Reflexes of *ma-ka-rekət in Meto mean 'tart, sour; trouble and sorrow, tribulation, distress'.

In addition to this correspondence set, there are also seventeen instances in which PRM *r is reflected as *r~l* in Meto according to variety. This is against more than forty instances of *r > (*l >) *n*. One possible solution to this would be to reconstruct an additional protophoneme to PRM to account for each correspondence set. However, when irregular instances of PRM *r in Meto can be traced to PMP, they have the same source as regular instances of PRM *r: that is, PMP *d. Given that both irregular and regular PRM *r can have the same source in PMP, it is unlikely that they had different phonetic qualities in PRM.

Instead of reconstructing an additional protophoneme to account for irregular PRM *r > *r~l* in Meto, I propose that such examples are irregular due to their not being normal, straightforward inheritances in Meto. They are, perhaps, loans into Meto after the break-

up of Proto-Rote-Meto. Additional evidence for this comes from those instances of PRM *r > Meto *r~l* that are ultimately connected with PMP. Such forms show additional phonological irregularities between PMP and PRM. Such phonological irregularities are further signs of borrowing at some level. Examples of irregular *r > *r~l* in Meto are given in table 18. Of these, the final three can be connected (irregularly) with PMP.

TABLE 18. EXAMPLES OF PRM *r > METO *r ~ l*

*gloss	'some'	'lick'	'slide'	'k.o. dove'	'roast'	'palate'	'short'
PRM	*ruman†	*ramei	*saɗoro‡	*tareŋgus#	*ɗara§	*ka-ŋgaras%	*mbara-k&
Dela-O.	ruma	na-ramei	ndoro	reŋgus	ɗara	ŋgara-ʔ	mbara_mataʔ
Dengka	luma	na-lamei	ɗolo	leŋgus	ɗala		mbala_mata-ʔ
Tii	ruma	na-ramei	ɗoro		ɗara		
Ba'a	luma	na-lamei	dolo			ŋga~ŋgalas	mpala_mata-k
Termanu	luma	na-la-mei	dolo		dala	ŋgala_botek	pala_mata-k
Bilbaa	luma	na-lamoi	lodo		dala		
Rikou	ruma	naramoi, na-lamoi	rodo	rekus	dara		
Ro'is	rumun			kuum treukus	n-rara	ʔ|kaere-f	para|ʔ
Kotos	ruman	n-rami	na-sroro		n-rara	ʔ|kare-f	para|ʔ
Molo	luman	lami			n-lala	ʔ|kale-n	pala|ʔ

† Reflexes of *ruman in Meto mean 'empty, blank'.

‡ PRM *saɗoro has irregular *ɗ > *nd* in Dela-Oenale. Rikou and Bilbaa show consonant metathesis.

Dengka and Dela-Oenale reflexes of *tareŋgus mean 'dove'. Ro'is Amarasi and Rikou (from my own fieldwork) reflexes denote the Rose-crowned Fruit Dove, *Ptilinopus regina*. Ro'is Amarasi *treukus* has diphthongization of penultimate vowels before final closed syllables, a regular process (Edwards 2016b:106f). It is, thus, from earlier *trekus. It is also compounded with *kumu* 'wild pigeon/dove'.

§ PRM *ɗara is connected with PMP *daŋdaŋ 'warm near fire; heat or dry near fire' with irregular *d > *ɗ. Reflexes in the Rote-Meto languages also mean 'warm oneself near fire' in addition to 'roast'.

% PRM *ka-ŋgaras is connected with PMP *ŋadas 'palate' with irregular *ŋ > *ŋg. The Dela-Oenale and Ba'a reflexes mean 'gills'. The Termanu reflex means 'external throat'. Oenale also has *ŋgara_ɓote?* 'external throat'. Middelkoop (1972) gives Molo *ʔ|kale-n* as 'fraenulum of tongue'.

& PRM *mbara-k is connected with PMP *pandak 'short in height' with irregular *p > *mb and irregular *nd > *r. The Rote reflexes mean 'short/close distance'. The Meto reflexes mean 'short in height'.

4.4.2 *ɗ. PRM *d > *r* in Dela-Oenale, *d > *l* in Dengka, *d > *n* in Meto, and *d > *d/ɗ* in other varieties of Rote. Nearly all instances of initial PRM *d are reflexes of PMP *d, and nearly all cases of medial PRM *d are reflexes of PMP *j . Examples of PRM *ɗ, alongside reconstructed PMP etyma (where available) are given in table 19.

Meto *d merges with both *r and *l as *n*. The simplest hypothesis is to propose a series of changes: *d > *r > *l > *n*. First, *d and *r merged as *r, second *r and *l merged as *l; and finally *l and *n merged as *n*.

4.4.3 *ɗ. PRM *ɗ = *d/ɗ* in the Rote languages and *ɗ > *r ~ l* in Meto, depending on variety. Ro'is Amarasi, Kotos Amarasi, Amabi, and Kusa-Manea have *ɗ > *r*. Other known varieties of Meto have *ɗ > *l*.

Those varieties of Meto with *ɗ > *l* first underwent *ɗ > *r with subsequent *r > *l*. This is supported by phonetic naturalness, as well as the fact that those varieties with *ɗ

TABLE 19. EXAMPLES OF PRM *d

*gloss		'blood'	'two'	'bathe'	'leaf'	'kapok'	'gall(bladder)'	'how much'
PMP		*daRaq	*duha	*diRus	*dahun		*qapəju	*pija
PRM	*d	*daa-k	*dua	*na-diu	*doo-k	*deŋe	*hedu	*pida
Dela-Oenake	r	raa-ʔ	rua	na-riu	roo-ʔ	rene	eru-ʔ	hira
Dengka	l	laa-ʔ	lua	na-liu	loo-ʔ	lene	elu-ʔ	
Tii	ɗ̂	ɗ̂aa-k	ɗ̂ua	na-ɗ̂iu	ɗ̂oo-k	ɗ̂ene	heɗ̂u-k	hiɗ̂a
Termanu	d	daa-k	dua	na-diu	doo-k	dene	hedu-k	hida
Bilbaa	d	daa-ʔ	dua	na-diu	doo-ʔ	dene	hedu-ʔ	hida
Rikou	d	daa-ʔ	dua	na-diu	doo-ʔ	dene	hedu-ʔ	hida
Kotos	n	naa|ʔ	nua	na-niu	noʔo	neke	enu-f	
Molo	n	naa|ʔ	nua	na-niu	noʔo	neke	<enu>	
Kusa-Manea	n	naa|ʔ	nua	na-niu	noʔo|k		enu-f	hian < *hina

> *r* are located on the periphery of the Meto area. These varieties represent a more conservative remnant that was not affected by the change *r > *l* as it spread through the Meto cluster.[11]

Given cross linguistic patterns of lenition, it is also likely that imploded *ɗ̂ first became plain voiced *d in Meto, before subsequent *d > *r. Examples of PRM *ɗ̂ are given in table 20.

When PRM *ɗ̂ occurs in a syllable after *l or *r, it becomes *n* in Meto. There are four clear examples in my database, given in table 21. Cognates/equivalents in Helong have *ɗ̂ > *l* / *lV_*, even though the normal reflex/equivalent of *ɗ̂ in Helong is *d* (see 5.2.1). This provides external evidence that the change in Meto of *ɗ̂ > *n* /*l,*r_ was *ɗ̂ > (*d > *r) > *l, with subsequent regular *l > *n*.

TABLE 20. EXAMPLES OF PRM *ɗ̂

*gloss		'carry on pole'	'brains'	'pattern'	'crouch'	'swallow'	'peel, cut'
PRM	*ɗ̂	*ɗ̂oi	*ɗ̂ole-k†	*ɗ̂ula	*ɗ̂uɗ̂i‡	*koɗ̂o	*saɗ̂a#
Dela-Oenale	ɗ̂	ɗ̂oi		ɗ̂ula-ʔ	ɗ̂uɗ̂i	ʔoɗ̂o	
Dengka	ɗ̂	na-ŋga|ɗ̂oi		ɗ̂ula	ɗ̂uɗ̂i	(ʔ)oɗ̂o	sa~saɗ̂a
Tii	ɗ̂	na-la-ɗ̂oi	ɗ̂o~ɗ̂ole-k	ɗ̂ula	ɗ̂uɗ̂i	koɗ̂o	sa~saɗ̂a
Termanu	d	na-la-doi	do~dole-k	dula	dudi	kodo	sa~sada
Bilbaa	d		do~dole-ʔ	dula	dudi	kodo	sa~sada
Rikou	d	na-ka|doi	do~dole-ʔ	dula	dudi	ʔodo	sa~sada
Ro'is	r	n-roi	roene-f	runu-t	na-ʔ|ruri|ʔ	n-koro	
Kotos	r	n-roi	rone|ʔ	runa-t	na-ʔ|ruri|ʔ	n-ʔoro	n-sara
Amanuban	l		lone-f	luna-t			
Molo	l	n-loi	lole-f †	lula-t	<na-luli>	n-ʔolo	n-sala
Kusa-Manea	r	roi	rone-f	ruan < *runa			

† The Rote reflexes of *ɗ̂ole-k are glossed as 'anything like grease, i.e., brains'.
‡ The Meto reflexes of *ɗ̂uɗ̂i mean 'bow, bend over'.
# The Rote reflexes of *saɗ̂a are glossed 'cut into discs'; the Meto reflexes mean 'peel with knife'.

11. There is independent evidence that varieties of Meto to the southeast of Ro'is Amarasi, that is, Ketun, Kopas, Baumata, and Timaus, are the result of later migrations. Thus, for instance, Timaus speakers trace their origin to Timau Mountain in Amfo'an. This origin is confirmed by historical records that show that the brother of the king of Amfo'an fled to Kupang on 16 August 1683 (Hägerdal 2012:223).

TABLE 21. EXAMPLES OF PRM *ɗ > *n* / *l,*rV_ IN METO

*gloss		'straight'	'middle'	'wing'	'crawl, slither'
PRM	*lVɗ	*loɗo-k	*talaɗa	*liɗa-k†	*roɗok
Dela-Oenale	lVɗ		talaɗa-ʔ	liɗa-ʔ	roɗoʔ
Dengka	lVɗ	lo~loɗo-ʔ	kalaɗa-ʔ	liɗa-ʔ	
Tii	lVɗ	lo~loɗo-k	talaɗa	liɗa-k	roɗok
Termanu	lVd	lo~lodo-k	talada	lida-k, lide-k	lodo
Bilbaa	lVd		talada	lida-ʔ	lodo
Rikou	lVd	lo~lodo-ʔ	talada		rodo
Kotos	nVn	m|nono|ʔ	tnana|ʔ	nine|ʔ	n-nonok
Molo	nVn	m|nono|ʔ	tnana-f	nine-n, nina-n	n-nonok
Helong	nVn	lolo	hlala		lolo

† Rikou and Helong have reflexes of *ɗila-k with consonant metathesis.

The ordering of the changes *ɗ > (*d >) *r* > *l* and *nd > *r* > *k* in Meto requires discussion. This is because *ɗ and *nd merged as *r* in Ro'is Amarasi, while they remain distinct as *r* ~ *l* and *k*, respectively, in Nuclear Meto (varieties of Meto other than Ro'is Amarasi).

As discussed in 4.2.3, there is evidence that *nd > *k* in Nuclear Meto went through intermediate *r; thus, *nd > *r > *k*. The second part of this change, *r > *k*, must have occurred before *ɗ > (*d) > *r. Otherwise, these protophonemes would have merged in Nuclear Meto.

The change *r > *k* defines Nuclear Meto apart from Ro'is Amarasi. Given that *r > *k* occurred before *ɗ > *r in Nuclear Meto, and that *ɗ > *r also occurred in Ro'is Amarasi, we must, therefore, posit two instances of *ɗ > (*d >) *r in Meto: once in Proto-Nuclear Meto, after *r > *k*, and once in Ro'is Amarasi, in which it merged with *r* < *nd.

Finally, at least the first two stages of the Meto merger *d > *r > *l > *n* must have occurred before the changes affecting PRM *ɗ and *nd. This is because the outcomes of each set are different. The different changes affecting voiced alveolar consonants in Meto are summarized below. The numbers indicate the order in which they probably occurred.

1. *d > *r Proto-West Rote-Meto
2. *r > *l Proto-Dengka-Meto
3. *l > *n* Proto-Meto
4. *ɗ > *d Proto-Meto
5. *nd > *r Proto-Meto (*r = *r* in Ro'is Amarasi)
6. *d > *r* Ro'is Amarasi[12]
7. *r > *k* Proto-Nuclear Meto
8. *d > *r Proto-Nuclear Meto (*r = *r* in Kotos Amarasi, Amabi, and Kusa-Manea)
9. *r > *l* other known varieties of Meto

4.5 *k. There is considerable complexity in the correspondence sets attesting PRM *k word initially and medially. In both positions, it has undergone a number of uncondi-

12. The change *d > *r* in Ro'is Amarasi can be left unordered with respect to changes 5 and 6. which affected Nuclear Meto. Nonetheless, it is likely that Ro'is Amarasi *d > *r* occurred at the same time as Nuclear Meto *d > *r*. This change would have easily diffused through mutually intelligible dialects.

tioned splits and is attested variously as *k*, *h*, *ʔ*, or Ø, depending on language. Nonetheless, certain patterns can be discerned among these splits.

4.5.1 Word initial *k-. Word initially, there are five correspondence sets that attest PRM *k. There is no conditioning environment for these correspondence sets. This means that *k has undergone an unconditioned split. These five correspondence sets are summarized in table 22, which also shows the number of unambiguous attestations of each, as well as possible, but ambiguous, attestations.[13]

While the sets given in table 22 show the usual reflexes, there are occasional minor deviations. Thus, strictly speaking, the reflexes of PRM *kaiou 'casuarina tree' (see table 23) do not fit into any of the sets in table 22, as none allows for initial *ʔ* in Tii but initial *k* in Termanu, Landu, and Bilbaa. Nonetheless, apart from the Tii reflex, this correspondence set conforms to that of set 1.

TABLE 22. WORD INITIAL PRM *k-†

	PRM	Dela-O., Dengka	Landu	Rikou, Oepao	other Rote	Ro'is Amarasi	other Meto	no.	possible
set 1	*k-	ʔ	k~ʔ	ʔ~Ø	k	k	k~ʔ	19	32
set 2	*k-	k		k~ʔ	k	k	k	21	13
set 3	*k-	k	k~ʔ	ʔ	k	h	h	7	24
set 4	*k-	h	Ø	Ø	Ø	h	h	10	2
set 5	*k-	ʔ	ʔ	ʔ	ʔ	k	ʔ	4	4

† The "no." column shows the number of unambiguous examples. The "possible" column shows the number of potential additional, but ambiguous, examples of this correspondence set.

While all these sets contain inheritances from PMP, two-thirds of these inheritances fall into the third and fourth sets. Additionally, almost all examples of these two sets are from PMP.

The most common correspondence set for PRM *k in my database has *k > *ʔ* in Dela-Oenale, Dengka, *k > *ʔ*~Ø in Rikou and Oepao, *k > *k*~*ʔ* in Landu, *k = *k* in other varieties of Rote, *k = *k* in Ro'is Amarasi, and *k > *k*~*ʔ* in other varieties of Meto. There are 19 unambiguous examples of this set in my database, with an additional 32 possible examples. Examples are given in table 23.

The second most frequent correspondence set in my data is initial PRM *k = *k* in all Rote-Meto languages, with the exception of Rikou and Oepao, in which *k > *k*~*ʔ*. There are 21 unambiguous attestations of this pattern in my database, with an additional 13 potential attestations. Examples are given in table 24.

Included in this set are three forms with initial *kr* or *kl* in Meto, initial *ʔ* in Rikou, and initial *k* in other varieties of Rote. For these three forms I tentatively reconstruct initial *kl,

13. Many reconstructions are ambiguous between multiple sets due to missing reflexes in certain languages. Thus, for instance, PRM *kii 'left, north' (from PMP *ka-wiRi) is reflected as Rikou *ʔii*, and Tii, Lole, Ba'a, Termanu, Korbafo, Bokai, Bilbaa *kii*, without known reflexes in other Rote-Meto languages. It is, thus, ambiguous between the first, second, and third sets in table 22. There are 34 reconstructions that are ambiguous between two or more of the sets in table 22.

TABLE 23. EXAMPLES OF INITIAL PRM *k-: PATTERN 1

*gloss		'sneeze'	'swallow'	'close'	'casuarina'	'chest'	'turtle'	'monkey'
PRM	*k-	*kesufani†	*kodɔ	*kənda	*kaiou‡	*kara-k#	*kea§	*kodɛ%
Dela-Oenale	ʔ	ʔesufani	ʔodɔ	ʔena	(ʔ)aiou		ʔee	ʔodɛ
Dengka	ʔ	(ʔ)esufani	(ʔ)odɔ	(ʔ)ena	(ʔ)aiou		(ʔ)ee	(ʔ)odɛ
Tii	k	kisufani	kodɔ	kena	(ʔ)aiou	kara-k	kea	kodɛ
Termanu	k	kisufani	kodo	kena	kaiou		kea	kode
Bilbaa	k	kisufani	kodo	kena	kaiou	kala-ʔ	kea	kode
Landu	k/ʔ			ʔena	kaiou		kea	kode
Rikou	ʔ/Ø	ʔisufani	ʔodo	ena	(ʔ)aiou	ara-ʔ	ʔea	ʔode
Ro'is	k	n-kiusfani	n-koro	n-kera	kaidʒoʔo	kan_sao-f	kee	kero
Kotos	ʔ	n-ʔeusfani	n-ʔoro	n-ʔeka	ʔaidʒoʔo	ʔan_sao-f	kea,kee	kero
Molo	ʔ	n-ʔeusfani	n-ʔolo	n-ʔeka	ʔadʒao	ʔan_saon	<ke'a, ke' >	

† The second part of PRM *kesufani, *-fani, is a reflex of PMP *bañən. The origin of *kesu- is unknown.
‡ The second part of PRM *kaiou, *-ou, is from PMP *qaRuhu. The first part, *kai-, may be connected with *kahiw 'wood, tree', but has different reflexes from *kahiw as an independent word (see table 24). The medial /dʒ/ in Meto is an insertion. Varieties of Amanuban have *ʔaiyoo* or ʔ*aioo*.
# With the meaning 'solar plexus, heart (figurative)' in Kotos Amarasi.
§ PRM *kea is from PCEMP *kəRa 'hawksbill turtle'. In Meto, the reflexes mean 'turtle' and 'tortoise'.
% With vowel metathesis in Meto. Amanuban has *kelo* 'monkey'.

TABLE 24. EXAMPLES OF INITIAL PRM *k-: PATTERN 2

*gloss		'hook'	'wallow'	'Friarbird'	'brother-in-law'	'k.o. basket'	'k.o. fish'
PRM	*k-	*kai†	*kukur	*koaʔ	*kera	*ka-kapir‡	*kahu
Dela-O	k	kai	kukur	koaʔ	kera	kapi-ʔ	kau
Dengka	k	kai	kuku	koaʔ	kela	kapi-ʔ	kau
Tii	k	kai	kuku	koaʔ	kera		kaʔu
Termanu	k	kai	kuku	koaʔ	kela	kapi-k	kaʔu
Bilbaa	k	kai	kuku	koaʔ	kela	kapi-ʔ	kau
Rikou	k/ʔ	ʔai	ʔu~ʔuʔu	koaʔ	ʔera		kaʔu
Ro'is	k			koaʔ	ken_baʔe	kaipir	
Kotos	k	ʔ|kaʔi	n-kuku	koaʔ		ʔ|kapi|ʔ	
Molo	k	na-ʔ|kaʔi	n-kuku	<koa>		<kabi>	

† PRM *kai is connected with PMP *kawit 'hook'. The Rote reflexes are verbs. The Meto reflexes have the circumfix *ʔ-...-ʔ*, of which the final element occurs as an infix in VV# final stems.
‡ PRM *ka-kapir is connected with PWMP *kampil 'plaited bag or pouch'. Molo has irregular *p > *b*.

the only initial PRM consonant cluster. This cluster has been simplified in Rote by deletion of the liquid.

- PRM *klou 'bow and arrow' > Rikou *ʔo~ʔou-ʔ*, other Rote *ko~kou-k* or *ko~kou-ʔ,* Kotos Amarasi *krau-t*, Molo *klau-t*, 'bow and arrow'.
- PRM *kleet 'mock, tease' > Termanu *na-ke~kee-k* 'tease someone, to make someone angry, or tease a child to make it cry', Kotos Amarasi *na-kreʔet* 'mock'.
- PRM *klaha-k 'coals, embers' > Dela-Oenale *ai_kaa* 'charcoal', Dengka and Bilbaa *ai_kaa-ʔ*, Tii *aʔi_kaa-k,* Rikou *ai_(ʔ)aa-ʔ*, other Rote *haʔi_kaa-k*, 'glowing coals', Kotos Amarasi *kraha|ʔ* 'burning coals, embers; glory', Molo *klaha|ʔ* 'flames'.[14]

Evidence for *kl rather than *kr comes from external witnesses: Tetun *ahi_klaa|k* 'ember or live coals' (Morris 1984:108), and Ili'uun (Wetar island) *klara* 'charcoal' (de Jong 1947:121). These forms indicate that PRM *klaha-k 'coals, embers' comes from Proto-Timor *klaRa-k with initial *kl. By analogy, I propose that the other forms given above also had initial *kl in PRM.[15]

Correspondence sets 3 and 4 for initial PRM *k are distinguished by *k > *h* in Meto. Nearly all PRM reconstructions that display either of these correspondence sets are inheritances from PMP. Correspondence set 3 has *k > *ʔ* in Rikou and Oepao, *k > *k~ʔ* in Landu, *k = *k* in other varieties of Rote, and *k > *h* in Meto. There are seven unambiguous examples of this set in my data with 24 potential additional examples. Many examples are ambiguous due to a lack of reflexes in Meto. Examples of PRM *k in set 3 are given in table 25.

TABLE 25. EXAMPLES OF INITIAL PRM *k-: PATTERN 3

*gloss		'dig'	'call a dog'	'fingernail'	'pinch'	'strip leaves'	'sour'
P(CE)MP		*kali	*kati	*kuhkuh	(?*kapit)		
PRM	*k-	*kali	*kati	*kuku†	*kaɓi	*koru	*ma-kais
Dela-Oenale	ʔ	ʔali	ka~kati	ʔuʔu	ʔaɓi	ʔoru	ma|ʔeis
Dengka	ʔ	(ʔ)ali	ʔa~ʔati	(ʔ)uʔu	(ʔ)abi	(ʔ)olu	ma|ʔeis
Tii	k	kali	kati	kuku-k	kaɓi	koru	ma|keis
Termanu	k	kali	kati	kuʔu-k	kabi	kolu	ma|keis
Bilbaa	k	kali	kati	kuku-ʔ	kabi	kolu	ma|kei-ʔ
Rikou	ʔ	ʔali	ʔa~ʔati	ʔuʔu	ʔabi	ʔoru	ma|ʔeis
Kotos	h	n-hani				n-honu	
Molo	h	n-hani	ha~hati	huku	n-habi	n-honu	<ma|hai>

† With the meaning 'finger' in Rote and 'catch, grab' in Molo.

The fourth correspondence set for PRM *k has *k > *h* in Dela-Oenale, Dengka, and Meto and is either kept as *k* or completely lost in other varieties of Rote. There are ten clear instances of this correspondence set in my data, given in table 26.

The final four examples in table 26 do not show any instances of *k = *k*. This calls into question the basis for reconstructing *k to PRM for these four cognate sets. However, the only alternate reconstruction for the initial PRM consonant would be *h, which is already represented by a different correspondence set: *h~Ø* in Dela-Oenale, Dengka, and Meto, and *h* in other languages (see 4.6.2). Furthermore, the only difference between these four examples and the others in table 26 is loss of *k in Bilbaa.

Finally, there are four examples of the fifth correspondence set for initial PRM *k. In this correspondence set, *k > *k/ʔ* in Bilbaa, *k > *ʔ* in other varieties of Rote, *k = *k* in Ro'is Amarasi, and *k > *k~ʔ* in other varieties of Meto. Of these four reconstructions, three are likely loans. This indicates that the cognate forms in the Rote-Meto languages may have entered these languages after the break-up of Proto-Rote-Meto. These four reconstructions are given below.

14. The Rote reflexes of PRM *klaha-k are compounded with the word for 'fire'. They also occur in compounds with the word for 'nose', in which case the meaning of the phrase is 'dry snot'.
15. Both Tetun and Ili'uun also have words with initial *kr*. The connection between Proto-Timor *klaRa-k and PRM *klaha-k requires irregular *R > PRM *h, as *R is usually lost in PRM.

TABLE 26. EXAMPLES OF INITIAL PRM *k-: PATTERN 4

*gloss		'turmeric'	'2PL'	'2SG'	'wood'	'let'	'saliva'	'1PX'	'1PI'	'louse'
PMP		*kunij	*kamuyu	*kahu	*kahiw			*kami	*kita	*kutu
PRM	*k-	*kuni	*ke(m)i	*koo	*kayu	*kela	*kambe	*ka(m)i	*kita	*kutu
Dela-O.	h	huni-ʔ	hei	hoo	hau	hela	hambu	hai	hita	hutu
Dengka	h	huni-ʔ	hei	hoo	hau	hela		hai	hita	hutu
Tii	Ø	uni-k	ei	oo	ai	ela	ambe	ai	ita	utu
Lole	Ø/k	kuni-k	ei	oo	ai	ela	ambe	ai	ita	utu
Ba'a	Ø/k	kuni-k	ei	oo	ai	ela	ampe	ai	ita	utu
Termanu	Ø/k	kuni-k	emi	oo	ai	ela	ape	ami	ita	utu
Korbafo	Ø/k	kuni-ʔ	kemi	koo	ai	ela	ape	ami	ita	utu
Bilbaa	k/Ø	kuni-ʔ	kemi	koo	kai	kela	ape	ami	ita	utu
Bokai	Ø/k	kuni-k	kemi	koo	ai	ela	ape	ami	ita	utu
Landu	Ø/k	kuni	emi	oo	ai		ape	ami	ita	utu
Rikou	Ø	uni-ʔ	emi	oo	ai		ape	ami	ita	utu
Oepao	Ø		emi	oo	ai		ape	ami	ita	utu
Kotos	h	huni|k	hii	hoo	hau		hape	hai	hit	hutu
Molo	h		hii	hoo	hau		hape	hai	hit	hutu
Kusa-M.	h		hei	hoo	hau		hape	hai	hiat	hutu

- *kaɓas 'cotton' (ultimately from Sanskrit *kārpāsa*), Bilbaa *kaba-ʔ*, Korbafo *(ʔ)aba-ʔ,* other Rote *ʔabas/ʔabas*, Ro'is Amarasi *kabas*, other Meto *ʔabas*
- *kinde 'spindle' (connected with Malay *kincir* 'spinning wheel'), Dela-Oenale, Dengka, Tii, Rikou *ʔinde*, Lole *(ʔ)inda*, Ba'a *(ʔ)ina*, Termanu, Korbafo, Bokai *(ʔ)ine*, Landu *ʔindi*, Oepao *ʔiri*, Ro'is Amarasi *kiri*, other Meto *ʔike*
- *kofa-k 'canoe, boat', Bilbaa *kofa-ʔ,* other Rote *ʔofa-ʔ/k*, Ro'is Amarasi and Kotos Amarasi *kofa|ʔ.* (Compare Hawu *kova* 'boat' [Grimes et al. 2008] and Ende *kowa* 'canoe with two supporting poles on each side' [McDonnell 2009:25], perhaps connected irregularly with PMP *qabaŋ.)
- *kibo 'k.o. shellfish' (connected with PMP *qibaw), Dengka, Bokai *kifo*, Bilbaa, Rikou *ibo*, other Rote *ifo*

4.5.2 Word medial *k. Word medial PRM *k is reconstructed on the basis of a number of different correspondence sets that show *k* in at least one Rote-Meto language and either *ʔ* or Ø in other Rote-Meto languages. There are 87 examples of word medial *k in my current dataset.

I have identified five different patterns for medial PRM *k. These patterns are summarized in table 27, with the number of attestations of each. There are an additional nine examples that are ambiguous between sets 3, 4, and 5, due to the lack of a Meto reflex. There are also six examples that do not fit into any of these patterns.

Examples of each of these sets are given in table 28. Due to space constraints, only one language representative of each of the columns in table 27 is given in table 28. Dengka examples are given as representative of Dela-Oenale, Rikou examples are given as representative of Oepao, and Termanu examples are given as representative of all other Rote languages apart from Bilbaa.

TABLE 27. WORD MEDIAL PRM *k

	PRM	Dela-O., Dengka	Bilbaa	Landu†	Rikou, Oepao	other Rote	Meto	no.
set 1	*k-	k	k	k (1)	k~ʔ	k	k	21
set 2	*k-	ʔ	k	ʔ (2)	k~ʔ~Ø	k	ʔ~Ø	17
set 3	*k-	ʔ~*k*	k	k~ʔ (2)	ʔ~k	ʔ	ʔ	17
set 4	*k-	ʔ~Ø	k	k (3)	k~ʔ	ʔ	k	9
set 5	*k-	Ø~ʔ	k	ʔ (1)	ʔ	ʔ	Ø	8

† Landu data for medial PRM *k are extremely scarce, with only nine clear reflexes. The reflexes indicated for Landu must, thus, be taken as preliminary. For each pattern, the number of Landu attestations is given in brackets.

TABLE 28. EXAMPLES OF MEDIAL PRM *-k-

PRM	Dengka	Bilbaa	Rikou	Termanu	Kotos	gloss
set 1	k	k	k~ʔ	k	k	
*iko	iko-ʔ	iko-ʔ	iko-ʔ	iko-k	iku-f	‘tail’
*hoka	hoka	hoka	hoʔa	hoka	n-hoka	‘call up, invite’
*ka-teke	teke	teke	teʔe	teke	ʔ|teke	‘gecko’
set 2	ʔ	k	k~ʔ~Ø	k	ʔ~Ø	
*mbuku	mbuʔu	puku	puku	puku	puʔu	‘mushroom’
*sarakaen	salaʔae-ʔ	solokae-ʔ	soroʔae-ʔ	solokae-k	snaen	‘sand’
*ɗoki	ɗo~ɗoʔi		do~doi	do~doki		‘desire’
set 3	ʔ~k	k	ʔ~k	ʔ	ʔ	
*ɓuku	buku-ʔ	buku-ʔ	buku-ʔ	buʔu-k	buʔu-f	‘joint, node’
*ma-ka-rekət	ma-ʔa-leʔa	ma-ka-leke	ma-reʔe	ma-ka-leʔe-k	ma|ʔ|neʔat	‘tart, brackish’
*luku	luʔu	luku	luʔu	luʔu	n-nuʔu	‘watch over’
set 4	ʔ~Ø	k	*k*~ʔ	ʔ	k	
*ika-k	ia-ʔ	ika-ʔ	ika-ʔ	iʔa-k	ika|ʔ	‘fish’
*seke	na-ʔa-seʔe	na-ka-seke	na-seke	na-ka-seʔe	na-ʔ|seke|ʔ	‘force’
*fakur	na-ʔa-fa~faʔu	faku	faʔu	faʔu	n-faki	‘draw, pull out’
set 5	Ø~ʔ	k	ʔ	ʔ	Ø	
*lako	lao	lako	laʔo	laʔo	n-nao	‘go’
*sake	sae	sake	saʔe	saʔe	n-sae	‘go up, ascend’
*tekə	te~tea-s	te~teke-ʔ	te~teʔe-ʔ	te~teʔe-k	tea|s	‘staff’
*toki	toʔi	toki	toʔi	toʔi	n-toi	‘dig out’

All instances in which Dela-Oenale, Dengka, and Meto have medial PRM *k > Ø are forms that have been reconstructed to PMP: *lakaw > PRM *lako ‘go’, *sakay > *sake ‘go up, ascend’, and *təkən > ‘bamboo punting pole’ > *tekə ‘staff, walking stick’.

4.5.3 *ka- prefixes. In addition to instances of *k that are part of lexical roots, we can also reconstruct at least three prefixes with the form *ka-: a nominalizer, a stative, and a causative. The reflexes of prefixal *ka- are distinct from those other instances of PRM *k. All of these prefixes have productive reflexes in the modern day Rote-Meto languages, though it is beyond the scope of this paper to properly discuss these reflexes here.

In addition to productive reflexes of PRM *ka-, there are also a number of forms in my database that have a reflex of *ka- that is no longer productive in daughter languages. There are 58 examples of unproductive *ka- on nouns and thirteen examples of unproductive *ka- on verbs.

In Meto, both nominal and verbal *ka- > *k~ʔ*. There is no discernible conditioning environment as to whether the outcome of PRM *ka- is *k* or *ʔ* in Meto. Occasionally, different reflexes are even found between different varieties of Meto.

In Rote languages, nominal *ka- is normally completely lost while verbal *ka- > *ʔa-* in Dela-Oenale and Dengka, *ka- > Ø in Rikou, and *ka- = *ka* in the other Rote languages.

Four examples of PRM nominal *ka- and two examples of verbal *ka- are given in table 29.

TABLE 29. EXAMPLES OF UNPRODUCTIVE PRM *ka-

*gloss	'(fruit) bat'	'pumpkin'	'crab'†	'fig tree'‡	'thunder'	'hold in the mouth'
PRM	*ka-ɓau-k	*ka-ɓoŋgo	*ka-niit	*ka-ralum	*ka-ɗoto#	*ka-moo
Dela-O.	ɓau-ʔ	ɓoŋgo	niit	ralu	na-ʔa|ɗoto	na-ʔa|moo
Dengka	ɓau-ʔ	boŋgo_melu ʔ	niit, nii-ʔ	lalu	na-ʔa|ɗoto	na-ʔa|moo
Tii	ɓau-ʔ	ɓoŋgo	nii-k	laru < *ralu	na-ka|ɗoto	na-ka|moo
Termanu	bau-k	boŋo	nii-k	lalu	na-ka|doto	na-ka|moo
Bilbaa	bau-ʔ	boŋo	nii-ʔ	lalu	na-ka|doto	na-ka|moo
Rikou	bau-ʔ	boko	nii-ʔ	ralu	na-doto	na-moo
Kotos	bkaʔu < *k|baʔu	ʔ|boko	k|niit	ʔ|nanum	na-ʔ|roto	na-ʔ|moo
Molo	ʔ|baʔu	ʔ|boko	k|niit	ʔ|nanum	na-ʔ|loto	

† Molo *kniit* means 'trumpet, horn'.
‡ Probably the variegated fig tree, *Ficus variegata*.
# Means 'make noise, cause a din' in Rote, and 'rumbling, thundering, make lots of noise' in Meto. Kotos Amarasi has the nominalization *ʔ|roto-s* 'thunder'.

4.6 GLOTTAL CONSONANTS *ʔ AND *h. Two glottal consonants can be reconstructed to PRM: a glottal stop *ʔ and a glottal fricative *h. These consonants are often lost, and their reflexes partially overlap. The reflexes of *ʔ and *h are summarized in table 30.

TABLE 30. PRM *ʔ AND *h

PRM	Dela-O., Dengka	Bilbaa, Landu	Rikou, Oepao	other Rote	Meto
*h-	h/Ø	h	h	h	h/Ø
*-h-	Ø	Ø	Ø	ʔ	h/Ø
*-ʔ-	ʔ	Ø	ʔ/Ø	ʔ	ʔ

4.6.1 *ʔ. There are seventeen clear examples of PRM *ʔ in my database, of which nearly all are word medial. The usual reflexes of medial PRM *ʔ are as follows: *ʔ > Ø in Bilbaa and Landu, *ʔ > *ʔ*~Ø in Rikou and Oepao, and *ʔ = *ʔ* in other Rote and Meto languages. Examples of PRM *ʔ are given in table 31. Many instances of PRM *ʔ correspond to *k* in cognate/equivalent forms in other languages or PMP reconstructions.

In addition to medial *ʔ, there is one clear example of word final *ʔ: PRM *koaʔ 'friarbird' > all Rote *koa ~ koaʔ* 'kind of bird', Ro'is Amarasi and Kotos Amarasi *koaʔ* 'friarbird, *Philemon sp.*, green figbird *Sphecotheres viridis*', Molo *kool_<koa>* 'calling bird'.[16]

4.6.2 *h. There is good evidence for reconstructing *h initially in PRM. Word initial PRM *h = *h* in all Rote-Meto languages, with occasional loss in Dela-Oenale, Dengka,

16. My own field notes have Rikou *koa*ʔ as 'friarbird, *Philemon sp.*'

TABLE 31. EXAMPLES OF PRM *ʔ

*gloss		'smoke, roast'	'grand-father'	'stay awake'	'pick out'	'horn'	'several'	'lie down'
PRM	*ʔ	*seʔi	*ɓaʔi†	*ɓeʔe‡	*ɗoʔi#	*toʔis§	*ɓaʔuk%	*mbeʔu&
Dela-O.	ʔ	seʔi	ɓaʔi	ɓeʔe	ɗoʔi			
Dengka	ʔ	seʔi	baʔi	beʔe	ɗoʔi			
Tii	ʔ	seʔi	ɓaʔi	ɓeʔe	ɗoʔi			nakambeʔuk
Termanu	ʔ	seʔi	baʔi	beʔe	doʔi	toʔi-k	baʔu	naŋapeʔuk
Bokai	ʔ	seʔi	baʔi			toʔi-k	baʔu	naŋapeʔuk
Bilbaa	Ø	sei	bai			toi-ʔ	bau	na-peʔu-ʔ
Rikou	ʔ/Ø	seʔi	baʔi		doʔi	toʔis	bau	na-peʔu-ʔ
Kotos	ʔ	n-seʔi		n-beʔe	nroʔe	toʔis	baʔu|k	peʔu-n
Molo	ʔ	n-seʔi		n-beʔa	loʔi	toʔis	<ba'u>	<n-piu>

† PRM *ɓaʔi 'grandfather' may be connected with PAN *baki 'grandfather' (reconstructed by Blust and Trussel [ongoing] only on the basis of Formosan cognates), though with irregular *b > *ɓ. Landu has *baʔi* with unexpected retention of the medial glottal stop when we expect *ʔ > Landu Ø.
‡ Compare PRM *ɓeʔe 'stay awake' with Hawu *beke* 'stay awake'.
# Compare PRM *ɗoʔi 'pick out' with Kambera *ruki*, Sika *dokit* (given in Jonker 1908:96).
§ Rote reflexes of *toʔis mean 'triton shell, a horn of a buffalo on which to blow, a musical instrument made from lontar leaves'. Kotos Amarasi *toʔis* means 'trumpet, horn'. The Molo form apparently only occurs in the parallel pair *toʔis ma kniit*, where *kniit* is the normal word for 'horn, trumpet'.
% Compare PRM *ɓaʔu-k 'several' with Helong *bakun* 'several'.
& My own field notes have Bilbaa and Rikou *na-peu* 'lie down'. Kotos Amarasi *peʔu-n* means 'sleepiness after waking up', Molo <*n-piu*> is given as 'sleepy'. Amfo'an has *n-peʔu|g* 'sleepy'. Kusa-Manea has *peuʔ* (metathesized from *peʔu) 'sleep, lie down'.

and Meto. Examples of initial PRM *h are given in table 32. Where external cognates of PRM *h have been identified, it is a reflex of earlier *p.

There are 52 reconstructions in my database that attest word initial *h. Among these, 47 have reflexes in Dela-Oenale and Dengka, and 38 have reflexes in Meto. Of these, there are eight reconstructions in which initial *h- > Ø in Dela-Oenale, Dengka, and Meto, and an additional four reconstructions in which initial *h- > Ø in Meto.

TABLE 32. EXAMPLES OF INITIAL PRM *h

*gloss		'overtake'	'voice'	'invite'	'smile'	'eat s.t. hard'	'gall'
PRM	*h	*hambu	*hara	*hoka	*humək†	*heŋgu	*hedu‡
Dela-O.	h/Ø	hambu	hara-ʔ	hoka	humek	heŋgu	eru-ʔ
Dengka	h/Ø	hambu	hala-ʔ	hoka	hume~hume, humel	heŋgu	elu-ʔ
Tii	h	hambu	hara-k	hoka	hume	heŋgu	heɗu-k
Termanu	h	hapu	hala-k	hoka	hume	heŋu	hedu-k
Bilbaa	h	hapu	hala-ʔ	hoka	hume	heŋu	hedu-ʔ
Rikou	h	hapu	hara-ʔ	hoʔa	hume	heku	hedu-ʔ
Kotos	h/Ø		hana-f	n-hoka	humaʔ	n-eku	enu-f
Molo	h/Ø	n-hapu	hana-f	<hoka>	huma-n	n-eku	<enu>

† Rote reflexes of *humək are given as 'smile'. Meto reflexes mean 'face, form, kind, type'. Kotos Amarasi and Molo also have *n-humaʔ_moe* 'smile'. Kusa-Manea has *humuʔ* 'face, kind'.
‡ PRM *hedu 'gall, gallbladder' is a reflex of PMP *qapəju.

There is solid evidence for PRM *h medially with eleven clear reflexes. The usual reflexes of medial *-h- are as follows: *h- > Ø in Dela-Oenale, Dengka, Bilbaa, Landu, Rikou, and Oepao, *h- > ʔ in Tii, Lole, Termanu, Korbafo, and Bokai, and *-h- = *h* in Meto. Examples of PRM *h are given in table 33.

In addition to examples in which reconstruction of medial PRM *h is well supported, there are also 19 reconstructions that have the same correspondences exemplified in table 33 except for Meto, which has Ø. Examples are given in table 34.

At first it would appear that PRM *ʔ should be reconstructed for this correspondence set, as this is the attested reflex. However, of all the correspondence sets attesting glottal

TABLE 33. EXAMPLES OF MEDIAL PRM *-h-: PATTERN 1

*gloss		'arm span'	'cough'	'tread out'	'mat'	'equipment'	'hungry'
PRM	*h	*reha†	*ɓoho	*ahi‡	*ka-neha-k#	*lohas§	*ma-laha%
Dela-O.	Ø	ree	ɓoo	ai			
Dengka	Ø	lee	ɓoo	ai			
Tii	ʔ	reʔa	ɓoʔo	a~aʔi			
Ba'a	ʔ	leʔa	boʔo	ha~haʔi			
Termanu	ʔ	leʔa	boʔo	a~aʔi	neʔa-k	loʔas	na-ma-laʔa
Bokai	ʔ	leʔa	boʔo	a~aʔi	neʔa-k		na-ma-laʔa
Bilbaa	Ø	lea	boo	a~ai	nea	loa-ʔ	na-ma-laa
Rikou	Ø	rea		a~ai	nea-ʔ		na-ma-laa
Kotos	h	nehe	n-boho		ʔ|nahe|k	pake_nohas	na-m|naha
Molo	h	nehe	<boho>	<ume ahi>	<nahe>	na-nohas	nam|naha

† PRM *reha 'arm span, fathom' is a reflex of PMP *dəpa, though with irregular initial *d > *r.
‡ Molo <*ume ahi*> means 'house where the rice is trodden out of the grain head' (*ume* = 'house'). Jonker (1908:6) gives Amarasi *ahi* in his etymological notes. This form is not known to my Amarasi informants.
# PRM *ka-neha-k > Meto *ʔ|nahe|k* has vowel metathesis.
§ Kotos Amarasi *pake_nohas* means 'clothes' and is compounded with *pake* 'clothes'. Molo *na-nohas* means 'equip (oneself)'.
% PRM *ma-laha 'hungry' is a reflex of PMP *lapaR.

TABLE 34. EXAMPLES OF MEDIAL PRM *-h-: PATTERN 2

*gloss		'dream'	'push,pull'	'prevent'	'centipede'	'nearly'	'fire'	'lime'
PRM	*h	*lamehi†	*kahi	*kahin	*liha-k	*n-ohi	*ahi‡	*aho‡
Dela-O.	Ø	na-lamein	ʔai	ʔai	li~lia-ʔ		ai	ao
Dengka	Ø	nalamein	(ʔ)ai	(ʔ)ai	li~lia-ʔ		ai	ao
Tii	ʔ	na-lameʔi	kaʔi	kaʔi	li~liʔe-k	noʔi	aʔi	aʔo
Ba'a	ʔ	na-lameʔi	kaʔi	kaʔi	li~liʔa-k		haʔi	haʔo
Termanu	ʔ	na-lameʔi	kaʔi		li~liʔa-k	noʔi	haʔi	haʔo
Bokai	ʔ	na-lameʔi		kaʔi		noʔi	haʔi	haʔo
Bilbaa	Ø	na-lamei		na-sa-ŋai	li~lia-ʔ	noi	ai	ao
Rikou	Ø	na-lamei	(ʔ)ai	ʔai	li~lia-ʔ	oi, noi	ai	ao
Kotos	Ø	na-mnei	n-ʔai	nakain|aʔ		n-oi	ai	ao
Molo	Ø		n-ʔai			n-oi	ai	ao

† Meto *na-mnei* has consonant metathesis from earlier *na-lmei > *na-nmei.
‡ Initial *h* in 'fire' and 'mineral lime' in Ba'a, Termanu, and Bokai is an insertion. Insertion of initial *h* only occurs in these languages after a medial consonant becomes glottal stop. See also Ba'a *ha-haʔi* 'tread out' < PRM *ahi in table 33 above.

consonants, this third correspondence set is more similar to that of medial *h than it is to medial *ʔ.

If PRM *h is reconstructed for this correspondence set, then we must posit a split in Meto whereby *-h- > *h*~Ø. If we reconstruct *ʔ for this correspondence set, then we must posit a split in Dela-Oenale, Dengka, Landu, Rikou, Oepao, and Meto whereby *ʔ > *ʔ*~Ø.

According to Occam's razor, the best solution is, thus, to reconstruct *h, as this requires positing a split in one rather than four or six languages. Furthermore, the posited split of medial *-h- > *h*~Ø in Meto is also found word initially. For these two reasons, I reconstruct medial *h for the correspondence set exemplified in table 34 even though no daughter languages retain *h = *h*.

Reconstruction of medial *h for this correspondence set also finds external support from PMP. When a PRM form containing medial *h can be traced to PMP, it nearly always comes from PMP *p.[17] Examples from table 34 are *qapuR > *aho 'mineral lime', *hapuy > *ahi 'fire', *qaluhipan > *liha-k 'centipede', and *həpi > **ma-həpi > **mepi > *lamepi 'dream'.

There are also two PRM reconstructions in which *h = *h* in Meto but is lost in all Rote lects. These reconstructions are given below. In both instances, PRM *h occurs between two *a's. However, this cannot be identified as a regular conditioning environment due to forms such as PRM *ma-laha 'hungry' in table 33 with expected reflexes of *-h-.

- *saha-k 'whetstone' (possibly connected with PMP *hasaq) > Tii, Ba'a, Termanu *saa-k*, Korbafo, Bilbaa *saa-ʔ* 'whetstone for knives and machetes', Kotos Amarasi *saha|k* 'large whetstone', Molo *saha|n* 'large, round whetstone'.
- *klaha-k 'coals, embers' > Dela-Oenale *ai_kaa* 'charcoal', Dengka and Bilbaa *ai_kaa-ʔ*, Tii *aʔi_kaa-k,* Rikou *ai_(ʔ)aa-ʔ*, other Rote *haʔi_kaa-k*, 'glowing coals' Kotos Amarasi *kraha|ʔ* 'burning coals, embers; glory', Molo *klaha|ʔ* 'flames'.

Finally, there is one apparent example of PRM *h > *ʔ* in Dela-Oenale and Dengka: *manihis 'thin' (from PMP *ma-nipis) > Dela-Oenale, Dengka, Tii, Lole, Ba'a, Termanu *niʔiʔis*; Korbafo *niʔiʔ*;Bilbaa *nii-ʔ*; Landu, Rikou *niis*; Meto *mainihas*–all 'thin'.

4.7 *ŋ. There is some evidence for reconstructing *ŋ to PRM. In most cases, PRM *ŋ > *n* in the Rote languages and *ŋ > *k* in Meto. There is also one instance of *ŋ > *ŋg* in Dela-Oenale and Dengka, one instance of *ŋ = *ŋ* in Termanu and Korbafo, and occasional instances of *ŋ > *n* in Meto. There are only six clear examples of PRM *ŋ, given in table 35.

That only half a dozen instances of PRM *ŋ can be surely reconstructed indicates that this protophoneme was only a peripheral part of the PRM phoneme inventory, like PRM *p (see 4.3.3). Some of the forms with *ŋ may be borrowings after the break-up of PRM. One likely example is PRM *deŋe 'kapok tree', which can be compared with Helong *deŋen* 'kapok'.

However, evidence that *ŋ *did* have legitimate—though marginal—status as a protophoneme in PRM finds support from the fact that *ŋ can also be reconstructed to Proto-Meto. Proto-Meto *ŋ > *n*~*k* in varieties of Meto. Not only does this include some variet-

17. A possible exception is PMP *rakup [*rakup] 'scoop up' > Ba'a, Termanu, Korbafo, Bokai *laʔu*; Tii *raʔu;* Dela-Oenale, Rikou *rau*; Dengka *lau*; Kotos Amarasi *n-nau*;–all 'scoop', which would be most consistent with PRM *rahu.

TABLE 35. EXAMPLES OF PRM *ŋ

*gloss		'insert'	'kapok tree'	'fry'	'*Cordia* tree'	'cold'	'swim'
PRM	*ŋ	*ŋato	*deŋe	*seŋa†	*nuŋa‡	*mariŋin#	*naŋe§
Dela-O.	n	nato	rene	se~sena	nuŋga-ʔ	ma-ʔa-rini	nane
Dengka	n	nato	lene	se~sena	nuŋga-ʔ	ma-ʔa-lini	nane
Tii	n	nato	dẽne	se~sena	nuna-k	ma-ka-rini	nane
Termanu	n	nato	dene	se~sena	kai_nuna-k	ma-ka-lini	aŋe
Korbafo	n	nato	dene	se~sena	kai_nuna-ʔ	ma-ka-lini	aŋe
Bilbaa	n	nato	dene	se~sena	kai_nuna-ʔ	ma-ka-lini	ane
Rikou	n	nato	dene	se~sena	ai_nuna-ʔ	ma-rini	ane
Kotos	k	n-katon	neke		nuk_baʔi	mai|nikin	
Molo	k	<n-kato>	neke	na-seka	nuk_baʔi, nun_baʔi, kuk_baʔi	<mai|niki>	

† PRM *seŋa 'fry' is probably connected with PMP *saŋəlaR 'stir-fry, cook in a frying pan without oil'. The form *na-seka* is from Timaus and Amfo'an, not Molo.

‡ Molo has variants *nuk_baʔi, nun_baʔi*, and *kuk_baʔi* which are all given as *Cordia* sp. Molo also has <*nuna fui*> 'k.o. tree with a soft trunk'. These suggest PRM variants *nuŋa and *ŋuŋa.

PRM *mariŋin is a reflex of a PMP form reconstructed variously as: *ma-diŋin (Blust and Trussel ongoing), *madiŋədiŋ (Wolff 2010:824), or *ma-diŋdiŋ (Zorc 1995:1119). Middelkoop (1972) also gives Amanuban and Amanatun <*mai*|*nini*>. Only *ma*|*nikin* 'cold' occurs in my Amanuban and Amanatun data.

§ PRM *naŋe 'swim' is probably from PMP *naŋuy, though with irregular *uy > e and irregular loss of initial *n in Termanu, Korbafo, Bilbaa, and Rikou.

TABLE 36. EXAMPLES OF PROTO-METO *ŋ

*gloss	'spit'	'plait, braid'	'tamarind'	'stay behind'	'egg'
Proto-Meto	*paŋinut	*na-ŋano†	*ŋiu‡	*namaiŋaʔ	*teŋoʔ#
Ro'is	na-ninu	na-kano	niu	na-maikaʔ	tenoʔ
Kotos	na-kinu	na-kano, na-nano	kiu	na-maikaʔ	tekoʔ, tenoʔ
Amanuban		na-nano, na-kano	kiu	na-maikaʔ, na-mainaʔ	tenoʔ, tekoʔ
Molo	nakinu(t)	na-kano	kiu	na-maikaʔ	tekoʔ
Timaus	na-kinu	na-kano	kiu		tekoʔ
Kusa-Manea	pakiun	na-kaon		na-maʔik	tenoʔ

† Compare Proto-Meto *na-ŋano with Dela-Oenale and Dengka *hano* 'plait, braid'.

‡ Proto-Meto *ŋiu 'tamarind' may be connected with PMP *ŋilu 'painful sensation in teeth, as from eating something sour', though with irregular *l > Ø. Clear reflexes of PMP *ŋilu include: Kotos Amarasi and Molo *maiʔ|ninu|ʔ* 'sour', Kusa-Manea *ka~kinu* 'tamarind, sour', and all Rote *ni~nilu* 'tamarind'.

Proto-Meto *teŋoʔ is possibly connected with PMP *qatəluR. Rote languages have *tolo-k/-ʔ*.

ies of Meto having *k* and others having *n*, it also includes a single variety having variants for a single word. Examples of Proto-Meto *ŋ are given in table 36. When a single variety has variant forms of a word, the form that appears to be more common is given first.

4.8 VOWELS. The only PRM vowels that require discussion are *ə and *a. The other vowels *i, *e, *o, and *u are usually retained unchanged in all Rote-Meto languages (see table 5 in 4.1).

4.8.1 *ə. There is good evidence for reconstructing *ə to PRM in final syllables. In Dela-Oenale, Dengka, and Meto, final *ə > *a*, and in the other Rote languages, *ə > *e*. There are 24 unambiguous examples of this correspondence set in my database. Examples of PRM *ə are given in table 37.

TABLE 37. EXAMPLES OF PRM *ə

*gloss		'ribcage'	'sweat'	'tart, sour'	'inside'	'spirit'	'navel'
PRM	*ə	*tendə-k†	*mbusər‡	*ma-ka-rekət#	*dalə-k§	*samanə-k§	*husə-k§
Dela-O.	a	tenda-ʔ	mbusa, mbusar	ma-ʔa-rɛʔa	rala-ʔ	samana-ʔ	ʔusa-ʔ
Dengka	a	tenda-ʔ	mbusa	ma-ʔa-leʔa	lala-ʔ	mana-ʔ	(ʔ)usa-ʔ
Tii	e	tende-k	mbuse	ma-ka-rɛʔe	dàle-k	samane-k	huse-k
Termanu	e	tene-k	puse	ma-ka-leʔe-k	dale-k	samane-k	(ʔ)use-k
Rikou	e	tende-ʔ	puse	ma-rɛʔe	lala-ʔ	samane-ʔ	ʔuse-ʔ
Kotos	a	teka-f	puus < *pusa	ma|ʔ|neʔat	nana|ʔ	smana-f	usa-f
Molo	a	teka-f	puus < *pusa	ma|ʔ|neʔat	nana|ʔ	smana-f	usa-n

† Dela-Oenale and Dengka *tenda-ʔ* = 'chest'. Kotos Amarasi *teka-f* = 'lungs'. Molo *teka-f* = 'heart muscle'.

‡ Reflexes of *mbusər in Meto appear to have frozen final CV metathesis. Final /a/ regularly assimilates to the quality of the penultimate vowel after metathesis in Kotos Amarasi and Molo.

Reflexes of *ma-ka-rekət in Meto mean 'tart, sour; trouble and sorrow, tribulation, distress'.

§ PRM *dalə-k, *samanə-k, and *husək are from PMP *daləm, *sumaŋəd and *pusəj, respectively.

In addition, there are seven examples in which final PRM *ə > *e* in all Rote languages (including Dela-Oenale and Dengka) and *ə > *a* in Meto. Two examples are *humək 'smile' > Dela-Oenale *humek*, Dengka *hume~hume, humel*, other Rote *hume,* all 'smile'; Kotos Amarasi, Molo *humaʔ* 'face, form, kind', *n-humaʔ_moe* 'smile, be glad'; and *katə 'itchy' (from PMP *gatəl) > Dela-Oenale, Dengka, Rikou *ʔete* 'itchy, spicy', other Rote *kete* 'spicy'; Ro'is Amarasi, Kotos Amarasi *ma|hata|ʔ* 'itchy', Molo *n-ma|hata* 'itchy'.

There is also some indirect evidence for PRM *ə in nonfinal syllables. This evidence comes from three examples in which Tii, Lole, Rikou, Landu, and Oepao have the sequence /enV/, which corresponds to apparent reflexes of *endV in other languages. As discussed in 4.2.3, medial *nd is otherwise kept as *nd* in Tii, Lole, Rikou, and Landu, and *nd > *r* in Oepao.

This otherwise irregular change of *nd > *n* can be explained by positing a conditioned change of *nd > *n* /ə_ in Tii, Lole, Rikou, Landu, and Oepao. The three examples in which this change occurs are given below. In all three examples PRM *ə > *e*, which is also the regular reflex for nonfinal PMP *ə (Edwards 2018).

- PRM *əndi 'bring': Dela-Oenale, Dengka *n-endi*, all other Rote (including Tii, Lole, Rikou, and Oepao) *n-eni*, Ro'is Amarasi *n-eri*, other Meto *n-eki* (compare PRM *əndi 'bring' with Tetun *hodi* 'bring'—in Tetun, *o* is regular from *ə, and *d* regular from *nd.)
- PRM *kənda 'close': Dela-Oenale, Dengka, Landu *ʔena*, Rikou, Oepao *ena*, other Rote *kena,* Ro'is Amarasi *na-kera*, Kotos Amarasi, Molo *na-ʔeka*, Kusa-Manea *n-ʔaʔeak*.[18]
- PRM *həndi 'finish' (perhaps connected with PMP *qəti): Dela-Oenale, Dengka *hendi*, other Rote *heni*.

That the change *nd > *n* in Tii, Lole, Rikou, Landu, and Oepao is conditioned by *ə rather than *e is shown by examples in which *nd has the expected reflexes in these languages after *e (see 4.2.3). Three such examples are given below.

18. Reflexes of *kənda 'close' also have *nd > *n* /ə_ in Dela-Oenale and Dengka. The evidence for PRM *nd, thus, comes from Meto, for which Ro'is Amarasi *r* and other Meto *k* are regular from *nd.

- PRM *tendə-k 'ribcage': Dela-Oenale, Dengka *tenda-ʔ* 'chest'; Landu *tende dui-ʔ* 'ribs', Oepao *tere-ʔ* 'ribs'; Rikou *tende-k* 'ribcage', other Rote *tene-k/-ʔ* 'ribcage'; Ro'is Amarasi *tere-f* 'lungs', Kotos Amarasi *teka-f* 'lungs'; Molo *teka-n* 'heart muscle'.
- PRM *endən 'soak' (from PMP *Rəndəm): Dela-Oenale, Dengka *ʔenda*, Rikou, Tii, Lole *ende*, Landu *enden*, Oepao *ere*, other Rote *ene*, Ro'is Amarasi *na-ʔaeraʔ*, Kotos Amarasi *na-ʔaekaʔ*, Molo *n-ʔaekaʔ* (with diphthongization of *e > *ae* in Meto).
- PRM *ma-sa-kendi-k 'slippery': Termanu *masa|keni*, Tii *masa|kendi-k,* Ro'is Amarasi *mas|keri|ʔ,* Kotos Amarasi *mas|ʔeki|ʔ.*

We can, thus, reconstruct PRM *ə to both final and penultimate syllables. While the change of *ə > PRM *e in nonfinal syllables was nearly complete by the breakup of PRM, some examples of *ə can be indirectly detected.

4.8.2 *a. In all word positions, PRM *a = *a* in all Rote-Meto languages. There are over 500 examples in my current database. Examples include PRM *n-ala 'get' > all Rote *n-ala*, Meto *n-ana*; and PRM *ɗaŋga 'step over' > Dela-Oenale, Dengka, Tii *ɗaŋga*, Ba'a *daŋga*, Termanu, Bokai, Bilbaa *daŋa*, Rikou *daka*, Kotos Amarasi *n-raka*, Molo *n-laka.*

There is an additional correspondence set involving final *a* in open syllables. In this set, Dela-Oenale, Dengka, and Uab Meto *e* corresponds to other Rote *a.* Examples are given in table 38. There are 25 examples of this correspondence set in my data, compared with 204 examples in which all Rote-Meto languages have *a* in final open syllables.

TABLE 38. EXAMPLES OF DELA-OENALE, DENGKA, AND METO *a# > *e*

*gloss		'gebang palm'	'cloth belt'	'whole'	'clothes louse'	'house'	'slave'	'arm span'
PRM	*a#	*tula	*lafa	*ka-tema	*tuma†	*uma‡	*ata†	*reha†
Dela-O.	e	tule	lafe	teme-ʔ	tume	ume	ate	ree
Dengka	e	tule	lafe	teme-ʔ	tume	ume	ate	lee
Tii	a	tula	lafa	ka-tema-k	tuma	uma	ata	reʔa
Termanu	a	tula	lafa	ka-tema-k	tuma	uma	ata	leʔa
Bilbaa	a	tula	lafa	ka-tema-ʔ	tuma	uma	ata	lea
Rikou	a	tula	lafa	ka-tema-ʔ	tuma	uma	ata	rea
Kotos	e	tune, tuni‡	nafe	ʔ|teme	tume	ume, umi ‡	ate	nehe
Molo	e	tune		<teme>	tume	ume	ate	nehe

† PRM *tuma, *uma, *ata and *reha are reflexes of PMP *tumah, *Rumaq, *qaRta, and *dəpa, respectively

‡ Kotos Amarasi has optional raising of mid vowels to high after another high vowel.

At first, this correspondence set appears to attest an additional vowel or vowel sequence that is reflected differently in Dela-Oenale, Dengka, and Meto compared with other Rote languages. However, closer inspection indicates that this set represents raising of *a in a drift-like manner in Dela-Oenale, Dengka, and Meto. Evidence in favor of this set being a result of a drift of open *a > *e* is indicated by the different extent to which it is attested in Dela-Oenale and Dengka compared to Meto. There are 25 examples in which *a > *e* /_# in Dela-Oenale, Dengka, and Meto, and a further eight examples in which *a > *e* /_# only in Meto. Two examples are: *ka-lema 'sea snake' > Meto *k|neme*, all Rote

lema-ʔ/-k; as well as PRM *mesa 'alone, one' (from PMP *ma-əsa) > Meto *meseʔ* 'one, alone', all Rote *mesa*.[19]

Additional evidence for identifying this correspondence set as representing a change of *a > *e* comes from variants within a single speech variety. One example is PRM *kea 'turtle' which has variants *kee ~ kea* in both Kotos Amarasi and Molo. In Rote, PRM *kea > Dela-Oenale, Dengka *ʔee*, Rikou, Oepao *ʔea*, other Rote *kea*. A second example is PRM *ŋga~ŋgala 'agati, *Sesbania grandiflora*', which is one of the few words known to be different in Dela and Oenale. Dela has *ŋga~ŋgale* with final open *a > *e* (Thersia Tamelan p.c. February 2017) and Oenale has *ŋga~ŋgala* with final *a = *a* (Jonker 1908:430). In other varieties, PRM *ŋga~ŋgala > Tii, Ba'a, Termanu, Korbafo *ŋga~ŋgala;* Bokai, Bilbaa *ŋa~ŋala;* Rikou *ka~kala*; Meto *ʔ|kane*.

Due to the existence of variants with *a~e* in single speech varieties, as well as the drift-like nature whereby Meto has more examples of final open *e* than Dela-Oenale and Dengka, I reconstruct *a to PRM to account for correspondence sets that have *e* in Dela-Oenale, Dengka, and/or Meto but *a* in other varieties of Rote. This solution has external support from PMP. When examples of this correspondence set can be traced to PMP, the final vowel is always *a. (See the second note to table 38.)

4.9 REDUCTION TO DISYLLABLES. Roots in the modern Rote-Meto languages are canonically disyllabic. Nonetheless, we can reconstruct a number of trisyllabes to PRM. In most cases, these roots have been reduced to two syllables in Meto by deletion of the antepenultimate vowel, thus yielding a consonant cluster. In Rote, the typical reduction strategy is loss of the antepenultimate CV syllable, though in some cases Rote languages preserve all three syllables.

Deletion of antepenultimate syllables in Rote probably came about through reduction and loss of the antepenultimate vowel with subsequent deletion of the first consonant of initial consonant clusters: that is, $*C_1V_1C_2V_2C_3V_3 > *C_1C_2V_2C_3V_3 > C_2V_2C_3V_3$. The posited intermediate stage is found in Meto. There are also a number of cases in which the first CV syllable of a trisyllable has been reanalyzed as a prefix in Rote. This is most common with initial *sa, which functions as a semi-productive verbalizer in Rote (Jonker 1915:141f).

Examples of PRM reconstructions with three syllables are given in table 39. For the final three forms, a trisyllable is reconstructed rather than an initial consonant cluster by analogy with other forms in which at least one speech variety retains all three syllables.

5. PUTATIVE NON-AUSTRONESIAN SUBSTRATE. The bottom-up reconstruction of PRM carried out in the previous section reveals a large amount of material that is neither expected nor fully accounted for based on a top-down examination of the Rote-Meto languages.

19. There is also one example in which Dela-Oenale and Dengka have final *a > *e* where Meto has *a = a: *ɓua 'gather' > Dela-Oenale, *na-ʔa-ɓue*, Dengka, *na-ʔa-bue*, Rikou *na-bua*, Tii *na-ka-ɓua,* other Rote *naka-bua*, Meto *na-bua*. In total, there are 33 examples of final *a > *e* in at least one of Dela-Oenale, Dengka, and/or Meto compared to 204 examples of final open *a = *a* in these languages.

TABLE 39. EXAMPLES OF PRM TRISYLLABLES

*gloss	'middle'	'lean on'	'star'	'armpit'	'chiton'	'branch'	'startle'
PRM	*talaɗa	*sarait†	*fanduun	*salili‡	*taruku#	*saɓake-k§	*saŋgeŋger
Dela-O.	talaɗa-ʔ	na-sa-rai	nduu-ʔ	lili_ndola-ʔ	ruʔu		ŋgeŋger
Dengka	kalaɗa-ʔ	na-sa-lai	nduu-ʔ	lili_kolo-ʔ			ŋgeŋge
Tii	talaɗa	na-sa-rai	nduu-k	lili_ɓolo-k	ruʔu	ɓaʔe-k	ŋgeŋge
Termanu	talada	na-sa-lai	nduu-k	lili_bolo-k	luʔu	baʔe-k	ŋgeŋe
Bilbaa	talada	na-sa-lai	luu-ʔ	lili_poo-ʔ	luku	bake-ʔ	ŋeŋe
Landu			fanduu-ʔ		ruku-ʔ	bake-ʔ	keker
Rikou	talada	na-sa-rai	ruu-ʔ	lili_bolo-ʔ		bake-ʔ	keke
Ro'is	tnana|ʔ		fruun	snini-f	tnuʔu		na-skeke
Kotos	tnana|ʔ	na-snait	kfuun	snini-f		sbake|ʔ	na-skeke
Molo	tnana-f	na-snait	kfuun, fkuun	snini-f		sbake|ʔ	na-skeke

† Termanu has *la~lai-s* 'something against which a dead person leans'.
‡ The Rote reflexes here are compounded with each variety's respective word for 'hole'. Rote languages also have *na-sa-lili* and Meto has *na-snini,* both 'carry slung under the arm'.
# PRM *taruku 'chiton' is cognate with Waimaha *kruku* 'chiton' (Himmelmann et al. 2006) and Proto-Oceanic *tadruku 'chiton' (Pawley 2011:197). These forms attest PCEMP *taduku 'chiton'.
§ Reflexes of *saɓake-k mean 'forked branch' in Meto and 'big branch of a tree' in Rote.

The large amount of nonsuperficial material in PRM that cannot be explained by inheritance from PMP points to intimate contact between pre-Rote-Meto and one or more pre-AN languages of the region. The putative non-AN material is substrate. It consists of features and parts of pre-AN languages that were retained after language shift from a non-AN to AN language.

At this point, it is necessary to clarify a terminological difficulty. Within historical linguistics, "retention" is often used in opposition to "borrowing."[20] However, my proposal in this section is that much of the non-AN material in PRM came through *retention* from pre-AN languages as speakers of these languages switched to speaking an AN language (specifically PRM). As they switched languages, they brought a large amount of material with them. This, I take it, is what is meant by the term "substrate."

I, thus, identify three kinds of features in PRM: material inherited from PMP is "inherited from PMP" or contains "PMP inheritances"; material retained from pre-AN languages is "substrate retention" or "retained from (a) substrate"; and material borrowed from other languages—both AN and non-AN—is "borrowed," "borrowings," or "loans."

It is beyond the scope of this paper to examine the character of the full set of putative non-AN vocabulary of PRM with the supporting evidence and data such an investigation would require. The previous section of this paper contains over 100 PRM reconstructions that are currently not known to be inherited from PMP. They include many items of basic vocabulary, such as *mbana-k 'nose, tip' and *ka-laŋga 'head', among others, and this is broadly representative of the entire database.[21]

However, most important for the proposal that the non-AN vocabulary is mostly substrate retention rather than superficial borrowing is that these non-AN words display regular sound

20. To take an example, the classification of the Rote-Meto languages as AN comes partly from the large amount of PMP material *retained* in these languages. However, the languages of the Timor-Alor-Pantar family also have many features ultimately derived from PMP, particularly lexical items. These features are taken to be *borrowed*, and, thus, these languages are classified as non-AN, or "Papuan."

correspondences. Regular sound correspondences usually indicate retention, in this case substrate retention. The regularity seen in the non-AN vocabulary is exemplified in the 100+ examples given in section 4 as evidence for the reconstructed PRM phoneme inventory.

Among the regular correspondences not fully attested in PMP inheritances are those providing evidence for reconstruction of a series of prenasalized plosives *mb, *nd, and *ŋg, a series of implosives *ɓ and *ɗ, as well as *p and *ŋ.

Other protophonemes have a much wider distribution in my complete database than regular inheritance from PMP predicts. PRM *r is only regularly derived from medial PMP *-d-, but there are 25 word initial attestations of PRM *r in my database.[22] Likewise, *f occurs word initially in 58 PRM reconstructions, of which less than half are reflexes of PMP *b.

Among vowels, there are 182 instances of PRM *e in penultimate syllables of which only 49 are reflexes of PMP *ə or *a(h)i. Similarly, there are 130 instances of PRM *o in penultimate syllables of which only seven are reflexes of PMP *wa or *a(h)u.

There are nine PRM protophonemes whose existence and/or full distribution is unexplained by inheritance from PMP. Given that there are 25 reconstructed protophonemes, this means that a little over a third of PRM phonology is not fully explained by PMP inheritance. Furthermore, these unexplained protophonemes are not merely introductions to a preexisting system, but have resulted in restructuring of that system. Two additional plosive series have been introduced to the consonant system, and the PMP system of 4 vowels (two high, one low, one central) has been altered to include mid vowels.

Of all these changes, the presence of prenasalized and imploded stops contrasting with plain voiced stops is not only unexplained by inheritance from PMP, it is also typologically rare. It is found only in 101/3,776 (2.7 percent) languages included in the World Phonotactics Database (Donohue et al. 2013). The presence of this system in PRM, therefore, demands explanation: it is not the kind of system that "normal" development and sound change is likely to produce.

PRM acquired this system through intimate contact with one or more languages of the region with such a system. In addition to transference of substrate words with these protophonemes, these substrates also influenced the development of PMP protophonemes.

In the following sections I provide a detailed discussion of prenasalization and implosion in PRM, as these are the two most typologically rare features in the phonology of PRM. I show that both prenasalization and implosion are not adequately explained by inheritance from PMP but are regionally common in the area in which PRM was spoken and developed.

I conclude with a discussion of the many irregular sound changes in the vocabulary that *is* inherited from AN. I propose that this can be partially explained by language shift from pre-AN languages.

21. My Rote-Meto lexical database is being prepared for publication. It contains 1,069 cognate sets (excluding loans), of which 314 (29 percent) are currently only known to be found in western Timor, 283 (26 percent) are found in Rote-Meto and other languages of the region, and 472 (44 percent) are AN inheritances. Examination of the kinds of vocabulary represented in these three strata indicate that the western Timor stratum is a robust substrate retention, while the regional stratum is a mix of loans and substrate retentions.
22. PMP *r [ɾ] > PRM *r, but there is only one reflex of initial PMP *r [ɾ] in my database: *rakup 'scoop'.

5.1 PRENASALIZED PLOSIVES. A full series of prenasalized plosives is reconstructed to PRM. While a small number of prenasalized plosives can be derived by regular inheritance from PMP, the vast majority cannot. Instead, the presence of prenasalized plosives in PRM attests to a high level of contact between PRM and one or more languages with prenasalization.

A small number of PRM prenasalized plosives can be identified as regular reflexes of PMP nasal stop-clusters. Two examples are PMP *pu**nt**i > PRM *hu**nd**i 'banana' (see table 10) and PMP *ta**mb**al > PRM *ta**mb**a 'mend, patch'. Only 11 percent (19/166) of PRM prenasalized plosives in my database are reflexes of P(CE)MP nasal stop clusters.[23] This leaves 89 percemt of PRM prenasalized plosives unexplained. In particular, inheritance from PMP cannot account for initial PRM prenasalized plosives that make up more than half (92/167) of all instances.[24]

An additional PMP source for PRM prenasalization is irregular sound change. Some PRM reconstructions with a prenasalized plosive are formally and semantically similar to reconstructed PMP forms and are probably irregular reflexes of these forms. In my current database, 31/166 PRM prenasalized plosives can be derived irregularly from a PMP segment. The most common such irregular change is PMP *b > PRM *mb, with 17 examples.[25]

Of the 31 PRM forms in which a prenasalized plosive may come from a PMP segment, almost half (14/31) require positing other irregular sound changes. This provides evidence independent of prenasalization that they did not come from PMP in the same way as words with regular sound changes. Instead, they may be loans from another source.

Some examples of PRM prenasalized plosives that are irregular reflexes of a PMP segment are given in table 40. Such words could have come from AN languages, or they could be substrate retention from non-AN languages that had already borrowed these words from AN languages.

Prenasalization in PRM is not a result of regular inheritance from PMP. While a small number of prenasalized plosives (11 percent, 19/166) are reflexes of PMP nasal-stop clusters, this is not the case for the vast majority. In a slightly larger number of cases (19 percent, 31/166), a prenasalized plosive occurs in a PMP reflex that is an irregular PMP reflex. In most cases (70 percent, 116/166), there is no known connection between a PRM prenasalized plosive and PMP.

However, prenasalization is an areal feature of the region. About 85 percent (~63/75) of languages with prenasalization in Island South East Asia occur in a triangle between (and including) north Sulawesi, Sumbawa, and western Timor. Furthermore, more than half of all languages in this area (~63/114) have prenasalization (Donohue et al. 2013). This suggests that prenasalization was acquired in PRM through contact with languages of this region that have/had prenasalization.

23. 11/75 (15 percent) instances of PRM *mb are reflexes of PMP *mb or *mp; 6/34 (18 percent) instances of PRM *nd are reflexes of PMP *nd, *nt, or *ŋd; and 2/57 (4 percent) instances of PRM *ŋg are reflexes of PMP *ŋk.
24. One initial prenasalized plosive is a reflex of a nasal-stop cluster: Proto-Western Malayo-Polynesian *qambawaŋ > PRM *mbao 'mango' > Dela-Oenale, Tii *mbao*, Ba'a *mpao*, other Rote (including Dengka) *pao*. The irregular reflex in Dengka may point to these forms being borrowings.
25. In total, there are 14 examples of initial PMP *b- > PRM *mb-, 14 percent (14/98) of initial PMP *b; and 3 examples of medial *b > PRM *mb, 11 percent (3/27) of medial PMP *b.

TABLE 40. EXAMPLES OF IRREGULAR PRENASALIZATION FROM PMP

PMP	*buaq†	*buRuk‡	*buliR	*taŋila#	*tikəd§	*bituqən%
PRM gloss	'betel nut'	'rotten'	'grain head'	'ear wax'	'heel'	'star'
PRM	***mb**uah	***mb**uruk	***mb**ule-k	***ŋg**ela-k	*ti**ŋg**a-k	*fa**nd**uun
Dela-O.	mbua	mburu-ʔ	mbule-ʔ	ŋgela-ʔ	ei_tiŋga-ʔ	nduu-ʔ
Dengka	mbua	mbuluk	mbule-ʔ	ŋgela-ʔ	ei_tiŋga-ʔ	nduu-ʔ
Tii	mbua	mburu-k	mbule-k	ŋgela-k	ei_tiŋga-k	nduu-k
Ba'a	mpua	mpulu-k	mpule-k	ŋgela-k	ei_tiŋga-k	nduu-k
Termanu	pua	pulu-k	pule-k	ŋgela-k	ei_tiŋa-k	nduu-k
Bokai	pua	pulu-k	pule-k	ŋela-k	ei_tiŋa-k	luu-k
Bilbaa	pua	pulu-ʔ	pule-ʔ	ŋela-ʔ	ei_tiŋa-ʔ	luu-ʔ
Landu	pua					fanduu-ʔ
Rikou	pua	puru-ʔ	pule-ʔ	kela-ʔ	ei_tika-ʔ	ruu-ʔ
Ro'is	puah	n-punu			tiki-f	fruun
Kotos	puah	n-punu	pune|ʔ		tika-f	kfuun
Molo	puah	<punu>	pune|ʔ		tika-n	kfuun. fkuun

† PMP *buaq > PRM *mbuah also has irregular *q > *h (expect Ø). Irregular *b > *mb in forms meaning 'betel nut' is common in this region and is reconstructible to Proto-Timor-Wetar-Babar, perhaps even further. PRM also has the doublet *bua-k 'fruit'.
‡ PMP *buRuk > PRM *mburuk also has irregular *R > *r (expect Ø).
# PMP *taŋila > PRM *ŋgela-k also has irregular *i > *e (expect *i).
§ PMP *tikəd > PRM *tiŋga-k also has irregular *ə > *a (expect *ə).
% PMP *bituqən > PRM *fanduun also has irregular *ə > *u (expect *ə).

Prenasalization in PRM is a substrate effect. Prenasalization entered the phonological system due to substrate transference of vocabulary, which included words with prenasalized plosives. Substrate pressure may also have led to sporadic change of some instances of PMP protophonemes into prenasalized plosives.

5.2 IMPLOSION. Two implosives can be reconstructed to PRM; *ɓ and *ɗ. As with prenasalization, while some instances of an imploded stop can ultimately be derived from PMP, implosion is not usually a regular development of any PMP segments.

While implosion in PRM is not attributable to regular inheritance from PMP, it is an areal feature of the region. Thus, of all the languages in Island South East Asia with imploded/glottalized voiced plosives, nearly all (35/37) are located in a triangle between (and including) southeast Sulawesi, Sumbawa, and western Timor. These 35 languages comprise about half the languages in this region. Most have both imploded/glottalized voiced plosives as well as plain voiced plosives (Donohue et al. 2013).

5.2.1 Origins of PRM *ɗ. There are 82 examples of PRM *ɗ in my current database, of which 45 are word initial and 37 are word medial. In total, 26 instances of PRM *ɗ can be identified as a reflex of a PMP segment. This represents about a third of all examples.

PRM *ɗ is the regular reflex of PMP *z with 7/8 examples, and is a common reflex of *j with 6/14 examples. (The other usual reflex of PMP *j is PRM *d; see 4.4.2.) Examples of PMP *z > PRM *ɗ are given in table 41.

There are also a handful of examples of PMP *d > PRM *ɗ, with 10/57 examples of *d in my database. Six of these show other irregular sound changes that provide evidence apart from implosion that they are borrowings.

TABLE 41. EXAMPLES OF PMP *z > PRM *ɗ́

PMP	*zauq	*zalan	*zəlay	*zaŋkal	*quzan	*haRəzan	*tuzuq
PRM gloss	'far'	'way'	'Job's tears'	'hand span'	'rain'	'stairs, ladder'	'point'
PRM	*ka-ɗ̀oo	*ɗ̀alan†	*ɗ̀ele	*ɗ̀aŋga‡	*uɗ̀an	*eɗ̀a-k	*tuɗ̀u#
Dela-O.	ɗ̀oo-ʔ	ɗ̀ala-ʔ	ɗ̀ele	ɗ̀aŋga	ʔuɗ̀an	ʔe~ʔeda-ʔ	na-tuɗ̀u
Dengka	ɗ̀oo-ʔ	ɗ̀ala-ʔ	ɗ̀ele		(ʔ)uɗ̀an	(ʔ)e~(ʔ)eda-ʔ	na-tuɗ̀u
Tii	ɗ̀oo-k	ɗ̀ala-k	ɗ̀ele		uɗ̀an	eɗ̀a-k	na-tuɗ̀u
Termanu	doo-k	dala-k	dele		udan	eda-k	na-tudu
Bilbaa	doo-ʔ	dala-ʔ	dele		uda		na-tudu
Rikou	doo-ʔ	dala-ʔ	dele		uda	eda	na-tudu
Kotos	na-ʔ|roo	ranan		raka-t	uran	era|ʔ, era|k	n-ruru
Molo	ʔ|loo-b	lalan		laka-n	ulan	ela|k	n-lulu

† Medial *l* in Molo *lalan* 'way' is a result of subsequent regular *n > *l* /lV_.
‡ Dela-Oenale and Dengka also have *haŋga* 'hand span', which may be related.
# Meto reflexes of *tuɗ̀u have irregular initial *t > *r in this form. Perhaps sporadic assimilation.

That PMP *z regularly becomes PRM *ɗ́ may be taken as evidence that *ʤ should be reconstructed to PRM instead of *ɗ́. There are two pieces of evidence that show that this is not the best solution. First, the modern day reflexes provide no evidence for a voiced palatal fricative in PRM, the language immediately ancestral to the Rote-Meto languages. As discussed in 4.4.3, PRM *ɗ́ = *ɗ́* in Dela-Oenale, Dengka, and Tii, *ɗ́ > *d* in other Rote languages, and *ɗ́ > *r* ~ *l* in Meto according to variety. These reflexes all attest a voiced alveolar plosive. Given that *d is already reconstructed for a different correspondence set (see 4.4.2), the most likely value of the protophoneme attested to by this *ɗ́ – d – r/l* correspondence set is *ɗ́. Second, external evidence from other languages of the region shows that PMP *z and PRM *ɗ́ were distinct at a stage before PRM.

Hawu and Helong have a number of cognates/equivalents (whether by inheritance or historic borrowing) of PRM words reconstructed with *ɗ́. In such words, the equivalent of PRM *ɗ́ is distinct from reflexes of PMP *z in both languages.

In Hawu, PMP *z > *ƒ* (imploded palatal plosive), as seen in *zalan > *ru|ƒara* 'path', *zauq > *ƒəu* 'far, distant', and *quzan > *əƒi* 'rain'. However, when Hawu has equivalents of PRM *ɗ́, we find that Hawu usually has *ɗ́*. There are fourteen examples in my database. Four of these are Hawu *ɗ̀ole* 'marrow', *ɗ́ui* 'carry on shoulder', *kodɔ̀* 'stuck in the throat', and *rodɔ̀* 'crawl', each of which can be compared, respectively, with PRM *ɗ̀ole-k 'brains', *ɗ̀oi 'carry on shoulder', *kodɔ̀ 'swallow', and *rodɔ̀k 'crawl, slither' (see tables 20 and 21). In Hawu, imploded *ɗ́* contrasts with plain voiced *d*, and PRM *ɗ́ has never been found to match Hawu *d*.[26]

In Helong, PMP *z > *l*, as seen in *zalan > *lalan* 'path', *quzan > *ulan* 'rain', *haRəzan > *elan* 'ladder', *tuzuq > *tulu* 'point, show', and *zaRum > *lauŋ* 'needle'. However, when Helong has equivalents of PRM *ɗ́ it usually has *d*. There are twelve such examples in my current database. Four of these are Helong *h-ɗ́ula-t* 'pattern', *sadat* 'peel', *dahut~dahut* 'randomly', and *dele* 'beat', which can be compared with PRM *ɗ́ula 'pattern', *saɗ̀a 'peel, cut' (see table 38), *ɗ̀afu~ɗ̀afu 'randomly', and *ɗ́ere 'beat a drum'.

26. In most cases, Hawu *d* matches PRM *t, and the change of PMP *t > *d* is regular in Hawu. There are also a small number of examples in which Hawu *d* is equivalent to PRM *nd or *r.

The data from Hawu and Helong in which PRM *ɗ and PMP *z match different consonants provides evidence that these phonemes were distinct. However, they had merged as *ɗ in PRM.

5.2.2 Origins of PRM *ɓ. In order to properly understand the origins of PRM *ɓ, it is necessary to also consider the origins of PRM *b and *f, as these protophonemes have similar outcomes. PRM *ɓ, *b, and *f are discussed in 4.3. The usual reflexes of these protophonemes are summarized in table 42.

TABLE 42. PRM *ɓ, *b, AND *f†

PRM	Dela-O., Dengka,	other Rote	Meto
*ɓ	b	b	b
*f	f	f	f
*b-	b~f	b	b~f

† Dela-Oenale and Tii have imploded *ɓ* in all environments. Termanu has /b/ → [ɓ] /V_V.

In at least some PRM forms, each of PRM *ɓ, *b, and *f can be identified as a reflex of PMP *b, though the extent to which this is the case varies for each of these PRM protophonemes. The number of instances of PRM *ɓ, *b, and *f word initially and medially, as well as the number that are inherited from PMP *b, are given in table 43.

TABLE 43. NUMBERS OF PRM *ɓ, *b, AND *f

PRM	from PMP *b			other sources			totals		
	#_	V_V	all	#_	V_V	all	#_	V_V	all
*b	23	1	24	5	–	5	28	1	29
*ɓ	12	5	20	36	15	51	51	20	68
*f	32	24	56	26	22	48	58	46	104
*b/*ɓ†	15	–	12						
Other‡	16	3	19						
Total	98	33	131	67	37	104			

† "*b/*ɓ" represents outcomes of PMP *b that are ambiguous between PRM *b and *ɓ.
‡ "Other" represents outcomes of PMP *b that are neither PRM *b, *ɓ, nor *f, such as *b > *mb seen in table 40.

From a top-down perspective, the most common reflex of PMP *b word initially is *f, with 32 of 98 examples (33 percent of PMP *b). This is followed by *b = *b with 23 examples (23 percent), and *b > *ɓ with 12 examples (12 percent). There are also 15 examples that are ambiguous between *b > *b or *b > *ɓ due to a lack of disambiguating reflexes in Dela-Oenale, Dengka, and/or Meto. Word medially, PMP *b > PRM *f is most common, with 24 of 33 examples (73 percent).

From a bottom-up perspective, most instances of PRM *ɓ are not reflexes of PMP *b, with 51/68 examples (75 percent) not being from PMP. Of these, seven have cognates outside of the Rote-Meto languages and may come from *b at a node below PMP but above PRM. The remaining 44 instances of PRM *ɓ are currently not known to occur

outside of the Rote-Meto languages, though in at least some cases this could be due to lack of data for other languages.

To summarize, many instances of PRM *ɓ can be traced back to earlier *b; at least 27/68 examples (40 percent). This percentage is much higher than that of prenasalized plosives, which are irregular reflexes of a PMP segment (19 percent, 31/166), as well as instances of PRM *ɗ that are irregular reflexes of PMP *d (18 percent, 10/57). Furthermore, unlike prenasalized plosives and PMP *d > *ɗ, words with PMP *b > *ɓ do not usually show additional irregularities. This indicates that words with PMP *b > PRM *ɓ are not a result of borrowing only.

Some examples of PMP *b > PRM *ɓ are given in table 44. It must be emphasized here that while such instances are not uncommon, they are the minority. The usual reflex of PMP *b is PRM *f word medially and PRM *b ~ *f word initially (see Edwards 2018:74 for more discussion).

TABLE 44. EXAMPLES OF MINORITY PMP *b > PRM *ɓ

PMP	*buku	*bukbuk	*baqi	*bisul	*bəkəlaj	*bəntəŋ
PRM gloss	'joint, node'	'bubbling'	'grandmother'	'boil'	'unfold'	'tense, stiff'
PRM	*ɓuku	*ɓuɓu	*ɓei	*ɓisu	*ɓela	*ka-ɓetə
Dela-O.	ɓuʔu-ʔ	na-sa-ɓuɓu	ɓei	ɓisu	ɓela	na-ʔa-ɓeta
Dengka	buʔu-ʔ	bubu	bei	bisu	bela	na-ʔa-beta
Tii	ɓuʔu-k		ɓei	ɓisu	ɓela	na-ka-ɓete
Termanu	buʔu-k	na-sa-bubu	bei	bisu	bela	na-ka-bete
Bilbaa	buku-ʔ	bubu	bei	bisu	bela	na-ka-bete
Rikou	buku-ʔ		bei	bisu	bela	na-bete
Kotos	buʔu-f		bei-f, beʔi	bisu	na-ʔ|bena	na-k|beet†
Molo		<n-bubu>	bai-f, beʔi‡	na-bisu	na-ʔ|bena	na-k|beet

† The unmetathesized form of Meto *na-k|beet* is unknown. It could be *na-k|beta or *na-k|bete.

‡ Middelkoop (1972) gives the meaning of Molo *bai-f, beʔi* as 'mother-in-law'.

It is not unlikely that the change of PMP *b > *ɓ came about partly due to pressure from substrate languages that contrasted /b/, /ɓ/, and /f/. The way in which this may have occurred is discussed in the following section. Whatever the exact scenario that led to the introduction of PRM *ɓ, the lack of a regular source of this protophoneme in PMP and the fact that implosion is common in the region where PRM developed and was spoken indicates that *ɓ was introduced due to contact with languages with this phoneme.

5.3 IRREGULAR SOUND CHANGES. A final kind of evidence for a significant non-AN substrate in PRM comes from the number of irregular sound changes and unconditioned splits that have to be posited between PMP and PRM. These irregular sound changes and unconditioned splits can be partially explained as arising through language shift from pre-AN languages.

As summarized in section 3 and discussed in full detail in Edwards (2018), it is necessary to posit a number of unconditioned splits of certain PMP protophonemes. This includes two splits for initial *k, three splits for initial *b (also discussed in 5.2.2), two splits for *j, and two splits for initial *wa.

There are three different ways in which contact and language shift can help explain some of the irregularities and unconditioned splits that occurred between PMP and PRM.

- change in progress frozen by language shift
- imperfect language acquisition
- substrate entering PRM at different stages

A change in progress that may have been frozen by language shift is the split of word initial PMP *b > *b ~ *f. This change was probably originally a change in progress in the Rote-Meto languages. At the point in which significant contact began to impact PRM, it was probably nearly complete word medially, while initially there may have been allophonic variation in which /b/ had plosive and fricative allophones [b] and [f] with some free variation.

Under this hypothesis, the pre-AN language(s) of the region where PRM developed had /b/ and /f/ as distinct phonemes. As speakers of these pre-AN languages acquired the AN language that was to become PRM, they reinterpreted the plosive [b] and fricative [f] allophones of original *b as distinct phonemes and their realizations, thus, became fixed.

Laker (2009) has proposed a similar analysis for the distinction between the voiceless and voiced fricatives in English: /f θ s/ and /v ð z/. Under this account, the contrast between these two series became phonemic through contact with Brittonic.

As discussed in 5.2.2, there are also a number of instances of PMP *b > *ɓ word initially (12/98 examples). This, too, is perhaps explained by language shift. If the pre-AN languages distinguished /b/, /ɓ/, and /f/, this may have led to reinterpretation of some instances of *b as imploded. This may be an example of imperfect language acquisition with some speakers of pre-AN languages failing to correctly reproduce the AN language they were learning.

In the case of PRM *k, the large amount of splits word initially and medially (at least five unconditioned splits in each position) is probably a result both of sound changes being frozen, as well as substrate vocabulary entering the language at different times. Thus, for instance, cognate sets in which *k = *k* probably represent a more recent layer of substrate vocabulary after *k from other layers had undergone sound changes.

To summarize, contact with the pre-AN languages can help explain some of the irregular sound changes and unconditioned splits between PMP and PRM. In some cases, these may be due to changes in progress being frozen by language shift, imperfect language contact, and/or substrate entering PRM at different stages.

6. ROTE-METO INTERNAL SUBGROUPING. The final part of Rote-Meto revealed by bottom-up reconstruction that requires discussion is internal subgrouping—specifically, the evidence yielded by changes affecting the prenasalized plosives *mb, *nd, and *ŋg that are not properly attested in the AN strata of PRM.

From the top-down perspective (section 3, Edwards [2018]), the internal subgrouping of Rote-Meto is straightforward: there are half a dozen shared sound changes that provide evidence for a West Rote-Meto subgroup consisting of Dela-Oenale, Dengka, and Meto, as well as three changes that support a Nuclear Rote group containing all the other languages of Rote.

However, the bottom-up reconstruction of Rote-Meto necessitates reconstruction of prenasalized plosives, and the changes affecting them are shared between Meto and languages of east Rote, apparently contradicting the evidence for West Rote-Meto. This conflicting subgrouping evidence is summarized in table 45.[27]

TABLE 45. COMPETING SUBGROUPING EVIDENCE

West Rote-Meto		East Rote-Meto
*d > *r		*mb > *mp > *p*
*k > *h*	#_	*ŋg > *ŋ > *k*
*b > *b~f*	#_	*nd > *r*
*ə > a	/σ̲σ̲#	
*a > *a~e*	/_#	

The problem of competing subgrouping evidence is brought sharply into focus by reconstructions that have sound changes attesting both subgrouping hypotheses. There are at least three such reconstructions.

- *tendə-k 'ribcage': Dela-Oenale, Dengka *tenda-ʔ* 'chest'; Tii, Landu, Rikou *tende-k/-ʔ*, Oepao *tere-ʔ*, other Rote *tene-k/-ʔ* all 'ribs'; Ro'is Amarasi *tera-f > *tere-f* 'lungs', other Kotos Amarasi *teka-f* 'lungs'; Molo *teka-f* 'heart'. In this example, *-nd- > *r* is shared in Oepao and Meto (Nuclear Meto has subsequent *r > *k*), while final *ə > *a* is shared in Meto and West Rote. (Ro'is Amarasi has a regular productive process of assimilation of unstressed *a* in closed syllables.[28])
- *kambe 'saliva': Dela *hambu oe-ʔ*, Tii *ambe*, Ba'a *ampe*, other Rote *ape*, Meto *hape*. Here, initial *k > *h* is shared between Meto and Dela, but medial *mb > *mp > *p* is shared between Meto and languages of East Rote. (Final *e > *u* in Dela is unexplained.)
- *ŋga~ŋgala 'agati tree, *Sesbania grandiflora*': Dela, Dengka *ŋga~ŋgale,* Oenale, Tii, Ba'a, Termanu, Korbafo *ŋga~ŋgala*, Bokai, Bilbaa *ŋa~ŋala,* Rikou *ka~kala*, Meto *ʔ|kane*. In this case, final *a > *e* is shared between Dela, Dengka, and Meto, but initial *ŋg > *ŋ > *k* is shared between Meto and Rikou.

One way to reconcile such competing subgrouping data is to appeal to the Wave Model of historical linguistics, in which sound changes diffuse across speaker groups. This approach is helpfully summarized by François (2014:169), who states: "… each instance of language change arises somewhere within the [language/dialect] network, and from there diffuses to adjacent speaker groups." Indeed, I have already posited that some sound changes in the Rote-Meto languages spread by diffusion. This is represented in my family tree diagrams (figures 1 and 2) by including these changes at the bottom of the tree. Specifically, I posit that the changes *r > *l*, *nd > *n*, and *nd > *r* partly spread by diffusion.

27. From a top-down perspective, loss of intervocalic PMP *k also provides evidence for West Rote-Meto. However, from a bottom-up perspective, this evidence is weak, as PRM *k can only be confidently reconstructed to PRM for three such forms, all given in table 28.

28. Other examples of Ro'is Amarasi assimilation of unstressed /a/ in closed syllables include the following Kotos Amarasi = Ro'is Amarasi pairs: *uran* = *urun* 'rain' (PMP *quzan), *oras* = *oros* 'time' (Portuguese *horas* [ɔras]), *ʔ|nima-f* = *nimi-f* 'arm/hand' (PMP *qa-lima), and *sbeta-f* = *sbete-f* 'upper arm'.

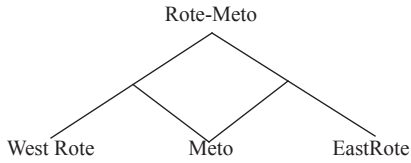
However, contra François (2014:169), I do not believe that the Wave Model is "incompatible with a tree." The Wave Model and Tree Model are not mutually exclusive. This is because changes can diffuse into protolanguages or changes can arise in a protolanguage from which they then diffuse into other protolanguages.

Thus, for instance, in 4.2.3, I proposed that *nd > *r* may have occurred once in Proto-Rikou-Oepao-Meto, from which it diffused to Proto-Bilbaa-Bokai, or that it occurred once in Proto-Bokai-Bilbaa from which it diffused into Proto-Rikou-Oepao-Meto. If accepted, the change *nd > *r* is a change that spread by diffusion *and* defines subgroups.

Having made clear the problem of competing subgrouping evidence in Rote-Meto and having discussed the Wave Model that can help resolve this dilemma, I am now in a position to venture a concrete hypothesis. I propose that Meto subgroups with West Rote *and* East Rote. Meto shared a period of common development with both Rote groups.

At one point, Meto and West Rote formed a single speech community. During this time, changes defining West Rote-Meto arose and spread through this speech community. At another point, Meto and East Rote comprised a single speech community. During this time, changes defining East Rote-Meto arose and spread through this community. The Rote-Meto family tree yielded by this proposal is given in figure 3. Details regarding each subgroup are discussed below.[29]

FIGURE 3. ROTE-METO FAMILY TREE



6.1 WEST ROTE-METO. The West Rote-Meto subgroup is defined on the basis of the changes *d > *r, *k > *h* /#_, *b > *f* /#_, *ə > *a* /_#, and *a > *e* /_#.

With the exception of *d > *r, all the other West Rote-Meto sound changes are not represented in all the Dela-Oenale and Dengka words for which they could apply. That is, there are forms that have undergone these sound changes in Meto while their cognates in Dela-Oenale and Dengka have not. Examples of each have been given in the appropriate sections above.

Incomplete sound changes are expected in diffusion. In this case, the sound changes are most complete in Meto and have only partially diffused in West Rote. This probably indicates that the direction of diffusion was from Meto into West Rote and/or that the sound changes in West Rote were halted by a period of contact shared between West Rote and other Rote, but not Meto.

29. Despite the high likelihood that Meto was mutually intelligible with West Rote and East Rote, at the times when it was part of a single speech community with each, this is not a necessary precondition for my proposal. It is possible for speakers of two unintelligible languages to be part of a single speech community, so long as some members of each group speak an additional language that is shared by both. This third language could then be the one from which sound changes diffuse.

6.2 EAST ROTE-METO. The East Rote-Meto subgroup is defined by the changes *mb > *mp* > *p*, *ŋg > *ŋ* > *k*, and *nd > *r*. Within this group, we can identify several nested subgroups, as discussed in 4.2.4. These East Rote-Meto sound changes have two differences compared to the West Rote-Meto sound changes. First, the East Rote-Meto sound changes are complete in all languages once the appropriate environments have been taken into account. Second, the East Rote-Meto sound changes yield nested subgroups.

While neither of these facts is inconsistent with the Wave Model, both are exactly the kind of results expected in the Tree Model, where changes take place in successive protolanguages and are inherited by daughter languages.

However, the changes affecting the prenasalized plosives themselves must be analyzed, at least in part, according to the Wave Model of phonological diffusion. Thus, in 4.2.3, I proposed that the changes of initial *nd- > *r* and medial *-nd- > *n* were spread by diffusion. If we were to abandon this specific proposal regarding *nd and assign these changes to protolanguages, we would then need to propose that *other* changes affecting the prenasalized plosives spread by diffusion. No matter how the tree diagram in figure 2 is rearranged, we will always need to propose that some of these changes resulted from diffusion across speaker groups.

In order to understand why the East Rote-Meto changes are completely thoroughgoing in the languages they affected, we must look not to our model of historical linguistics, but instead to the social histories that these models attempt to represent. The most likely reason that the East Rote-Meto sound changes are completely thoroughgoing is because when these sound changes were operating, the languages affected, including Meto, were more fully integrated as a single speech community than were West Rote and Meto during their period of shared development. An obvious reason for this would be that Meto was part of the East Rote-Meto speech community for longer than it was part of the West Rote-Meto speech community. This gave it plenty of time to fully enter into the sound changes that were affecting this group.

This proposal also can explain why the West Rote-Meto sound changes did not occur to the same extent in West Rote as they did in Meto. As the likely source of diffusion, Meto simply was not part of this speech community for long enough to exert the pressure needed for these sound changes to be completed in Dela-Oenale and Dengka.

6.3 ROTE-METO HOMELAND. Based on the current locations of the Rote-Meto languages, as well as the principle that the location with the most subgroups is probably the homeland, the most likely homeland for the Rote-Meto languages currently appears to be Rote Island. If this is the case, then one likely scenario that gave rise to the modern situation is that the period of West Rote-Meto development took place in western Rote. During this period, Meto was socially most influential, as indicated by it being the likely source of the sound changes that characterize West Rote-Meto.

After the period of common West Rote-Meto development, Meto then moved to eastern Rote and underwent the changes that characterize the East Rote-Meto group. There does not seem to be much evidence for identifying either East Rote or Meto as most socially influential during this period. The final step was for Meto to leave Rote and arrive on the Timor mainland.

Another scenario is to propose that either eastern Rote or the Rote-Timor straits was the homeland of Rote-Meto, with Dela-Oenale and Dengka subsequently relocating to the west of the island or being a remnant left over after the expansion of East Rote.

At the present we cannot decide conclusively in favor of either of these, or myriad other hypotheses, that seek to explain the exact way in which the current situation came about. Currently, I see two particular avenues of future linguistic work that will provide further insights for the linguistic and social history of western Timor. The first is an investigation of the history of Helong, the other language of western Timor. The extent to which Helong was or was not also affected by the phonological changes diffusing across speaker groups in western Timor will be helpful in casting light on the social history of this region. Second, Rote and Savu share certain cultural traits, notably economies of subsistence based on the cultivation of the lontar palm *Borassus flabellifer* (Fox 1977). In my current database, there is also a band of vocabulary that consists of cognate sets shared between Sumba-Hawu and Rote-Meto. Further investigation of the nature of this linguistic connection will probably also yield insights into the social history of western Timor.

7. CONCLUSIONS. In this paper, I applied the comparative method to the Rote-Meto languages of western Timor and performed a bottom-up reconstruction of Proto-Rote-Meto. The regular sound correspondences of the Rote-Meto languages necessitate reconstruction of a large number of protophonemes and a large amount of lexicon to PRM that is not fully accounted for by regular inheritance from PMP.

I proposed that the putative non-AN material in PRM was acquired by substrate transference of features and parts of the pre-AN languages of this region as speakers switched to the AN language that was to become PRM, which then developed into the modern day Rote-Meto languages. This represents what Ross (2003) termed *reconstructio ex silentio*: "Reconstructing a prehistoric contact event [which] means positing the existence of a language for which we have only contact evidence …".

Regarding the title of this paper, this is the first parallel history of Rote-Meto: the existence side by side of forms and features retained from PMP, as well as forms and features retained from substrate non-AN languages. Given that Timor has been settled for at least 42,000 years (O'Conner et al. 2011) and that the expansion of the AN languages from Taiwan only began about 5,000 years ago (Blust 2009:744), the proposal that the incoming AN languages underwent contact with non-AN languages is neither controversial nor surprising. What is, perhaps, surprising is that such contact is revealed by application of the comparative method alone. This is the main methodological contribution of this paper. Positing contact on the basis of the comparative method alone is possible where we have a reconstruction of the protolanguage to which the languages under investigation have made only a small contribution. This is exactly the situation we find in Rote-Meto.

The fact that the top-down PMP-oriented approach to the Rote-Meto data does not match the bottom-up reconstruction of PRM cautions against taking any top-down approach to linguistic history as *the* definitive history of a particular language. A bottom-up reconstruction grounded in the comparative method is necessary to fully understand the linguistic history of a language.

The second parallel history in Rote-Meto is the subgrouping of Meto within the family. Meto subgroups with both West Rote and East Rote. This proposal is made by utilizing both the Wave Model and Tree Model. Rather than being in competition, these models give different representations of a single social history. Use of both can lead to a more nuanced understanding of the linguistic and social history of language families.

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