Unraveling the history of the vowels of seventeen north Vanuatu languages
Alexandre François

To cite this version:
Alexandre François. Unraveling the history of the vowels of seventeen north Vanuatu languages. Oceanic Linguistics, 2005, 44 (2), pp.443 504. halshs-00524988

HAL Id: halshs-00524988
https://halshs.archives-ouvertes.fr/halshs-00524988
Submitted on 10 Oct 2010

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
Unraveling the History of the Vowels of Seventeen Northern Vanuatu Languages

Alexandre François
LACITO-CNRS, PARIS

Data collected on the 17 languages spoken in the Banks and Torres Islands (northern Vanuatu) reveal strikingly diverse vowel systems, differing both in the quality and the quantity of their phonemes. Except for Mota, which still perpetuates the five vowels of Proto-Oceanic, the languages of this area have historically increased their inventories to as many as 13 and even 16 vowels. The aim of this paper is to track the systematic correspondences between modern languages and their common ancestor, and to reconstruct the processes that led to the present-day phonemic diversity. The phonemicization of new vowels, including diphthongs and long vowels, is shown to result from stress-induced vowel reduction and metaphony. This general process of “vowel hybridization” yielded results that differed from one language to another, and sometimes within the same language. After describing and classifying the various patterns of sound changes attested, this paper shows how a proper understanding of vowel hybridization proves indispensable for the reconstruction of both the lexicon and the historical morphology of these northern Vanuatu languages.

1. INTRODUCTION

1.1 HISTORICAL EXPANSION OF VOWEL INVENTORIES. In comparison with the five-vowel system that has been reconstructed for Proto-Oceanic (POc) or for the putative Proto–North-Central Vanuatu (PNCV), the modern languages spoken in northern Vanuatu possess much richer inventories. With the notable exception of Mota, which remains conservative in this respect as in many others, the remaining 16 languages of the Banks and Torres groups have historically expanded their vowel inventories from five to as many as 13 phonological vowel qualities. Furthermore, in two languages, the

1. This study originates in a presentation I gave at the 6th International Conference on Oceanic Linguistics (COOL6), Port Vila, Vanuatu, in July 2004. I would like to thank Françoise and Jean-Claude Rivierre, Martine Mazaudon, Boyd Michailovsky, Meredith Osmond, Malcolm Ross, and two anonymous reviewers for useful comments on earlier drafts of this paper.

2. The data cited in the present paper were collected by the author during three field surveys: May–July 1998 for the languages of Mwotlap, Vurës, and Mwesen; July–September 2003 for Volow, Vera’a, Lemerig, Nume, Dorig, Koro, Olrat, Lakon, and Mwerlap; July–August 2004 for Mota, Lehali, Lo-Toga, and Hiu. Data for Lehalurup come from Codrington (1885) and Tryon (1976). I completed my data on Mota with Codrington and Palmer (1896), those on Vera’a and Vurës with Hyslop (n.d. a; n.d. b).
The Languages of Northern Vanuatu

**Uninhabited Area**

**Monolingual Area**

**Bilingual Area**

**Number of Speakers**

- Hiu (150)
- Lo-Toga (650)
- Lehali (200)
- Lehalurup (150)
- Volow (1)
- Mwotlap (1,800)
- Lemerig (3)
- Vera’a (250)
- Vurēs (1,000)
- Mota (500)
- Nume (500)
- Lakon (700)
- Olrat (5)
- Koro (160)
- Dorig (200)
- Mwerlap (900)
The phonemicization of vowel length combined with each vowel quality has led to inventories of 14 (2 × 7) and even 16 (2 × 8) vowel phonemes. On the opposite page is a map of the 17 languages spoken in the area, indicating for each language a three-letter abbreviation and the approximate number of speakers. This information is reproduced in Table 1, together with the number and quality of each language’s vowel phonemes.

Although expansion of vowel inventories is a common feature among the languages of the Torres and Banks Islands, it has, in fact, led to quite diverse results from one language to another in such a way that it appears impossible to provide a simple, unique analysis for the whole phenomenon. What I propose here is to first outline the general principle(s) common to all the languages and then to review in some detail the particular innovations that characterize each language separately.

Throughout this paper, I refer to the 17 languages spoken in the Torres and Banks groups using shortcut phrases such as “northern Vanuatu languages.” Note that this designation must be understood as purely geographic, with no claim as to the existence of a

<table>
<thead>
<tr>
<th>LGG</th>
<th>NAME</th>
<th>NO. SPKRS</th>
<th>LOCATION</th>
<th>CODE</th>
<th>NO. VS</th>
<th>VOWEL INVENTORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIU</td>
<td>Hiu</td>
<td>150</td>
<td>Hiu</td>
<td>HIW</td>
<td>8</td>
<td>i e a ò ø œ o u</td>
</tr>
<tr>
<td>LTG</td>
<td>Lo-Toga</td>
<td>650</td>
<td>Lo, Toga</td>
<td>LHT</td>
<td>8 + 5</td>
<td>i e a ò ø œ o u + ì è í ì ò õ ò</td>
</tr>
<tr>
<td>LHI</td>
<td>Lehali</td>
<td>300</td>
<td>E. Ureparapa</td>
<td>TQL</td>
<td>8</td>
<td>i e a ò ø œ o u</td>
</tr>
<tr>
<td>LHR</td>
<td>Lehalurap</td>
<td>200</td>
<td>W. Ureparapa</td>
<td>URR</td>
<td>8 + 1</td>
<td>i e a ò ø œ o u + ì è</td>
</tr>
<tr>
<td>V LW</td>
<td>Volow</td>
<td>1</td>
<td>Motalava</td>
<td>MLV</td>
<td>7</td>
<td>i e a õ o u</td>
</tr>
<tr>
<td>MTP</td>
<td>Mwotlap</td>
<td>1,800</td>
<td>Motalava</td>
<td>MLV</td>
<td>7</td>
<td>i e a õ o u</td>
</tr>
<tr>
<td>LMG</td>
<td>Lemerig</td>
<td>3</td>
<td>N. Vanua Lava</td>
<td>VLR</td>
<td>10</td>
<td>i e a ò ø œ o u + ì ò</td>
</tr>
<tr>
<td>VRA</td>
<td>Vera’a</td>
<td>250</td>
<td>W. Vanua Lava</td>
<td>VLR</td>
<td>7</td>
<td>i e a õ o u</td>
</tr>
<tr>
<td>VRS</td>
<td>Vurës</td>
<td>1,000</td>
<td>S. Vanua Lava</td>
<td>VLR</td>
<td>9 + 1</td>
<td>i e a ò ø ů u + ì ò</td>
</tr>
<tr>
<td>MSN</td>
<td>Mwesen</td>
<td>10</td>
<td>E. Vanua Lava</td>
<td>MSN</td>
<td>7</td>
<td>i e a ò o u</td>
</tr>
<tr>
<td>MTA</td>
<td>Mota</td>
<td>500</td>
<td>Mota</td>
<td>MTT</td>
<td>5</td>
<td>i e a o u</td>
</tr>
<tr>
<td>NUM</td>
<td>Nume</td>
<td>500</td>
<td>NE Gaua</td>
<td>TGS</td>
<td>7</td>
<td>i e a ò o u</td>
</tr>
<tr>
<td>DRG</td>
<td>Dorig</td>
<td>200</td>
<td>SE Gaua</td>
<td>WWO</td>
<td>7 + 1</td>
<td>i e a ò o u + æ</td>
</tr>
<tr>
<td>KRO</td>
<td>Koro</td>
<td>160</td>
<td>S. Gaua</td>
<td>KRF</td>
<td>7 + 1</td>
<td>i e a ò o u + æ</td>
</tr>
<tr>
<td>O LR</td>
<td>Olrat</td>
<td>5</td>
<td>W. Gaua</td>
<td>—</td>
<td>2 × 7</td>
<td>i e a ò o u + i e a ò ø œ ø u</td>
</tr>
<tr>
<td>LKN</td>
<td>Lakon</td>
<td>700</td>
<td>W. Gaua</td>
<td>LKN</td>
<td>2 × 8</td>
<td>i e a ò o u + i e a ò ø œ ø u</td>
</tr>
<tr>
<td>MRL</td>
<td>Mwerlap</td>
<td>900</td>
<td>Merelava, E. Gaua</td>
<td>MRM</td>
<td>9 + 3</td>
<td>i e a ò o u + æ ø ü ø u</td>
</tr>
</tbody>
</table>

† Given for each language are: (1) the three-letter abbreviation I use in this paper; (2) the language’s full name; (3) the number of its speakers; (4) its geographical location; (5) its international (iso 639-3) code as given in Ethnologue (Gordon 2005), where the reader can find alternate names; (6) the number of its vowel phonemes, including diphthongs and long vowels; and (7) the inventory of these phonemes.
specific Northern Vanuatu subgroup of languages that would encompass these languages exclusively (see the discussion in 3.4). This paper therefore intends neither to confirm nor challenge the subgrouping hypotheses set forth by Clark (1985), which defines a “Northern Vanuatu” branch within his “North and Central Vanuatu.” In Clark’s terms, the Torres and Banks languages would form just a subset of the Northern Vanuatu group, along with languages from several islands further south. However, even if the present study is not directly concerned with subgrouping matters, the methodological and historical issues it addresses should constitute a preliminary step in any future attempt toward classifying the Torres and Banks languages genetically (see 6.1.2).

1.2 EMERGENCE OF NEW VOWEL QUALITIES. The historical process described here is, first and foremost, an issue of qualitative phonetic change. If we take the example of Vurës, how can we explain the shift from a five-vowel protosystem to a modern inventory of nine vowel qualities (Figure 1)? The change from one system to the other is both a matter of quantity (shift from five to nine vowels) and of quality: some vowels have appeared that did not exist formerly, and certain vowels can be said to have disappeared from the system, at least in their original form. One objective of the present study will be to track for each language the regular correspondences that might exist between the initial inventory and the modern attested system.

A second aspect of our investigation will be to describe the impressive diversity of situations among the languages of the area, including between languages situated close to each other. For example, the vowel system of Vurës (Figure 1) differs strikingly from that of Mwesen (Figure 2), although in other respects these two varieties may be considered just dialects of the same language.

3. Vurës can even be said to possess 10 vowels if the diphthong /iɔ/ is counted as a genuine phoneme (4.3.1).

4. Vurës and Mwesen are listed together under the single language name “Mosina” in Grimes et al. (1995) or Gordon (2005). This follows Tryon (1976:89), who on lexicostatistical evidence treated Vetumboso and Mosina—respectively, Vurës and Mwesen—as two dialects of the same language.
2. DEFINING REGULARITIES

2.1 MANY REFLEXES FOR A SINGLE PROTOVOWEL. My first attempt will be to figure out the phonetic correspondences between the vowels of the protosystem and the modern vowels. A preliminary approach consists in choosing certain etyma sufficiently well represented in the languages of the area, and getting a first overview of their modern reflexes. For example, one may want to check what modern vowels reflect the protovowel *a by examining the lexical reflexes of, say, POc *paru ‘hibiscus’:

(1) POc *paru ‘hibiscus’: HIU βæː; LTG βæː; LHI βæː; LHR ʔ; VLW n-βæː; MTP ne-βæː; LMG n-βær; VRA fær; VRS βær; MSN βær; MTA βær; NUM fær; DRG βær; KRO βær; OLR βær; LKN βær; MRL ne-βær.

The first observation suggested by this set of cognate forms is the great diversity of reflexes deriving from a single protovowel. In this example, *a is reflected as [a], [a], [e], [ɛ], [æ], and [ɛ]. Obviously, no simple correspondence can be established for the whole group of languages, and it would even be difficult to propose isoglosses that would make sense from a dialectological point of view. Clearly, phonetic correspondences will have to be stated separately for each language: for example, (1) would suggest *a > [œ] in HIU, LTG, LHI, MSN, but *a > [ɛ] in VLW, MTP, LMG, VRA; *a > [œ] in VRS; and so on.

But the situation gets more complex again if a second cognate set is considered. Let us observe the vowels corresponding to *a in the lexical reflexes of POc *pari ‘stingray’:

(2) POc *pari ‘stingray’: HIU βæː; LTG βær; LHI βæː; LHR βey; VLW n-βey; MTP ne-βey; LMG n-βær; VRA fær; VRS βær; MSN βær; MTA βær; NUM fær; DRG βær; KRO βær; OLR βæː; LKN βær; MRL ne-βær.

The correspondences that were initially suggested by (1) appear to be confirmed in some languages (e.g., *a > [œ] in HIU, *a > [ɛ] in MTP, *a > [œ] in VRS, *a > [ɛ] in KRO), but contradicted in others: reflexes of *a differ between (1) and (2) in LTG, LHI, MSN, NUM, LKN, MRL. In other words, the first difficulty we defined (discrepancies of reflexes across closely cognate languages) is now duplicated by a second difficulty (discrepancies of reflexes language-internally). Unlike consonant correspondences, which are generally consistent and straightforward (e.g., POc *p > [f] in VRA, NUM; *p > [β] everywhere everywhere

5. Whenever possible, the etyma cited in this study are given in their Proto-Oceanic (POc) form; they either come from common knowledge among Oceanists, or more specifically from Ross, Pawley, and Osmond (1998, 2003). When no relevant POc example can be found, I cite the reconstructions proposed by Clark (1985; in prep.) for the putative protolanguage named Proto–North-Central Vanuatu (PNCV), to which all the languages of the Banks and Torres Islands belong.

6. Languages are cited following roughly a northwest to southeast axis, in the same order as in the appendices. In some languages where the noun article (usually a reflex of *na) has been accreted to the phonological word (see 5.2.3), it appears as a prefix in the modern reflex. When the etymon has been integrated within a word that is synchronically indivisible, the boundary is indicated with a “,” e.g., (13) ni-siːk.

All forms are transcribed using standard IPA, with two exceptions. First, following wide usage among Oceanists, voiced stops in all languages cited here (whether modern or reconstructed) must be understood as prenasalized: thus [bl], [gl], [kʟ], [ɡʟ] stand respectively for [♭b], [♭ɡ], [♭k], [♭ɡ]. Second, the symbol [l] represents what I identify as a UVULAR FLAP—a consonant of Hiu that, to my knowledge, has never been observed anywhere else in the world, and therefore lacks an appropriate IPA symbol.
else), the modern distribution of vowels in this area of northern Vanuatu thus appears to be much more problematic.

2.2 DEFINING THE CONDITIONING FACTOR. This sort of complex situation is familiar to language comparatists and normally requires each discrepancy between correspondences to be attributed to a conditioning factor. So, what could be the formal factor that might account for the different reflexes of *a between (1) and (2), in each language taken separately?

Choosing very similar etyma, namely *paru and *pari, makes it possible to quickly eliminate two possible criteria suggested by other languages of the world, and specifically by the comparatist tradition. One possible factor that is known to affect the evolution of vowels is their position within the word, and the position of stress (see section 5). But because the position of *a is exactly the same in *paru and *pari—the penultimate syllable, demonstrably the one receiving word stress (Lynch 2000)—this criterion cannot provide the explanation for the differences between (1) and (2).

A second hypothesis, widely supported by other languages, would be the influence of the consonant context. However, northern Vanuatu languages generally show relatively few cases of assimilation, or phonetic influence whatsoever, between consonants and vowels. If this kind of phenomenon does exist marginally, it sometimes provides a clue to account for certain exceptions, but never constitutes the primary key to regular vowel correspondences. And, of course, this argument has to be ruled out in the case of (1) and (2), because *a appears in exactly the same consonant environment in the two etyma.

The only plausible hypothesis that remains is to take into account the context of surrounding vowels in the protoform. And indeed, the northern Vanuatu data reveal that the evolution of a given stressed vowel was systematically conditioned by the vowel of the following syllable. In (1) and (2), the distinctive evolution of *a in *paru vs. *pari was thus directly conditioned by the presence of *u vs. *i in the next syllable.

This hypothesis was tested on a large number of cognate forms in all these languages, and yielded satisfying results. At this stage of the presentation, and for the sake of space, only three new cognate sets will illustrate this point. The reader can compare the reflexes of *a in the modern forms that reflect (3) POc *patu ‘stone’, (4) POc *kani ‘eat’, and (5) POc *mate ‘die, dead’.

(3) POc *patu ‘stone’: HIU βɔr; LTG βɔr; LHI βɔr; LHR βeɾ; VLW n-βer; MTP ne-βer; LMG n-βer?; VRA feʔ; VRS βeɾ; MSN βeɾ; MTA βaɾ; NUM fæɾ; DRG βaɾ; KRO βeɾ; OLR βaɾ; LKN βaɾ; MRL no-βeɾ.

(4) POc *kani ‘eat’: HIU γem; LTG γem; LHI γem; LHR γem; VLW γem; MTP γem; LMG γem; VRA γem; VRS γem; MSN γem; MTA γem; NUM γem; DRG γeem; KRO γeem; OLR γem; LKN γem; MRL γem.

7. One example concerns the labiovelars when a rounded vowel has labiovelarized a consonant: e.g., *molis ‘Citrus sp.’ > VRS ᵘmvoie, Yet this is far from being systematic, as shown by *mule ‘go back’ > VRS mulo. François (2001:76–77) gives the reverse situation in Mwotlap, that is, the influence of labiovelar consonants on adjacent vowels.
(5) POc *mate 'die, dead': HiU met; LitG met; LHI mat; LHR mat; VLW mat; MTP mat; LMG mdê; VRA mdê; VRS miat; MSN mat; MTA mate; NUM mat; DRG mat; Kro mat; OLR mat; LKN met; MRL met.

If one examines the modern reflexes of *a in each language, (1) *pamu and (3) *patu clearly belong in a single correspondence set that could be called *a(C)u, whereas (2) *pari and (4) *kani group together under *a(C)i.8 As for the cognate set (5) *mate, it shares very little with the other sets, and must be assigned to a third correspondence set *a(C)e.

The destiny of V₁ is so intimately linked to the nature of the following vowel V₂ that one could metaphorically speak of a process of “hybridization,” as if the reflex of V₁ were in fact the result of the combination of two protovowels V₁ and V₂. Crucially, this newly coined term of “vowel hybridization” has the advantage of remaining essentially descriptive of the data, and neutral with regard to any specific historical interpretation. For example, simple observation shows that in Lakon the combination of vowels *a…u is regularly reflected as /a/, while *a…i and *a…e both hybridized into /æ/. These factual correspondences can be stated regardless of their phonetic explanation, which remains hypothetical and subject to discussion (section 3).

In sum, the evolution of a given (stressed) protovowel V₁ can be shown to be much more regular than it may have appeared at the beginning of this study, provided that (a) each language is considered separately, and (b) the quality of V₂ (the vowel of the following syllable in the protoform) is taken into account.

2.3 MAPPING REGULAR VOWEL CORRESPONDENCES. Now that the main principle of evolution has been understood, it becomes possible to track the vowel correspondences for each language taken separately. I will choose Mwesen, because it shows the most straightforward and regular situation of the whole area.

The preliminary observations proposed in (1) to (5) can be continued for Mwesen by listing successively and systematically the modern reflexes for each combination of vowels in the protolanguage. Knowing that the latter had an inventory of five vowel phonemes { i e a o u }, the combinations V₁–V₂ amount to 25. Each of these will be illustrated here with a single (regular) example, though it must be clear that they have all been checked on several lexical items. These 25 illustrative examples are given in table 2.

Once all 25 combinations have been tested for a given language, it becomes possible to display them in a simple two-dimensional chart. If the vowel V₁ is listed in rows, and the conditioning vowel V₂ in columns, then the result of their hybridization (hereafter V’) appears in the corresponding square. Table 3 shows the regular vowel correspondences for Mwesen. Such charts provide a clear and simple way to visualize the phonological evolution of vowels in each language (see appendix 1). Whereas the most striking quality of table 3 is its neat pattern and perfect symmetry—a true seventeenth-century “French garden”—other northern Vanuatu languages, as we shall see, are often much less orderly in their correspondences.

8. To be precise, there are a couple of inconsistencies from one cognate set to another, but they are marginal. For example, in Vurês, both combinations *a(C)i and *a(C)u unpredictably show /œ/ and /œ/ as their possible reflexes; and likewise, Olrat reflects *a(C)i sometimes as /a/ and sometimes as /u/. See 4.2.
3. A FUNCTIONALLY BASED HISTORICAL EXPLANATION. So far, my only attempt has been to give an overview of the observable data. Regular patterns have emerged from this observation, resulting in tables such as table 3; but no historical interpretation has been proposed. This will be the topic of the present section: how can we explain the general evolution observed in these 16 languages, namely, the regular changes in vowel qualities, and their corollary in terms of new vowel inventories?

3.1 PROSODIC STRESS AND VOWEL REDUCTION. If each etymon is compared with its modern reflexes, an important observation that has been left unmentioned thus far is the phenomenon of vowel reduction. The Mwesen examples (table 2) illustrate how protoforms with two syllables (*CVCV) are regularly reflected by a monosyllable (usually CVC); vowel reduction also occurs from three syllables to two,

<table>
<thead>
<tr>
<th>Table 2. Vowel Correspondences between POC and MWesen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POC V₁</strong></td>
</tr>
<tr>
<td>i...</td>
</tr>
<tr>
<td>...e</td>
</tr>
<tr>
<td>...a</td>
</tr>
<tr>
<td>...o</td>
</tr>
<tr>
<td>...u</td>
</tr>
<tr>
<td>e...</td>
</tr>
<tr>
<td>...e</td>
</tr>
<tr>
<td>...a</td>
</tr>
<tr>
<td>...o</td>
</tr>
<tr>
<td>...u</td>
</tr>
<tr>
<td>a...</td>
</tr>
<tr>
<td>...e</td>
</tr>
<tr>
<td>...a</td>
</tr>
<tr>
<td>...o</td>
</tr>
<tr>
<td>...u</td>
</tr>
<tr>
<td>o...</td>
</tr>
<tr>
<td>...e</td>
</tr>
<tr>
<td>...a</td>
</tr>
<tr>
<td>...o</td>
</tr>
<tr>
<td>...u</td>
</tr>
<tr>
<td>u...</td>
</tr>
<tr>
<td>...e</td>
</tr>
<tr>
<td>...a</td>
</tr>
<tr>
<td>...o</td>
</tr>
<tr>
<td>...u</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3. Regular Vowel Correspondences for MWesen</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>...i</em></td>
</tr>
<tr>
<td><em>i...</em></td>
</tr>
<tr>
<td><em>e...</em></td>
</tr>
<tr>
<td><em>a...</em></td>
</tr>
<tr>
<td><em>o...</em></td>
</tr>
<tr>
<td><em>u...</em></td>
</tr>
</tbody>
</table>
from four to two, and so on. Examples (1) to (5) show the same observation for the remaining languages of the area: thus in (4), an etymon with two open syllables *kani is systematically reflected by one closed syllable in modern languages.

This process of vowel reduction is undoubtedly an effect of phonetic stress. In a protoform with two syllables, only the one receiving stress was preserved, while the unstressed vowel eventually disappeared (e.g., *i'mate > mat). This is typologically a familiar phenomenon, also witnessed by Latin cīuiētem [kiwi'tatem] > Catalan ciutat [siw'tat] ‘city’. In the case of northern Vanuatu languages, there is every likelihood that the final consonants of POc forms had been lost at some stage (e.g., ‘ten’ *saŋapuluq > *saŋapulu); this resulted in vowel-final lexemes that systematically received primary stress on their penultimate syllable, and secondary stress every second syllable leftward (e.g., *saŋa'pulu). Vowel reduction affected word-medial as well as word-final posttonic syllables,9 which explains why words with four syllables were regularly reduced to two: for example, *saŋa'pulu > MSN saŋwul.

The loss of word-final posttonic vowels explains why, in essentially all the languages of the area, words are now systematically stressed on their final rather than their penultimate syllable (contra Lynch 2000:77). Exactly the same evolution is attested in modern French: due to the progressive loss of all etymological posttonic vowels, French has become a perfectly oxytone language.

As for the deletion of word-medial unstressed vowels, also known as syncope, it is rather rare among Oceanic languages, unlike in western Austronesia. According to Blevins and Blust (2003), “general syncope is inhibited by the absence of pre-existing closed syllables,” as is the case in several Oceanic subgroups, including North-Central Vanuatu. In their view, “syncopating sound change is common where closed syllables pre-exist, and rare or absent where they do not”—a universal tendency that “receives empirical support within the Austronesian language family.” In this perspective, it is worthwhile to underline that the Torres and Banks languages provide counterevidence to that tendency. General syncope has taken place massively in languages that lacked closed syllables when vowel reduction began.

3.2 LEXICAL DISTINCTIVENESS AND THE STRUCTURAL ECONOMY OF THE SYSTEM. Vowel reduction occurred in all of the 17 languages of my corpus, although with varying impact upon their phonologies. In one language, Mota, it only affected part of the lexicon, namely those words where the unstressed—either medial or final—vowels were high, that is, /i/ or /u/. Thus compare (4) *kani ‘eat’ > yan, but (5) *mate ‘die’ > mate. The homophones that were triggered through this process—e.g., (1) *paru ‘hibiscus’ > βar vs. (2) *pari ‘stingray’ > βar—were not so numerous as to impede communication. This limited impact upon the lexicon can arguably be seen as the reason why Mota has kept its five-vowel system intact up until now. This, by the way, makes it the most conservative language of the area.

But the scenario turned out to be more complex for the 16 remaining languages. In all of these, vowel reduction affected the whole lexicon, whatever the quality of the unstressed vowel. This can be seen in (5), where all languages but Mota have reduced

9. The specifics of word-medial and especially word-initial syllables are presented in section 5.
the two CV syllables of *mate to a single CVC one. In this situation, the effect of vowel reduction upon the lexicon was going to be much more extensive, at least potentially, than in Mota. Indeed, it virtually ensured that the lexical contrasts that could exist between five disyllables of the type CaCi–CaCe–CaCa–CaCo–CaCu would all merge into a single syllable of the type *CaC. In a purely statistical perspective, it would have meant reducing lexical distinctiveness by virtually 80 percent. Needless to say, such a drastic increase in the number of homophones in the language would have considerably threatened the success of communication.

In fact, none of these northern Vanuatu languages let vowel reduction affect its whole lexicon without some sort of functionally driven reaction, as it were, that would preserve at least some level of lexical distinctiveness. Although the details eventually differed from one language to another, they all followed the same overall strategy: namely, an increase in the number of their vowel phonemes. One can take the example of Mwesen (table 3), and see that a potential set of five disyllables CaCi–CaCe–CaCa–CaCo–CaCu did not merge into a single form *CaC, but into three distinct forms CeC–CaC–CaC, which is obviously a more efficient outcome from a functional point of view.

Of course, what were initially 25 (= 5 × 5) potential V₁–V₂ combinations did not give birth to 25 distinct vowel qualities. The emergence of phonetic differences was in fact counterbalanced by a reverse phenomenon of phonetic convergence, whereby several new vowels resulting from diverse combinations would merge together into a single phoneme. For example, in Mwesen (knowing that languages behave diversely in this respect) the vowel resulting from *a…i merged with the one resulting from *e…a, namely, the phoneme /e/. Yet this second process of phoneme conflation never reverted back to the initial five-vowel system. The push toward the expansion of phoneme inventories has proved everywhere stronger than the reverse merging trend to such an extent that the final systems ended up having at least seven, and up to 13 distinct vowel qualities. Although this certainly did not completely prevent homophones from appearing, such an expansion of vowel inventories at the system level cushioned the effects of vowel reduction upon communication.

The relevance of such a functional interpretation has long been illustrated for other languages, as early as Martinet’s seminal study Économie des changements phonétiques (1955). Here is what Martinet says about Germanic umlaut (1970:200; my translation): “Originally, umlaut must have consisted in the transfer of certain features from the vowel affected by syncope or apocope, to a preceding stable vowel—generally the one in the stressed initial syllable. … Resulting from this, new vowel phonemes emerged, which compensated for the loss of the unstressed vowels with respect to distinctiveness. It is probable that speakers were subconsciously inclined to anticipate the articulation of the disappearing vowel because this vowel helped identify the word or form.”¹⁰ This type of historical process has also received the name of “trans-

¹⁰. “L’Umlaut … a dû consister, à l’origine, dans le transfert de certains traits des voyelles atteintes par la syncope ou l’apocope à une voyelle stable précédente, en général celle de la syllabe initiale accentuée. … Il en est résulté de nouveau phonèmes vocaliques compensants, sur le plan distinctif, la chute des voyelles inaccentuées, et l’on peut croire que les sujets ont été inconsciemment entraînés à anticiper l’articulation de la voyelle qui disparaissait parce que cette voyelle contribuait à l’identification du mot ou de la forme.”
phonologization” (Hagège and Haudricourt 1978)—that is, the structural preservation of lexical distinctiveness by transferring some phonetic features from one segment to another. Other examples of a similar process involving an increase in vowel inventories include the transfer of the nasality feature from consonants to vowels, and the emergence of a tone system to compensate the loss of certain contrasts between consonants.  

In our case, what is being transferred is the distinctiveness potential of disyllables to monosyllables via the expansion of vowel systems. One could also formulate the principle in Saussurian terms, focusing on the structural economy of the system: as words become shorter (reduction on the horizontal, syntagmatic axis), a larger phoneme inventory is necessary (expansion on the vertical, paradigmatic axis).

Vowel reduction is also attested in other parts of Oceania, but with varying consequences. In some languages, such as South Efate (Thieberger 2004:74) or the various languages of southern Vanuatu (Lynch 2001:103–6), the deletion of unstressed final and medial vowels had no particular effect upon vowel phonemes. Conversely, in areas such as Micronesia, vowel reduction resulted in the expansion of vowel inventories in much the same way as in northern Vanuatu. Chuukese ended up having nine phonemic vowels (Dyen 1949, Goodenough 1992; see below) and Kosraean 12 (Lee and Wang 1984:403).

3.3 METAPHONY OR METATHESIS? Although this structural explanation is probably the key to the overall history of vowel inventories in northern Vanuatu, it only accounts for the phonological level, but does not explain all the details of what happened exactly from the phonetic point of view. That is, now that we have seen why new vowels were structurally useful at that particular point in the history of these languages, we have to explain how they appeared.

The general process one can think of here is umlaut: that is, the anticipatory spread of certain phonetic features from one vowel to the vowel of the preceding syllable. The best-known form of umlaut took place in the history of Germanic languages. During this process, a posttonic high front vowel *i regularly fronted a preceding back vowel before disappearing. For example, the Proto-Germanic singular/plural pair *muis ‘mouse’ vs. *muís-iz ‘mice’ eventually became a contrast *muís vs. *miüs in Old English. Because the term umlaut is often restricted to high vowels, I prefer to use the wider term METAPHONY, which covers “any type of assimilation between nonadjacent vowels in a word” (Trask 1996:221).

In the case of northern Vanuatu languages, a possible scenario that would account for most of the modern data would resort to the notion of metaphony: some sort of regular assimilation (or feature transfer) from V₂ to V₁ took place before V₂ disappeared altogether. If we take the example of *pari ‘stingray’, one can assume a first stage of the type *βari > *βæri,₁₂ whereby final [i] affected tonic [a], bringing about a fronted allophone such as [æ]—the latter being nothing more, at this stage, than a contextual variant of the phoneme /a/ before /C/i/. Likewise, a form like ‘hibiscus’ *paru > *βaru would have developed a back variant such as [u], thus *βaru > *βuru. In a second stage, when

₁₁. As far as the Oceanic group is concerned, these two historical processes are especially attested in the languages of New Caledonia: see Ozanne-Rivierre and Rivierre (1989) for nasal vowels, and Rivierre (2001) for the emergence of tones. See also Blust (1990:248–51) for other Austronesian languages.
the process of vowel reduction eliminated the posttonic vowels, these two phonetic allophones [æ] and [£] eventually became phonemized, as only these two vowel qualities were then able to maintain the lexical distinction *βær ‘stingray’ vs. *βør ‘hibiscus’. What has later occurred to these two new phonological entities (whether they remained distinct or eventually merged with each other, or whether they merged with other vowels of the new system) differs from one language to another. But at least this scenario can explain how the original lexical distinction *pari : *paru was able to be preserved in several modern languages, even after the loss of the final vowels—e.g., Ltg βær : βør; LHI βæy : βøy; MSN βær : βør; LKN βæe : βaa; MRl ne-βær : no-βør. In all these languages, what were once no more than allophonic variations of a single phoneme /a/ were eventually frozen in the form of phonemic contrasts.

Although the scenario I reconstruct here of phonetically conditioned variants that later acquired the status of phonemes cannot be directly witnessed in any modern language of the area, its likelihood is confirmed by certain observations that were made in other parts of Oceania. Goodenough (1992) describes the same evolutionary path in two Micronesian languages, Kiribati and Chuukese. Kiribati still has no more than five vowels on the phonological level, yet each shows metaphonic variation, depending on the quality of the posttonic vowel: for example, /CaCe/ surfaces as [CæC], /CaCo/ as [CaC]. Chuukese went beyond this allophonic stage when it lost its word-final vowels: then, as Goodenough (103) puts it, “all the work of differentiation fell on the first vowels, and what was before a phonetic difference had now to be recognized analytically as a phonemic one”—for example, [æ] vs. [£]. This is how metaphony was able to trigger an increase of the Chuukese phoneme inventory from five to nine vowels.

In principle, the metaphony hypothesis should equally well be able to explain the other instances of vowel change that took place between POc and the modern languages of northern Vanuatu. If we consider the Mwesen examples of table 3, we can imagine that the final [u] in *tolu ‘three’ raised the stressed vowel from [o] to [u] before disappearing, hence *tolu > *tou > *tul; and conversely that the final [a] in (*qura¥ >) *ura ‘lobster’ lowered [u] to [a], hence *ura > *ur > *ur; and so on. As long as the changes are phonetically expected, they can easily be explained in terms of feature assimilation at a distance—that is, in terms of metaphony.

This scenario is in fact not the only possible way to account for the vowel hybridization processes attested in the area. Another proposal, suggested by A. Pawley (pers. comm.), would suggest a parallel with the evolution attested in Rotuman (Besnier 1987): a form like *βari could have undergone a process of metathesis *βari > *βair, followed by a merger of the two then adjacent vowels *βair > *βør. Similarly one could reconstruct such changes as *βaru > *βaur > *βor; *tolu > *toul > *tul, or *ura > *uar > *ur.13

12. Depending on the languages and the lexical items, POc *r either disappeared altogether or merged with *r; but in no language of northern Vanuatu does *r surface with a reflex different from *r. That is why I choose here, for the sake of simplicity, to spell *r the reflex of *r when proposing intermediate reconstructions. Anyway, the relative chronology of consonant changes (*r > r, *p > β, …) goes beyond the present discussion, which focuses on vowels.

13. Note, however, that a sequence /uC/ in Rotuman yields a sequence glide + vowel rather than a plain vowel: e.g., puka ‘creeper sp.’ > puak > pwak (Besnier 1987:208).
Note that these two explanations rely on the same logic, namely, the notion of phonetic assimilation and feature transfer across syllable boundaries. Therefore, they have essentially the same explanatory power with regard to the vowel changes attested in the corpus: both models can easily explain changes that are phonetically expected (such as *aCi > eC), and both will have equal difficulty in accounting for those changes that are more unusual (such as *aCi > ëC).

In sum, the only fact that is established with certainty is the general process whereby a pair of vowels such as *a…i in *ɓari eventually hybridized into a single vowel such as /æ/ in *ɓær. What is then a matter for debate is the precise nature of the missing link that should be reconstructed between these two ends: the metaphony hypothesis suggests an intermediate form *ɓæri, whereas the metathesis scenario reconstructs a form *ɓair. Technically, the two scenarios are equally plausible here—except that metaphony is typologically much more common. Overall, this second hypothesis is probably too costly to account for regular sound change in so many distinct languages; and metaphony must be retained as the most probable historical scenario.

3.4 SHARED OR PARALLEL INNOVATION? The reader must note that I have so far deliberately avoided any commitment as to whether the historical process under discussion occurred only once, at the level of a common ancestor, or if it happened after these languages had separated from each other in a series of parallel changes that would have taken place in each language separately.

I will touch briefly on a few arguments that suggest we are dealing with parallel changes. First, if we were to situate the process at the level of a common ancestor, we might have to go back in time to a putative “Proto–Torres-Banks” ancestral to the 16 languages of our corpus, and exclusive to other northern Vanuatu languages (see 1.1). However, the existence of such a common ancestor has not yet been demonstrated. Furthermore, because Mota is the only language in the area that did not go through this phonological process all the way, we then might be tempted to exclude it from this genetic subgroup, which would not make sense in other respects.

Furthermore, if one were to demonstrate the antiquity of the change in the genetic tree, one would have to show not only that all these languages underwent the process as a type of phonetic change, but that they went through the same actual patterns of change. Yet the diversity of resulting vowel inventories attested from one language to another (section 4), and the impossibility of reconstructing any common system from which to derive all modern inventories make the shared-innovation hypothesis difficult to advocate. In sum, supposing some subgroup encompassing all the languages of the Torres and Banks were to be demonstrated by future research, the phonological evidence related to vowel change would clearly have to be excluded from the set of possible shared innovations.

14. In this sense, an autosegmental representation of these processes that distinguishes tiers for consonants vs. vowels may provide an efficient model for both the metaphony and the metathesis hypotheses (Besnier 1987). See also 5.2.3.

15. Setting aside the issue of vowel hybridization, most features typical of Banks languages are also represented in Mota, whether regarding the phonology of consonants, the morphosyntax (e.g., possessive classifiers, TAM markers), or the lexicon (appendix 2).
A possible argument in favor of defining vowel hybridization as an areal phenomenon is the existence of a very similar phonological process in a language of Espiritu Santo that I have not yet mentioned. According to Guy (1977), Sakao has expanded its vowel inventory from five to 12 vowels, demonstrably by going through a parallel development (see Sakao vowel correspondences in appendix 1):

(6) Vowel hybridization in Sakao (after Guy 1977):
POc *mata-ña ‘his/her eyes’ > mða;
PPOc *mata-gu ‘my eyes’ > mdey;
POc *pulu-ña ‘his/her hair’ > ulæn;
PPOc *pulu-gu ‘my hair’ > ulity;
POc *tulu ‘three’ > ðæl;
PPOc *qone ‘sand’ > nœn;
PPOc *keli ‘dig’ > ðæl;
PNCV *bweta ‘taro’ > ðœð.

While it is genetically rather remote from the Torres and Banks languages and shares more features with other languages of Santo (Tryon 1976:80), the area of Sakao lies just opposite Gaua; that is, it is the language of Santo that is geographically closest to the Banks area. Although further evidence would be required to ascertain this language-contact hypothesis, it seems likely that such a parallel evolution between geographically neighboring languages is not totally accidental.

All these arguments tend to demonstrate that the process of vowel hybridization with its reshaping of vowel inventories is the result of parallel innovations that took place in several languages of northern Vanuatu. Overall, this process may have occurred separately up to 17 times—that is, all the languages of my corpus other than Mota, plus Sakao. It is difficult to determine whether what took place here should be described as an areal phenomenon that spread from one place to another through language contact, or as drift (Sapir 1921). Drift is perhaps the scenario that functionally might be better motivated, because it “occurs when languages [that] are no longer in contact move in similar directions due to the continued, independent operation of inherited structural pressures” (Blevins and Blust 2003). Yet, the existence of ongoing contact between these northern Vanuatu languages suggests the two historical motivations may well have interacted here.

As far as dates are concerned, my personal intuition—which cannot be demonstrated—is that these processes probably occurred fairly recently: say, during the last few centuries. What can be demonstrated, however, is their relative chronology in comparison with other instances of sound change in certain languages. For example, in Lakon, the difference between ïm*awsk < *m*atiga (109)17 ‘purple swamphen’ and ți < *tulu ‘three’ shows the assibilation of /t/ before high front vowels took place before, not after, the hybridization process.18 Because this assimilation is attested with Lakon but not with its neighbors, this pleads once more against the antiquity of vowel changes in the genetic tree of northern Vanuatu languages.

Corollary to these conclusions, the historical scenario I have reconstructed in the present section must be taken for what it is: an outline of the general principles that

---

16. To my knowledge, the languages of Maewo, Pentecost, and northwest Santo, south of our area, did not go through the process. Neither did the three languages of Vanikoro (pers. data) to the north.

17. Example numbers preceded by “#” refer to the list of northern Vanuatu reconstructions that is proposed in appendix 2.

18. This relative chronology hypothesis is corroborated by the existence of such forms as LKN matwus < *matakut-i ‘fear’ or pælæs < *balat-i ‘take with tongs’ (see 6.1.3).
the history of the vowels of northern vanuatu languages

guided the shift from a five-vowel protosystem to richer inventories in the modern languages. While all these languages have essentially gone down the same track in terms of functional and structural evolution, the specifics of each history may have to be reconstructed for each language separately. Although this task is beyond the scope of the present study, I shall now give at least an overview of the variety of situations attested across the area.

4. CROSS-LANGUAGE DIVERSITY. The choice of Mwesen as an illustration for the general discussion (2.3) was explicitly justified by its simplicity and exemplary nature. The other languages differ from Mwesen in both the quantity and quality of vowels resulting from the historical process of hybridization. For some of these languages, it is just a matter of phonetic correspondences being different, with no need of further discussion. But other systems have developed peculiarities such as diphthongs or long vowels that require a more specific presentation.

4.1 CROSS-LANGUAGE DISCREPANCIES. The methodology presented in 2.3 and illustrated by Mwesen makes it possible to establish a chart of regular vowel correspondences for each language of the sample. The 17 charts can be seen in appendix 1. Quite remarkably, they all differ from each other, including between neighboring or otherwise close languages. To begin with, I will cite here certain languages that, though differing from Mwesen in their vowel correspondences, do not require any further discussion. The six languages Lehali, Lehalurup, Volow, Mwotlap, Lemerig, and Nume can be considered as following basically the same pattern as Mwesen. For all of them, each combination of protovowels V₁–V₂ is regularly reflected by a single short monophthongal vowel V': *(C)V₁(C)V₂ > (C)V'(C).

Certain correspondences, however, appear to be paradoxical from a phonetic point of view, especially if compared with the “well-behaved” vowels of Mwesen. For example, the combination *a…u is almost systematically reflected in several of these languages by the front vowel /e/—see (3) above. Volow is even more consistent in providing almost any combination *V₁…u with a front vowel reflex, as if some sort of dissimilation had taken place. Thus compare the five reflexes of *V₁…u in Mwesen {i ʌ u} and in Volow {i ə i}:

(7) *V₁…u is regularly reflected with [+front] [+spread] vowels in Volow:
POc *taci-gu ‘my younger sibling’ > tih-i ‘my same-sex sibling’;
PNCV *rebu ‘wave’ > ni-yim; POc *arur ‘Casuarina’ > n-ey;
POc *motus ‘island’ > ni-γəni ‘bush’; POc *pusur ‘bow’ > n-ih.

In order to account for such language-specific distribution patterns, certain intermediate stages may have to be reconstructed on a case-by-case basis. For example, following Guy (1977) for Sakao, one could suggest that VLV *i and *u first merged into a single nonback, nonrounded vowel (such as central *-i) before hybridizing with the preceding stressed vowel.

Vurès can be added to the preceding list, with one peculiarity. It has developed a series of front rounded vowels /œ/, /ø/, /ü/. These result from the combination of the
three nonfront V₁ *a/o/u with a high V₂. When V₁ was rounded and V₂ was high front *i, the change corresponded somewhat to a classical case of umlaut:

\[(8) \text{*V₁…i is regularly reflected with [+front] [+rounded] vowels in Vurës: POC *boji ‘night’ > } \text{ḱp’ơŋ;} \text{POC *quiris ‘Spondias dulcis’ > ĭū.}\]

But when V₂ was itself a back vowel *u, the fronting *o…u > ŭ and *u…u > ĭū was more unusual. Once again, it looks as though some sort of dissimilation had taken place—which is always more difficult to explain than assimilation.

\[(9) \text{*V₁…u is regularly reflected with [+front] [+rounded] vowels in Vurës: POC *motus ‘island’ > } \text{ǹm’ǫt ‘bush’;} \text{POC *pusur ‘bow’ > βūs.}\]

These vowel correspondences, which are exclusive to Vurës, account for the genesis of its unique vowel system (see figure 1). Front rounded vowels are also found in Lemergic and Lehalurup. Note also the three central rounded vowels /æ/, /o/, /u/ developed in Mwerlap and in Hiu—the latter being better described, for phonological reasons, as /æ/, /o/, /u/.

While differences between vowel systems normally result from a distinct set of correspondences, the reverse is not necessarily true. That is, two languages may have quite different charts in appendix 1, but still present exactly the same phoneme inventory. For example, the same system of seven vowel qualities \{ i e a ə u \} is found in Mwesen, Mwotlap, Vera’a, Nume, Olrat (table 1), despite substantial differences with regard to the precise vowel correspondences that led to that inventory (appendix 1).

4.2 LANGUAGE-INTERNAL INCONSISTENCIES. Unlike Mwesen, whose vowel correspondences are remarkably systematic, a characteristic of most other languages is the existence of more than one reflex for certain V₁–V₂ combinations, generally with no possibility of defining any conditioning factor.

Examples (1) and (3) have already shown that Vurës may reflect the combination *a…u either as /e/ (*patu > ĭt) or as /œ/ (*paœ > ŭœr), with no obvious motivation. Likewise, *a…i sometimes became /e/ (*kani > ĭn) and sometimes—though much less often—/œ/ (*paœ > ŭœr). Other examples for VrS include:

\[(10) \text{Inconsistent reflexes of *a…i and *a…u in Vurës: POC *rapirapi ‘evening’ > } *řaʃiraʃi > řeʃræʃ;} \text{(#132)  תנאי ‘rub, stroke’ > særæʃ;} \text{POC *koras-i ‘grate coconut’ > γeɾes;} \text{(7) olvency ‘song’ > æs;} \text{POC *manuk ‘bird’ > } \text{mɛn;} \text{POC *ñatuq ‘Burckella obovata’ > nɛt.}\]

Similarly in Mwotlap, the combination *o…i normally hybridized as /l/, and sometimes—quite rarely in fact—as /l/.\[19\]

\[(11) \text{Some reflexes of *o…i in Mwotlap: POC *boji ‘night’ > } nu-kp’ơŋ;} \text{POC *poli ‘buy’ > wıl;} \text{POC *molis ‘Citrus sp.’ > } \text{ń-ŋw’ıł;} \text{PNCV *domi ‘think’ > } \text{dm;} \text{PNCV *donji ‘coconut leaf mat’ > } \text{ń-ðn.}\]

The same two outcomes are attested for *o…u. Compare the expected (but rare) shift *o…u > /l/ with the less expected (but much more frequent) shift *o…u > /l/.\[19\] The history of Mwotlap vowels is presented in detail in François (2001:83–110).
Some reflexes of */o…u* in Mwotlap:

POC */topu* ‘sugarcane’ > *nu-tow*;
POC */katou* ‘hermit crab’ > *na-yrr*; POC */motus* ‘broken’ > *nin’irr*;
POC */tulu* ‘three’ > *βt-tul*; POC */nako-gu* ‘my face’ > *na-nyrk*.

Finally, the usual reflex of */a…a* is */a/ (POC */baga* ‘Ficus sp.’ > *na-bak*). Yet, in a number of lexical items, some form of dissimilation (see Lynch 2003) has taken place:

An unpredictable case of dissimilation (*/a…a* > */a*) in Mwotlap:

POC */asaq* ‘grate, rub’ > */h*rub*;
POC */waga* ‘canoe’ > *ni-si/* *k*

POC */ma-nrinri(¥) ‘cold* → */mamariri* > *m*¥*myiy*;
POC */[ma-]aqan* ‘light’ → */mama*¥*a* > *m*¥*mya*;
POC */sa¥apulu(q)* ‘ten’ > *s*¥*wul*.

These multiple reflexes appear in the relevant boxes of each appendix chart. The only case when an alternative reflex is not indicated in a chart is when it is only witnessed in one or two items. For example, whereas the outcome of */u…i* in Mwotlap is almost always */i/ (POC */su*¥*i* ‘bone’ > *ni-hiy*) and rarely */u/ (POC */susuri* ‘sew’ > *susuy*), it appears as */u/ only in one item (POC */quris* ‘Spondias dulcis’ > *n-ry*). Likewise, */a…u* becomes systematically */i*/ when the two vowels were separated by a consonant (4.3.1 below), but became */u/ when they were immediately adjacent. In other words, Vurës requires two distinct rules here: {*/eCa > /iC/}; {*/ea > /h/*}.

Some reflexes of word-final */e* in Vurës:

POC */pea* ‘where’ > *afβr*; PNCV */bare*¥a* ‘outside’ > *βarea > *βarr*;
PNCV */maraya* ‘eel’ > */marea > *mar*.

### 4.3 Diphthongs and Long Vowels.

Another peculiarity of the vowel systems in the languages under consideration is the emergence not only of new vowel qualities, but also of diphthongs and long vowels.

#### 4.3.1 Diphthongs.

Certain modern languages show diphthongs in places where their neighbors just have plain monophthongal vowels. One example is Vurës, which normally reflects as */a/ the combinations */a…e* or */e…a* (but see a subcase in [14] above):

---

20. A similar distinction must be made for */e/o…a* in Vera’a (see fn. 26); for */a…i/u* in Koro and Dorig (see [20] below); and for */a…(i/u)* in Mwerlap. See also Guy’s discussion (1977) on Sakao. All such cases are indicated by angle brackets “(…)” in the charts of appendix 1.
(15) Some reflexes of *a...e in Vurës:
- POc *kape 'crab' > ɣawβ; PNCV *?ata-mate 'ghost' > timiät;
- PNCV *mʷab'e 'Inocarpus' > ɣm'iak.

(16) Some reflexes of *e...a in Vurës:
- PNCV *hweta 'taro' > kpwiiat; PNCV *mena 'ripe' > mian;
- PNCV *mwera 'child' > ɣmwir̥ẘ̥iak 'children'.

It is difficult to tell whether this emergence of a diphthong is historically a direct outcome of the process (*a...e > i̥a), or if some different vowel must be reconstructed as an intermediate link (say *a...e > *ä), which for some reason would have later diphthongized (*ä > i̥a). This question can probably not be solved: all that can be established with certainty, at least at this stage of our observation, is the factual correspondence between certain sequences *V1...V2 and a certain diphthong.

Another example of a diphthong is Koro /ɨ̥a/, a regular reflex for the two combinations *a...i and *a...u: see (1) ɨ̥ar, (2) ɨ̥ar, (3) ɨ̥at. The same phoneme /ɨ̥a/ appears in Mwerlap, along with two rounded diphthongs /ʃa/ and /ʊʊ/. The former results from *a...u, as illustrated in (1) and (3). As for /ʊʊ/, it normally corresponds to *o...u:

(17) Some reflexes of *o...u in Mwerlap:
- POc *tolu 'three' > i̥-tʊʊ; POc *topu 'Saccharum' > n-ʃaʊ;
- POc *katou 'hermit crab' > n-ʃaʊ.

The third diphthong /ɨ̥a/ proceeds from four different combinations:

(18) The four combinations at the source of /ɨ̥a/ in Mwerlap:
- *i...e: POc *talise 'Terminalia' > talaʃa; POc *papine 'woman' > βaʃaʃa;
- *i...a: POc *p̥ilak 'lightning' > n-βaʃa; POc *ikan 'fish' > n-eaʃa;
- *i...o: POc *sikon 'kingfisher' > neaʃa; PNCV *nigo 'you (sg)' > neak;
- *a...i: POc *kadik 'black biting ant' > ne-γaʃa; PNCV *lanj 'wind' > ne-kaʃa.

In comparison with its neighbors, Mwerlap has a rich vowel inventory—12 phonemes altogether—including /ʃa/, /ʊa/, /al/, /eə/, /aə/, /ʊʊ/. This synchronic uniqueness goes along with an unusual distribution of vowel correspondences from the historical point of view: compare the neatly ordered chart of Mwesen (table 3) with the paradoxes and asymmetries of Mwerlap (appendix 1). If one adds to this a certain level of dialectal variation observed within Mwerlap, it is not surprising that the surrounding populations perceive Mwerlap as a particularly difficult language.

Finally, the existence of diphthongs is what makes the difference between the two dialects of Lo-Toga, namely Lo and Toga. Whereas Toga essentially has monophthongs, the Lo dialect possesses as many as five different diphthongs, namely /aɪ̥/, /eɪ̥/, /eɪ̥/, /aʊ/, and /ʊʊ/. Insofar as the latter may be considered authentic phonemes, then Lo possesses 13 vowel phonemes altogether, which is one of the largest inventories in the area (see table 1):

(19) Diphthongs in the dialect Lo of Lo-Toga:
- POc *api 'fire' > TGA eβ ~ LO ɨeβ
- POc *kona 'bitter' > TGA γana ~ LO γana
- PNCV *domi 'think' > TGA ti̥m ~ LO ɨt̥m
- POc *bo̊ji 'night' > TGA k̥e̊γ ~ LO k̥e̊γ
However, the correspondences of Lo regarding diphthongs are less systematic than those of Vurës, Koro, or Mwerlap: each of these phonemes occurs in no more than about a dozen lexical items. For example, most etyma ending in *a…i are reflected in Lo with a monophthong /æ/, not with /iæ/.

4.3.2 The emergence of vowel length. In comparison with its neighbors, Dorig is unique in having created a single long vowel. Whereas most sequences *V₁…V₂ hybridized into short vowels (e.g., POc *bebe ‘butterfly’ > *bēb), the combination of *a with a high vowel i or u regularly brought about a long vowel /a/. Thus compare the long vowel in (1) βear, (2) βēr, (3) βēt, with the short vowel in (5) maʈ. No combination other than *aCi or *aCu yielded any long vowel in Dorig. As a result, the phoneme inventory of this language now consists of seven short vowels {i iæ a o u} plus a single long vowel /a/.

The phonemic status of this long vowel is made obvious by such minimal pairs as laɿ ‘fly’ (POc/PNCV *laɿo) vs. laɿ ‘wind’ (PNCV *laɿj).

The only case where *a…(i,u) is reflected by a short vowel /a/ in Dorig is when the two vowels were (in premodern Dorig) immediately adjacent—that is, not separated by any consonant. One can imagine that the sequences *ai or *au were first reflected by a long vowel /a/, and later shortened to /a/ in word-final position:

(20) Some short reflexes of *a…i and *a…u in Dorig:
POC *[ka]ɿari ‘Canarium almond’ > *ŋai > *ŋa: > ŋa
PNCV *bataɿu ‘breadfruit’ > *batau > *bta > bta

This emergence of one long vowel in Dorig must be carefully distinguished from the emergence of vowel length as a phonological feature in two contiguous languages of West Gaua, Olrat and Lakon. What happened in these two languages is that the loss of a certain consonant in syllable-final position triggered compensatory lengthening upon the preceding vowel: {*VC > V:}. The lengthening process did not concern the same consonant in the two languages: for Olrat, the lost consonant was /ŋ/ (< POc *k), whereas for Lakon it was /r/ (< POc *r or *r). Yet the process in itself is perfectly parallel in the two languages—see (21–22):

(21) Compensatory lengthening in Olrat: { Vŋy → V:/ # }:
POC *saɿke ‘up’ > *saye > *say > saɿ
POC *baɿeko ‘breadfruit’ > *payo > *pay > peɿ
PNCV *liko-ti ‘tie up, tether’ > *livo > *livo > luɿ
POC *paka-rua ‘twice’ > *baɿa-rua > *baɿ-ru > βaɿ-ro

(22) Compensatory lengthening in Lakon: { Vr → V:/ # }:
POC *paru ‘hibiscus’ > *baru > *bar > βaɿ
POC *pari ‘stingray’ > *bari > *bar > βaɿ
POC *bore ‘dream’ > *bore > *bore > βaɿ
POC *quris ‘Spondias dulcis’ > *uri > *ur > uɿ

Incidentally, because the consonant was only lost syllable-finally in a CVC pattern, this implies that the process under discussion necessarily happened after the process of

21. The match is perfect between Dorig /a/ and the diphthong /iæ/ in Koro, a dialect of the same language (4.3.1).
vowel reduction. A corollary to this point is that long vowels in Olrat and Lakon may occur anywhere in the word, but exclusively in open (CV) syllables.

This process of consonant loss with resulting compensatory lengthening triggered the emergence of vowel length as a distinctive phonemic feature in these two languages.22 The synchronic analysis provides genuine minimal pairs such as OLR *lai ‘take’ (PNCV *lai) vs. lar ‘marry’ (POc/PNCV *laki), or LKN *bu ‘bamboo’ (PNCV *bue) vs. pur ‘swell’ (PNCV *bura < POc *pu ‘elephantiasis’). As a result, not only did these two languages expand their vowel inventories through hybridization just like their neighbors (seven distinct vowel qualities for Olrat, eight for Lakon), but later on they even duplicated these into two sets, short vs. long. This is why Olrat can be said to have 14 phonemic vowels, and Lakon as many as 16—which is, by the way, the largest inventory of all northern Vanuatu languages.

In summary, it is now obvious that the emergence of vowel length followed different historical paths across the three languages under discussion. On the one hand, Dorig only developed one long vowel as a direct (or indirect) result of vowel hybridization; this is why it has its place in the appendix 1 chart of Dorig. On the other hand, Olrat and Lakon developed vowel length in a phonological process that evidently occurred after hybridization had taken place; this is why the charts of these two languages do not mention long vowels.23

4.4 POLYSYLLABIC OUTCOMES. Finally, the three languages Hiu, Lo-Toga, and Vera’a require specific comments, for the shape of their words follows a phonological structure that is slightly different from their neighbors. So far, all the examples of vowel reduction presented in this study have taken the form of a reduction in the number of syllables, whereby two open syllables CV1CV2 became a single syllable of the form CV'C. Yet, although this general pattern is indeed well attested in the three languages under discussion here—see (1–5)—it does not represent all vowel combinations. In some instances, these three languages reflect a sequence CVCV in the protolanguage with another sequence CVCV. For example, while the POc disyllable *mule ‘go back’ is reduced to a monosyllable in Mwotlap mwul, it keeps its CVCV structure in Hiu, Lo-Toga, and Vera’a:

(23) POc *mule ‘go back’: HIU njuwº, LTG njulº, VRA mulº.

A question regarding these three exceptional languages would be to define in which cases the CVCV pattern is reduced to a CVC syllable—as in (1) to (5)—and in which cases it is preserved—as in (23). I will examine Hiu and Lo-Toga first, and treat the more complex Vera’a in 4.4.2.

4.4.1 Low vowel resistance in the Torres Is. Despite their differences with regard to precise correspondences, the two languages of the Torres follow essentially identical patterns here. The charts of Hiu and Lo-Toga (appendix 1) show that, out of 25 V1–V2 combinations, nine are regularly reflected as a sequence CVCV in the modern languages:

22. The two processes do not necessarily go together: for example, Lehali, Lehalurup, and Nume lost /y/ syllable-finally, yet with no compensatory lengthening.
23. There is a second difference between the two situations. Knowing that DrG /ad/ was shortened in open syllables (see [20]), it only occurs within closed syllables CVC; this is exactly the opposite with the long vowels of Olrat and Lakon.
*i…e, *i…o, *i…a, *e…a, *a…a, *o…a, *u…a, *u…e, *u…o.¹² This covers all the V₁–V₂ sequences where V₂ either is absolutely low (*a), or is lower than V₁. In both languages, the output of all these combinations is a vowel followed by an unstressed schwa.

(24) Some disyllabic reflexes of *CVCV in Hiu and Lo-Toga:

POC *nraraq ‘blood’ LTG 'tara ~ Hiu 'taña
POC *saman ‘outrigger’ LTG 'hema ~ Hiu wo'sama
POC *alap ‘take’ LTG 'la ~ Hiu 'ga
POC *kurita ‘octopus’ LTG ya'rita ~ Hiu 'ria
POC *bakewa ‘shark’ LTG pa'ewe ~ Hiu pa'weya
POC *aliton ‘firewood’ LTG li'ta ~ Hiu 'ita
POC *kasupe ‘rat’ LTG ya'hua ~ Hiu ya'suwa

In comparison with other V₁–V₂ sequences that underwent complete vowel reduction (*CV₁CV₂ > CV'C), the nine combinations under discussion here have shown a greater resistance, as it were, to phonetic attrition. Thus compare POC *mate ‘dead’ > LTG met with POC *mataq ‘raw’ > *mata > LTG meta. The importance of the [+low] feature in accounting for such resistance can also be observed in other languages of the world that have followed similar evolutionary paths involving syllable reduction. For example, the history of Romance languages (Old French, Occitan, Catalan . . .) often showed how a contrast between masculine *-o and feminine *-a endings eventually shifted to a contrast between zero and -a, as in Latin ‘twisted *tortu(m) : *torto(a) > *torto > Cat. /tɔ/ : /tɔrəl/. This preservation of an unstressed vowel in the form of schwa is restricted to *a in the Romance languages, but in Hiu and Lo-Toga it also includes *e and *o when they are lower than the preceding vowel V₁. Probably the best explanation for this phenomenon would refer to the sonority hierarchy between vowels (Jespersen 1904): a is more sonorous than e/o, which are more sonorous than i/u. The underlying principle would thus be straightforward: the more sonorous the vowel, the more it tends to resist phonetic attrition.

In a way, one could question whether this is still an instance of vowel hybridization in the strict sense of the term. However, it must be clear that patterns of change such as (24) still make it necessary to consider vowels in pairs, because a sequence /V₁…V₂/ changed as a whole into a different sequence /V’…/a. Unlike Catalan, where one can formulate a simple rule of the form “all word-final unstressed /-a/ became /-əl/” in the case of Hiu and Lo-Toga the precise outcome of the change always depends on the nature of both proto-vowels V₁ and V₂: e.g., *u…e > LTG /u…ə/, but *o…e > LTG /o…/. All of these regular vowel correspondences appear in the appendix 1 charts of Hiu and Lo-Toga.

Furthermore, because the various forms of V₂ lost their distinctive power as they merged into /ə/, what happened here is once again the same sort of transphonologization as the one defined earlier in 3.2. That is, what used to be two different vowel slots {*CV₁CV₂} each with its own full inventory, eventually conflated into a single phonotactic structure {CV'C}, where lexical distinctiveness ended up being concentrated in just one slot. For all these reasons, Hiu and Lo-Toga must definitely be included in the group of languages that historically went through the processes of vowel reduction and vowel hybridization.

²⁴. The next section will show that Vera’a, on this matter, has exactly the same distribution.
4.4.2 The special status of word-final vowels in Vera’a. The most complex situation with regard to the history of vowels appears in Vera’a. At first glance, such forms as sama ‘outrigger’ (POC *saman) or naka ‘canoe’ (POC *waga) would suggest that Vera’a has gone through neither vowel reduction nor vowel hybridization, and is simply conservative like Mota (cf. MTA sama and aka). In fact, this parallelism is deceptive.

In a way similar to the two Torres languages, Vera’a regularly reflects certain *CV₁CV₂ combinations as a closed syllable CV’C—see (1–5)—while others have preserved a disyllabic structure CV.CV. Interestingly, if we track them in the chart of regular correspondences of Vera’a, we find exactly the same nine pairs of vowels as the ones that were identified for Hiu and Lo-Toga: that is, those sequences in which V₁ is [+low], whether intrinsically (²a) or in comparison with V₁. A selection of examples is given in (25).

(25) Some disyllabic reflexes of *CVCV in Vera’a:
POC *talise ‘Terminalia’ > ²ilis; POC *kurita ‘octopus’ > wirir;
POC *aliton ‘firewood’ > kolitir; PNCV *bêta ‘taro’ > kpête;
POC *nîta ‘snake’ > yinêtir; POC *na-ñorap ‘yesterday’ > nonor;
POC *kasupe ‘rat’ > yuswu; POC *ma-ñuqa ‘ripe’ > mìwu.

The final vowel (Vf) in all these forms calls for two comments.

First of all, Vf has a special status in the phonology and morphology of Vera’a. Whereas it clearly belongs to the citation form of the word, and is always present at the end of an intonation unit, it is regularly dropped in the middle of a phrase (e.g., the first verb in a serial construction, or a noun followed by a modifier). Thus nîyin’ti ‘house’ (< *imwa < POC *umaq) becomes shortened in phrases such as nîyin ruwu ‘hospital’ (lit. house sick)’ or nîyin ²îlar ‘church (lit. house pray)’; likewise, naka ‘canoe’ loses its final vowel in nak susu ‘canoe with no sail (lit. canoe paddle)’. This recalls the behavior of the posttonic schwa in Lo-Toga and Hiu, which is the only vowel that is prone to elide before another vowel: compare n-ekº ‘canoe’ (POC *waga) with n-ek’ ¿ ‘bamboo raft’.

According to the phonological rules of these languages, such a deletion would never occur with full vowels. Thus no deletion is possible either for the final /a/ of MTA aka ‘canoe’, for the final /a/ of VRA ñula ‘clam’ (POC *talai), or the final stressed /a/ of LTG y³la ‘hermit crab’ (POC *katou), for they all have the status of full vowels. This suggests that the final vowel V₁ of Vera’a has a specific elidable status when (and only when) it proceeds from a posttonic [⁺low] V₂ in a process of vowel reduction.²⁵

A second observation concerns the phonetic quality of this vowel V₁ in Vera’a. Whereas the quality of the vowel V₁ in the etymon was independent from vowel V₁, this is no longer true in modern Vera’a, where the quality of V₁ is systematically correlated to that of the preceding vowel V’, itself a direct reflex of protovowel V₁. This can be seen in (25): whenever V’ is a stressed /ître/ then V₁ is systematically /ître/, regardless of the precise nature of the protovowel V₁. In fact, the nine sequences *CV₁CV₂ with a [⁺low] V₂ may be reflected in modern Vera’a by no more than five sequences of vowels: /i…i/, /e…e/, /a…a/, /u…u/, or /i…u/.²⁶ Clearly, while the quality of V₁ during the initial step of vowel reduction was crucial in determining the general pattern of evolution for each etymon (i.e., whether

²⁵ This status may be formulated in autosegmental terms, describing V₁ as a “floating vowel”—see François (2000) about Mwotlap.
*CV₁CV₂ was to be reflected by one or two syllables), it later played no role in determining the quality of the final vowel Vᵢ. The latter is no more than a clone of the preceding stressed vowel—with the only caveat being that a high vowel had to be lowered by one step (/i...u/ instead of **/i...i/; /u...u/ instead of **/u...u/).

Historically speaking, a plausible hypothesis would suggest that Vera’a first went through a schwa stage. That is, sequences of two syllables *CV₁CV₂ satisfying the \{V₂ = [+low]\} condition changed initially into sequences ending with a central vowel */CV'Cº/, resulting in forms very similar to the ones found in the modern Torres languages. Clearly, at this stage, some kind of vowel hybridization must have taken place, because phonological contrasts that were initially carried by two vowel slots eventually concentrated into a single vowel V'; see the discussion for Hiu and Lo-Toga. Later, a second process of vowel assimilation (rightward spread of phonetic features) occurred in Vera’a in such a way that the schwa was colored into becoming a (nonhigh) clone of V'. One would thus reconstruct *na-ño > *nºnº > nºnº or *ku-ita > *wºritº > wirítº (see 5.2.3 for initial syllables).

From this perspective, the tempting parallelism I first mentioned between Vera’a and Mota was a mere illusion. On the one hand, MTA aka has escaped vowel reduction and therefore preserved the two full vowels /a/ of the etymon. Conversely, VRA naka is the result of vowel hybridization, consisting phonologically of no more than one vowel /a/ that happens to surface in two subsequent syllables.

Considered from the perspective of the history of vowel systems, Vera’a is therefore another instance of vowel hybridization—albeit more complex than its neighbors.

4.5 SYNTHESIS. I have shown a correlation between, on the one hand, a stress-induced process of vowel reduction, and on the other hand, the phonemicization of new contrasts between vowels, resulting in an increase of vowel inventories in 16 out of the 17 languages spoken in the Torres and Banks Islands. After proposing a functional and structural hypothesis to account for the general evolution, a more detailed examination of the data has revealed the great variety of historical changes from one language to another, to such an extent that we will probably have to speak of parallel innovations that took place in each language separately. Yet, even if some languages proved unique in developing front rounded vowels, or diphthongs, or vowel length, or elidable word-final vowel slots, they have all followed essentially the same evolution involving vowel hybridization and its expansion of vowel inventories.

The following section examines certain specific cases of vowel change that occurred in word-internal and especially word-initial positions. Finally, section 6 mention the contribution of these phonological reconstructions to our understanding of the lexicon, morphology, and syntax of northern Vanuatu languages.

---

26. Another regular reflex concerns the two low mid vowels /i/ and /u/ when the vowel changes resulted in a sequence V'Vᵢ with no consonant in between, that is, */ee/ and */oo/. In this case, a disimilation took place, whereby the first of the two adjacent low mid vowels (e, o) became high (i, u). Thus POC *bakewa ‘shark’ > *bae > *bae > baie; POC *toqa ‘fowl’ > *toa > *too > too. Note that these sequences /ie/ and /uo/ are distributed into two syllable slots, unlike diphthongs.
5. WORD-INTERNAL SPECIFIC RULES. So far, the present paper has been focusing on that part of protowords directly involved in vowel change: namely, the penultimate syllable that received primary word stress, associated with the immediately adjacent posttonic syllable. Indeed, the detailed examination of how these last two syllables of each etymon are reflected in modern languages provides all the keys that are necessary to solve most questions related to the history of vowels in the area.

Yet, the history of vowels in northern Vanuatu would not be completely described if no mention were made of the way longer etyma have been handled by the languages under discussion. I will discuss first the case of four- and six-syllable etyma, and leave for 5.2 the more complex analysis that is required by protoforms with an odd number of syllables.

5.1 DO WORD-INTERNAL SYLLABLES REQUIRE SPECIFIC RULES?

The general principle is that the same vowel changes occurred word-medially as word-finally. That is, knowing that the protoforms were stressed on their penultimate syllable (primary stress noted by “¬” in IPA) and received secondary stress every second syllable leftward (noted “√”), one can say that the vowel correspondences that were defined in relation to primary stress normally apply also to word-internal syllables receiving secondary stress. For example, I have already mentioned POC *saŋapuluq ‘ten’ > *i saŋapulu > MSN say'wul (3.1).

Example (4) showed the set of correspondences for a two-syllable etymon *kani. Example (26) illustrates what can result from a sequence of two similar *a…i syllables in the reduplication of POC *rapirapi ‘evening’.

(26) POC *rapirapi ‘evening’: HUH raβiβ̂aβ̂; LTI raβreβ̂; LHI yeπyeπ; LHR ?; VLW yeπyeπ; MTP yipyeπ; LMG reβreβ̂; VRA reβreβ̂; VRS reβreβ̂; MSN reβreβ̂; MTA raβraβ̂; NUM reβreβ̂; DGR raβraβ̂; KRO reβreβ̂; OLR raβraβ̂; LKN reβreβ̂; MRL reprep.

Clearly, most languages (VLW, LMG, VRA, VRS, MSN, MTA, NUM, OLR, LKN, MRL) process the first half of the protoform *raβi′raβi in the same way as the second half. Yet, other languages make a difference between word-internal and word-final syllables.

5.1.1 Asymmetries independent of vowel qualities. For two languages, namely Hiu and Lo-Toga, the asymmetry is systematic between primary and secondary stress, and does not depend on the actual vowels involved. Basically, only the last two syllables of the protoform will be reflected by a vowel of full quality, whereas all the rest will be reflected by schwa. This is an extreme effect of word stress in these two modern languages, which tend to centralize any vowel that does not receive primary stress.

(27) Some reflexes of four-syllable etyma in Lo-Toga:
POC *toka ‘stay’ → *i toya toya > τaγy γaγ
POC *mataku ‘fear’ → *ma τaγu τaγu > maγy γaγ
PNCV *domi ‘think’ → *i domi domi > tam γcom

There are exceptions, however: words in which regular correspondences also apply word-internally:

Example (27)
(28) Some reflexes of four-syllable etyma in Hiu and Lo-Toga:
POC *tabaku 'coconut leaf mat' > LTG šepəγο ~ Hiu šapəγο
POC *sanapulut(q) ‘ten’ > LTG šepəwul ~ Hiu šapəwi

Lehali also tends to favor asymmetry within polysyllabic forms, regardless of the nature of the vowels:

(29) Some reflexes of four-syllable etyma in Lehali:
POC *rapirapi ‘evening’ → *raβi’raβi > yepeyp
PCNV *bora ‘coconut leaf basket’ → *bora’bora > pepepɔ
PCNV *bara-si ‘tread, step’ → *bara’bara > βeβay
*urebarabara ‘Ureparapara island’ → *ure, bara’bara > n’oyepepay

5.1.2 Asymmetries depending on vowel qualities. For the three remaining languages (Mwotlap, Dorig, Koro), the asymmetry between word-internal and word-final positions depends on the nature of the vowels. Most of the time, these languages treat all pairs of syllables *CV/CVC consistently, whether they receive primary or secondary stress:

(30) Some symmetrical reflexes of four-syllable etyma in Mwotlap, Dorig, Koro:
POC *pano ‘go’ → *βano’βano > MTP/DRC/KRO bαniβi
POC *sipo ‘go down’ → *sibo’sibo > MTP hwhiw ~ DRC/KRO sivsw

5.1.2.1 Primary vs. secondary stress in Mwotlap. Nevertheless, certain combinations of *V₁…V₂ have different reflexes according to where they appear in the protoword. Thus, while the regular outcome of word-final *a…i or *a…u in Mwotlap is /e/ (see [1–4]), it regularly takes the form of a higher vowel /i/ word-externally, that is, whenever the etymological vowel /a/ received secondary rather than primary stress. This was obvious in (26), where POC *rapirapi > *raβi’raβi > MTP ypyp. Other examples follow:

(31) Some reflexes of word-internal *a…i and *a…u in Mwotlap:
POC *ma-takut ‘afraid’ → *ma,tayu’tayu > nutrytey
POC *taλiŋa > PNCV *daliŋa ‘ear’ → *daliŋə-na > m-dalŋa-n
PCNV *b’alika ‘in-law’ → *bal’ya-na > kpr’iŋa
PCNV *natu- ‘offspring’ + *m’era ‘child’ → *natu’m’era > n’tiŋeŋe
POC *panu ‘inhabited land’ → *βanu’a-gu > m-βume-k
POC *paŋi- ‘reciprocal prefix’ → *βari- > βy-

This specific rule affecting word-internal syllables is, in fact, no more than vestigial. The functional pressure toward morphological transparency has more recently triggered the elimination of such asymmetrical patterns of sound change (of the type ypyp). Nevertheless, certain symmetrical structures. Due to this process of reanalysis and analogical reshaping, Mwotlap now possesses two sets of bisyllables originating from reduplicated *CaCi (or *CaCu) roots. Those forms that are no longer perceived synchronically as reduplicative have maintained their asymmetrical shape up until now, as in (#154) *ṭaniṭani ‘goatfish’ > MTP ni-triteŋ. Other forms have been reanalyzed phonologically so as to fit a simpler, more iconic pattern, as in POC *tanis ‘cry’; *ṭan̪iṭaŋi → ten téŋ ‘cry: REDUP’. Likewise, the verb yan (< *kani) ‘eat’ productively reduplicates as yenyan, not *yymen, and the noun ne-bet (< *patu) ‘stone’ as ne-βeβet ‘pebbles’, not *nu-βiβet.
5.1.2.2 Asymmetries related to diphthongs. Another instance of asymmetry concerns diphthongs. Indeed, all the languages that possess diphthongal vowels (4.3) only allow them under primary stress, while word-internal syllables can only contain monophthongs. It is typologically well known that diphthongs tend to appear under word stress rather than in unstressed syllables. See, for example, the evolution from Latin to Spanish: Lat. *focum ‘hearth’ > Sp. *fuego ‘fire’ vs. late Latin *foēris ‘hearth’ > ho*gar. Thus, in Koro, the combinations *a...i and *a...u regularly brought about a diphthong /"a/ under word stress, as in (1) and (2), but their outcome inside the word is normally /e/ or /e/, as in (26) *re*bregβ. This raises the question as to how such forms should be represented. On the one hand, one may speak of an asymmetry in historical vowel correspondences, whereby *a...i becomes a diphthong /"a/ under primary stress, but becomes a distinct phoneme /e/ elsewhere—see (31) for Mwotlap. But this situation could also be formulated in synchronic terms, by saying that the diphthongal phoneme /e/ in Koro surfaces as [e] under word stress, and as a monophthong [e] in other contexts—in such a way that a form like [re*bregβ] would be considered the surface form of an underlying /re*bregβ/. This formulation does not seem contradicted by currently available data. If things were to be considered from such a deep phonological level, Koro would then be counted in the group of “symmetrical” languages. Mwerlap shows a comparable situation: for example, the reduplicated form of /"al/ ‘seek’ (< PNCV *ilo ‘see, know’) is [l] for what is probably an underlying /"al /.

A similar pattern is also represented by Vurës, with its diphthong /i\a/ already illustrated in (15) and (16). It only surfaces as [i] under primary stress, whereas it takes the form of a monophthong [i] in all other contexts:

(32) Correspondence between stressed [i] and unstressed [i] in Vurës:
PNCV *tabe ‘love, honor’ → *tabe-tabe > tîmtîam ‘loving’
PNCV *m^ab^e ‘Inocarpus’ → *m^ab^e-m^ab^e > w^nîr^nîk^nîd ‘kidneys’
PNCV *m^era ‘child’ → *m^era-m^era > w^nîr^nîr^nîar ‘children’

Two formulations are possible here. This contrast [i]/[i] may alternatively be described either as the effect of an asymmetry in historical changes (/i/ and /i\a/ being two different phonemes), or as a case of allophonic variation in synchrony ([i] and [i] being two allophones of a unique phoneme /i\a/).27

5.1.2.3 Asymmetries related to vowel length. Finally, one finds a similar phenomenon in Dorig, although it concerns vowel length rather than diphthongs.

Just as Koro, Mwerlap, and Vurës present a monophthong variant of their diphthongs in word-internal positions, the long vowel /a/ of Dorig normally only occurs once within the word.28 Thus, the reduplication of a form like /yan/ ‘eat’ is not *yanyan as would be expected. Now, two details are slightly unusual here. First, the shortened variant, as it were, of /a/ is not [a] but [i]. Second, instead of affecting word-internal syllables as in all other

27. The synchronic morphology of Vurës tends to confirm the second of these hypotheses. Indeed, when /i\a/ must be copied onto a prefix such as mV- ‘prf’ (5.2.4), the vowel of the latter is always a monophthong [i] (or [i]), never [i]; e.g., mV- + miat → mi-miat. This suggests that [i] is indeed the allophone taken by /i\a/ in positions other than under primary stress.

28. Two exceptions are, however, mentioned in appendix 2: (#91) ma*n^atb < °man[t]abu ‘Ptilinopus tannensis’; (#154) ta*ta< °ta¥ita¥i ‘goatfish’.
languages reviewed so far (Lo-Toga, Lehali, Mwotlap, Koro, Vurës), the noncanonical reflex is found on the last syllable of the modern word. Compare (4) *kani ‘eat’ > yan with (33) *kanikani > yanym.

(33) Asymmetrical reflexes of *a...i and *a...u in Dorig:
POC *rapirapi ‘evening’ > *raβirβi > raβriβ
POC *kanikani ‘eat’ > yanym
°sarusaru (#134) ‘wear’ > sarṣar
°m[iw]ab[w]usayi (#104) ‘breathe; take rest’ > maβsry

Interestingly, although Dorig is otherwise a well-behaved oxytone language (e.g., [mar’mar] ‘hard’), the presence of a long /a/ word-internally tends to attract word stress: [raβriβ].

5.2 DEALING WITH WORD-INITIAL SYLLABLES. So far, the demonstration has focused on the description of pairs of syllables starting from the end of the word, that is, the last two or four or six syllables of a given protoform. These pairs of syllables all shared the same structural feature, namely a sequence {stressed σ + posttonic σ}; and indeed this is the pattern for which all vowel changes have been defined so far (cf. the charts in appendix 1).

I have said nothing yet about the third type of syllable that can be found in a protoform and that is neither stressed nor posttonic; namely, an unstressed word-initial (i.e., pretonic) syllable. Given the distribution of primary and secondary stress in the word, this means that the present section will be concerned with protoforms having an odd number of syllables—typically three or five. The rules that have been defined up to this point with regard to vowel hybridization do not make it possible to predict the evolution of this pretonic vowel (hereafter V_i). For example, how will these languages reflect the first /a/ in POC *panua ‘inhabited land’?

(34) POC *panua ‘inhabited land, village’: Hiu βανιο; LTG βανα; LH βανα; LHR ?; VLW n-βανο; MTP na-νο; LMG n-βανα; VRA funu; VRS βανα; MSN βανα; MTA βανα; NUM funu; DRG (βνο); KRO βανο; OLR βανο; LKN βανο; MRL (βνο).

The following overview examines successively the four situations attested in my corpus: (a) V_i remains unchanged; (b) V_i disappears altogether; (c) V_i assimilates to the following vowel; (d) V_i becomes another vowel.

5.2.1 The pretonic vowel is maintained. Not surprisingly, Mota generally preserved pretonic vowels in a perfectly conservative way, as in βανα. The only exception to this principle is when V_i was itself a high vowel /i/ or /u/, which indeed are the only phonemes subject to attrition in that language (3.2). This deletion of pretonic high vowels was not reported by Codrington (1885), and may well be a recent change. Thus, whereas Codrington noted MTA yilala ‘know’ (< POC *kilala), one frequently hears now in informal Mota the form yila starting with two consonants. Other pairs include sinaya ~ snaya ‘vegetable food’ (PNCV *sinaka); yire ~ yre ‘pandanus’ (POC *kire); putepute ~ ptepte ‘sit’; liwoa ~ lwoa ‘big’; niya ~ nya ‘reach’. 
Apart from Mota, Lakon is the only language that has regularly preserved intact the pretonic vowel V₁ (e.g., βanu). This is worthy of notice, because in other respects Lakon is perfectly representative of the process of vowel hybridization—including the deletion of all word-internal unstressed vowels other than the pretonic.

(35) The preservation of pretonic vowels in Lakon:

- PNCV *diŋori ‘Cananga odorata’ > ṭīhyu
- POC *talise ‘Terminalia’ > talih
- PNCV *b‘akare ‘porcupine fish’ > *kp‘ayare > kp‘aye
- POC *bakewa ‘shark’ > *bayea > paye
- POC *tob‘a-ña ‘his/her belly’ > ταkp‘an
- POC *buto-ña ‘his/her navel’ > puton

The assimilation of V₁ to the following vowel, which is the norm in many other languages (5.2.3), is only marginal in Lakon:

(36) The assimilation of certain pretonic vowels in Lakon:

- PEOc *parage ‘Pangium edule’ > *b‘arake > bœræk
- POC *[wa]lasi ‘Semecarpus vitiensis’ > *alasi > æelah
- POC *katou ‘hermit crab’ > *yatou > ytti
- POC *kurita ‘octopus’ > *yurita > wrrt
- POC *kasupe ‘rat’ > *yasuje > wohow

Furthermore, Lakon has even preserved certain pretonic vowels that were lost in all other languages of the area—including the otherwise conservative Mota. For example, compare the reflexes of word-initial *a in Lakon and Mota:

(37) The preservation of pretonic vowels in Lakon:

- POC *aliton ‘firewood’ > LKN alti ~ MTA lito
- PNCV *ʔaŋari ‘Canarium’ > *aŋai > LKN ayae ~ MTA yai
- PNCV *ʔaβua ‘turtle’ > *awua > *aũwa > LKN awa ~ MTA āwa

As far as the preservation of pretonic vowels is concerned, Mota and Lakon are therefore the two most conservative languages of the whole group. This will make these two languages valuable when it comes to lexical reconstruction (6.1).

5.2.2 The pretonic vowel is deleted. The total deletion of V₁ had different implications, and indeed shows a totally different distribution across the area, depending on the phonotactic structure of the protoform. Sometimes, the etymon—or more exactly, the form taken by the etymon in the last stage before vowel reduction took place—lacked a consonant before and/or after V₁, thus taking the form #VCV- or #CVV- or #VVV-. In that case, the deletion of V₁ caused no problem in the majority of languages, as shown by the Mota examples in (37), as well as the Vera’a data in (38).

(38) The loss of pretonic vowels in Vera’a:

- PNCV *ʔaβua ‘turtle’ > *awua > *aũwa > nũwu
- (POC *qebal) PNCV *ʔebe-gu ‘my mat’ > *g‘ba-gu > bœ-k
- (POC *rumaq) PNCV *yum‘a-gu ‘my house’ > *i‘m‘a-gu > ṭyn‘ɔ-k
(POC *waga) PNCV *waga-gu ‘my canoe’ > *a'ga-gu > kə-k ‘POSS CLF for vehicles, 1.SG’

But the situation was different when V₁ was surrounded by two consonants in a #CViCV- pattern. In this case, its deletion logically implied the creation of an initial consonant cluster #CCV- at the word boundary. This is a phonotactic pattern that most Oceanic languages avoid—and that indeed was avoided in my entire corpus, except for a single language: Dorig (and to a lesser extent, its dialect Koro).

(39) Emergence of word-initial consonant clusters in Dorig:
POC *kasupe ‘rat’ > *ya'suβε > yaw;
PEOC *bakura ‘Calophyllum sp.’ > *ba'yura > byur;
PNCV *gamuyu ‘you plural’ > *kaniu > kami;
PNCV *b'akare ‘porcupine fish’ > *kp'a'are > kp'yar;
PNCV *m’alau ‘megapode’ > *jm’alau > jm’la;
POC *kurita ‘octopus’ > *yu’rita > wrt.

As a consequence, a fair part of the Dorig lexicon consists of #CCV- words, with no restriction whatsoever on the nature of the consonants that may cluster together. This phonological characteristic of Dorig is remarkable not only in the Pacific context, but also on a worldwide scale. As far as northern Vanuatu is concerned, word-initial CC clusters are sometimes attested (see the Mota examples cited earlier), but always marginally—unlike Dorig, where this phonotactic pattern is perfectly standard.

5.2.3 The pretonic vowel is a copy of the following vowel. The third solution, by far the best represented throughout my corpus, consists of the pretonic vowel V₁ totally assimilating to the vowel of the immediately following syllable. This change was in fact the norm for ten languages: LHI, LHR, VLW, LMG, VRA, VRS, MSN, NUM, KRO, and OLR—see (34) above. The phenomenon is illustrated here with Mwesen:

(40) Assimilation of V₁ to the following vowel in Mwesen:
PNCV *bisu-gu ‘my finger’ > pu’su-k; POC *katou ‘hermit crab’ > yu’nu;
POC *nako-ña ‘his/her face’ > na’y’a-m; POC *bakewa ‘shark’ > bayo’a > pa’gy;
POC *tob’a-ña ‘his/her belly’ > ta’pr’am; POC *kapika ‘Syzygium’ > y’βix;
PNCV *gamami ‘we EXCL’ > ke’mem; PNCV *gamuyu ‘you PL’ > *kamiu > k’ni.

5.2.3.1 Historical interpretation vs. synchronic model. The loss of the phonetic identity of V₁ was to be expected during such a massive vowel reduction process as the one that took place in the entire area. This alteration was initially due to the prosodic status of V₁ as a pretonic vowel, and therefore to its articulatory and acoustic weakness. In a way, this makes the preservation of V₁ in Lakon even more striking. From a historical perspective, it is likely—though not necessary—that at least some of these languages went through a schwa stage, whereby all pretonic vowels became centralized before assimilating to the following vowel: POC *nako-ña > *na’y’a-m. This hypothesis is validated somewhat by the forms attested in Hiu and Lo-Toga, as if these two Torres languages provided the missing link to account for the forms found in the Banks Islands: for example, LTG pa’hu-k ‘my finger’, na’y’a-na ‘his/her face’, γaβiγa ‘Syzygium’, ke’mem ‘we EXCL’, k’ni ‘you PL’.
In fact, an alternate analysis that would adopt a synchronic perspective would be possible for all these languages. Rather than assuming that Vi preserved its vowel slot (unlike Dorig) while borrowing its phonetic quality from the next vowel, it would be equally accurate to say that Vi disappeared altogether during the vowel reduction process in all these languages as well as in Dorig (*nako-ña > njoy); and that a phonological rule of vowel epenthesis later took place in all these languages (except Dorig), that would break word-initial consonant clusters by inserting a clone of the following vowel (*njoy → njoy). Indeed, this rule is required as it is by the synchronic phonological analysis of each of these languages, regardless of the etymology of the lexical items: for example, Eng. *play cards was borrowed into Mwotlap under the form belekat.

Even if they take a different perspective, the historical explanation (with a schwa stage and feature assimilation) and the synchronic analysis (with vowel epenthesis) are complementary and account for two facets of the same phenomenon (see François 2000). Certain instances of hesitation in fluent speech and reanalyses (François 2001:1029) strongly suggest that, from a cognitive point of view, these lexical items are in fact memorized as if they consisted of only a single vowel that distributes itself into as many vowel slots as it can. This can be formulated using the autosegmental approach and a multi-tiered representation separating vowels from consonants (“planar V/C segregation” in McCarthy [1989]):

\[(41)\] \(\text{MSN: ‘his/her face’ } \{ n \_ v \_ n \}_c \times \{ \_ v \} \Rightarrow /njoy/\)

Vera’s involves the distribution of the same vowel not only into two, but sometimes three vowel slots (see 4.4.2):

\[(42)\] \(\text{VRA: ‘yesterday’ } \{ n \_ n \_ r \_ \}_c \times \{ \_ v \} \Rightarrow /naron/\)

To be precise, the word-final vowel slot of Vera’s goes with a condition, namely that this vowel must be [–high]. Hence the phonological formula of (43):

\[(43)\] \(\text{VRA: ‘octopus’ } \{ w \_ r \_ ? \_ [–high] \}_c \times \{ i \} \Rightarrow /wiri/\)

This analysis fits most of the data for this set of “vowel-copying” languages.

5.2.3.2 Vowel copy and the phonological word in Mwotlap. In general, Mwotlap treated pretonic vowels in exactly the same way as Mwesen and other similar languages, that is, by assimilating them to the following vowel, as in *gamami > kemem; *gamuyu > kimi. But what makes the picture different here is that Mwotlap systematically treated the nominal article *na (as well as a number of other morphemes preceding nouns, adjectives, and verbs) as if it were integrated into the phonological noun. While still functioning syntactically like any article in the area, including the possibility of its absence, *na became a prefix in Mwotlap. 29

On the one hand, all other languages treated a sequence {Article + Noun} as if it consisted of two distinct phonological words, leaving the article aside, and processing the first syllable of the noun root as a pretonic syllable: for example, *na mata-gu (‘my eyes’) became VRS na mætæ-k. On the other hand, Mwotlap treated the same sequence as a sin-

29. The phonology, morphology, and syntax of noun articles in northern Vanuatu are outlined in François (forthcoming).
ingle word, in such a way that what was elsewhere a pretonic vowel \( V_i \) was eventually to be processed as a word-internal postonic vowel. When the noun consisted of an odd number of syllables (e.g., \(*n\alpha-ma\-ta-gu\) with three), then the article \(*na\) logically received stress, in which case it was systematically preserved as /\( na /\), as in \(*n\alpha-ma\-ta-gu > MTP na\-mte\-k\). In the latter form, no vowel copying took place, because the etymon had no pretonic vowel \( V_i \); thus \(*n\alpha-ma\-ta-gu\) evolved like any four-syllable etymon would have in Mwotlap (cf. \(*\thetaa\'kau > tam\_ye 'mat'). As a corollary to this point, the protoforms that can be chosen to illustrate the process of pretonic vowel assimilation in other languages, as in (34) or (40) above, are generally not relevant for Mwotlap, because the addition of a prefix changed the whole phonotactic structure: for example, in (34), MTP \( na\-pu\) does not illustrate the phenomenon of vowel copying as the other languages do.

This does not mean that Mwotlap ignored this vowel-cloning process altogether, but that it applied it to different forms. There are two kinds of etyma that can illustrate this point for Mwotlap. One would consist in taking the same etyma as for other languages, but only in those syntactic contexts where Mwotlap removes the article (François 2001:187–214; forthcoming), as when the noun functions as a modifier to another noun, or is incorporated into a verb. In those cases, the protoform had no prefixed article, and thus behaved in the same way as in (40). Thus, while the article is included in the citation form \( na\-pu\) ‘village’ (< \(*n\alpha-\beta\alpha\'nua\)), it disappears in \( na\-he\ \beta\alpha\nuo\ ‘name of village’ (< \(*\beta\alpha\'nua\)). Indeed, like most of its neighbors, Mwotlap avoids consonant clusters word-initially, and automatically inserts a vowel slot after the first consonant: a form like \(*\alpha\nuo\) would be excluded.

The second way to illustrate vowel copy in Mwotlap is by choosing etyma with an even number of syllables and seeing what their reflex will be with the article \(*na\) as an extra syllable. Remarkably, for all these protoforms, Mwotlap is perfectly systematic in applying the rule of vowel assimilation to the pretonic vowel \( V_i \)—in this case, to the article \(*na\):

\[
\begin{align*}
\text{(44) The rule for vowel copy on the article \(*na\) in Mwotlap:} \\
\text{POC \(*na\) kutu ‘louse’ > \(n\\-\gamma\\)it;} & \text{POC \(*na\) molis ‘Citrus sp.’ > \(n\-\mathfrak{p}\nu\)\(\mathfrak{m}\);} \\
\text{POC \(*na\) bebe ‘butterfly’ > \(n\-\mathfrak{b}\)\(\mathfrak{m}\);} & \text{POC \(*na\) pose ‘paddle’ > \(n\-\gamma\\)w\(\mathfrak{m}\);} \\
\text{POC \(*na\) boni ‘night’ > \(n\-\mathfrak{p}\nu\)\(\mathfrak{o}\);} & \text{POC \(*na\) bulit ‘gum’ > \(n\-\mathfrak{p}\nu\)\(\mathfrak{ul}\);} \\
\text{(POC \(*\alpha\nuo\) \(*na\) \(\beta\)\(\alpha\nuu\-\gamma\)u\(\gamma\) ‘my country’ > \(n\-\beta\mathfrak{m}\)\(\mathfrak{e}\)-k).} \\
\end{align*}
\]

This process accounts for the emergence of one of the most complex rules of Mwotlap morphology: namely, the mechanism of vowel copy on eight prefixes (François 1999; 2000; 2001:96–128). For historical reasons, this rule applies exclusively to those lexical roots that begin with a single consonant (reflecting a protoform in which the prefix was pretonic, as in \(n\-\beta\mathfrak{m}\)\(\mathfrak{e}\)-k < \(*na\ \beta\nuu\-\gamma\)u\(\gamma\)) and never to those that begin with two consonants (reflecting a protoform in which the prefix received secondary stress, such as \(n\\-\mathfrak{p}\nu\nu < \(*na\ \beta\alpha\'nua\)).

Incidentally, the need to formulate this principle as an ongoing phonological rule in synchrony—rather than just considering it as the vestigial result of historical changes—is proved by the shape of certain loanwords. Thus \#CV- loans must make the vowel copy (\(n\-\mathfrak{b}\nu ‘cat’ < \text{Eng.}\ \mathfrak{p}\nu\); \(n\-\mathfrak{b}\nu\)\(\mathfrak{d}\)\(\nu\)\(\gamma\)e ‘potato’ < \text{Fr.}\ \mathfrak{p}\nu\nu\nu\nu\) whereas \#CCV- loans normally do not (\(n\-\mathfrak{m}\)\(\gamma\)\(\mathfrak{kat} ‘playing cards’; \(n\-\mathfrak{p}\nu\nu\)\(\mathfrak{m}\)\(\mathfrak{l}\)\(\gamma\)\(\mathfrak{en}\)
In other words, Mwotlap speakers have reanalyzed as a phonological constraint in synchrony what is fundamentally the result of complex vowel changes in history involving vowel hybridization and feature assimilation.

5.2.4 The pretonic vowel is altered. Finally, the last possibility is for the pretonic vowel $V_i$ to be reflected with neither its original quality nor a quality directly borrowed from the following vowel, but with yet another vowel.

In Hiu and Lo-Toga, this occurs systematically, because all pretonic vowels are reflected as the central vowel /ʊ/: see (24) LTG $\text{ŋ}^\text{h}u\text{wə}$, $\text{ŋ}^\text{y}e\text{wə}$, $\text{ŋ}^\text{r}i\text{tə}$. Marginally, a tendency toward vowel copy seems to be emerging in Hiu, with such forms as $\text{ŋ}^\text{y}u\text{su\text{wə}}$ as a variant to $\text{ŋ}^\text{y}u\text{su\text{wə}}$.

A language that appears to be less predictable in this respect is Mwerlap. On the one hand, Mwerlap shows instances both of pretonic vowel preservation (e.g., *papine ‘woman’ > $\text{b}^\text{a}\text{b}^\text{e\text{ni}}$) and of assimilation to the following vowel (*talai ‘clam’ > $\text{u}^\text{li}$). But on the other hand, it also has numerous instances in which $V_i$ became a different vowel:

(45) Alteration of pretonic vowels in Mwerlap:
POC *ma-turu ‘sleep’ > $\text{ma}^\text{t}^\text{u}r^\text{u}$; POC *katou ‘hermit crab’ > $\text{ya}^\text{t}^\text{u}\text{w}^\text{u}$;
POC *tama-gu ‘my father’ > $\text{ta}^\text{m}^\text{o-k}$; POC *tob*-a-gu ‘my belly’ > $\text{t}^\text{a}k^\text{a-k}$;
POC *tob*-a-ña ‘his/her belly’ > $\text{t}^\text{a}k^\text{a-n}$;
PNCV *n̂a*rya ‘eel’ > *marea > $\text{m}^\text{e}\text{r}^\text{e}$; PNCV *br*ẽ’a ‘outside’ > $\text{b}^\text{e}\text{r}^\text{e}$;
PNCV *b*⇌*rik* ‘today’ > $\text{k}^\text{e}\text{ri}\text{u}$; PNCV *g*anuyu ‘you pl.’ > *kamii > $\text{k}^\text{a}\text{m}^\text{i}$.

A probable scenario is that the pretonic vowel was first reduced to schwa before undergoing partial assimilation to the following vowel: *$V_i$ > *$o$ > /l/ before spread vowels, *$V_i$ > *$o$ > /a/ before rounded vowels, *$V_i$ > *$a$ > /l/ before /l/. In this sense, Mwerlap followed essentially the same change mechanism as vowel-copying languages, with the only difference being that the assimilation of $V_i$ to the following stressed vowel was only partial.

In a way similar to Mwotlap, the article *na in Mwerlap is integrated into the noun as a prefix. As a consequence, it takes part in these vowel alterations in the same way as any initial syllable would—sometimes fully assimilating to the next vowel (e.g., $\text{n}^\text{t}^\text{a}$-$k^\text{a}$ ‘taro’), and sometimes showing only partial assimilation:

(46) Alteration of the vowel of the article *na in Mwerlap:
POC *$\text{n}^\text{a}$-pulan ‘moon’ > $\text{n}^\text{a}$-$\text{b}^\text{u}l^\text{u}$; POC *$\text{n}^\text{a}$-patu ‘stone’ > $\text{n}^\text{a}$-$\text{b}^\text{a}k^\text{a}t$;
POC *$\text{n}^\text{a}$-ma-gu ‘my drink (poss CLF)’ > $\text{n}^\text{a}$-$\text{m}^\text{a}$-$\text{k}$;
POC *$\text{n}^\text{a}$-kadik ‘black ant’ > $\text{n}^\text{e}$-$\text{y}e\text{n}$.

Finally, the language of Vurës shows a situation similar to Mwerlap. While the general rule was for $V_i$ to copy the quality of the following vowel (PEOC *baku$r^\text{a}$ ‘Calophyllum sp.’ > $\text{b}^\text{u}$-$\text{r}^\text{e}$; POC *katou ‘hermit crab’ > $\text{w}^\text{e}$-$\text{r}^\text{e}$; POC *kurita ‘octopus’ > $\text{w}^\text{r}^\text{e}$), there was one exception. When the stressed vowel resulting from hybridization was a high monophthong (either /i/ or /ü/), then $V_i$ became the corresponding high mid vowel. This explains why so many words in Vurës have the shape (C)(C)i(C) or (C)ü(C)i(C):
(47) Alteration of pretonic vowels in Vurës:
POC *paliji ‘grass’ > βlisis; PNCV *gamuyu ‘you pl.’ > *kamiu > kmi;
POC *banic ‘wing’ → *bani-gu ‘my arm/hand’ > bni-k;
PNCV *basusu ‘give birth’ > βosii; POC *natu-gu ‘my child’ > niti-k;
POC *takuru ‘back’ > twi‘behind, after’.

In the spirit of (42–43) above, these modern forms could be represented using a simple, autosegmental formula:
\[
\{ C_1 \_\text{–high} \} C_2 \_ C_3 \} C \times \{ V \}_v
\]
This formula should cover both total assimilation (copy) and partial assimilation of the pre-tonic to the following vowel, and thus fit most lexical items based on three-syllable etyma:

(48) Total and partial assimilation of the pretonic in Vurës (an autosegmental representation):
‘Calophyllum’ { b _\text{–high} y r } C \times \{ u \}_v \Rightarrow /bu\text{uyut}/
‘hermit crab’ { y _\text{–high} t } C \times \{ \emptyset \}_v \Rightarrow /\text{ytut}/
‘octopus’ { w _\text{–high} r t } C \times \{ i \}_v \Rightarrow /\text{bili}/
‘grass’ { β _\text{–high} l s } C \times \{ i \}_v \Rightarrow /\text{li}/
‘behind’ { t _\text{–high} w r } C \times \{ ü \}_v \Rightarrow /twi\text{ut}/

Just as in Mwotlap and Mwerlap, several morphemes in Vurës behave like any word-initial pretonic syllable, thereby revealing their prefixal status. For example, the four TAM markers:\nIV- ‘PROG’, mV- ‘PRF’, γV- ‘STATIVE-FUT’, γVtV- ‘NEG’\ninherit their vowel from the first syllable of the following verb root (e.g., γa-ban ‘will go’, yrte-le ‘did not take’). But when the latter is a high vowel /i/ or /u/, then the rule is normally for the prefix vowel to take the corresponding high mid quality, as in tw-sürsür ‘is singing’; mt-tiŋ ‘has created’; γu-liwu ‘is big’; γu-liwal ‘do not know’.

This last point illustrates once again how the complex patterns of vowel change can still affect the synchronic morphology of modern languages. Section 6 examines in detail the various ways in which vowel hybridization, as a phonological process in history, has left its traces in the lexicons and grammars of all these northern Vanuatu languages.

5.3 SUMMARY TABLE. The various analyses presented in the preceding pages are summarized in table 4. For each language, the following information is given:
• whether etymological posttonic vowels (V₂) were lost during vowel reduction in “all” or in just some instances (3.1, 4.4);\n• whether vowel hybridization took place: that is, whether the reflexes of stressed V₁ were regularly conditioned by posttonic V₂ before their deletion (3.2);\n• whether the outcome of vowel hybridization under secondary stress was the “same as” or “different from” the outcome under primary stress (5.1);\n• whether etymological pretonic vowels (V₁) were preserved unchanged, or were altered, or underwent total or partial assimilation to the following vowel (5.2).

Where more than one option was valid for the same language, I indicate the one that is statistically most significant.
6. VOWEL HYBRIDIZATION AND LANGUAGE RECONSTRUCTION.

Beyond its intrinsic interest for Oceanic linguistics or typological phonology, the historical model of evolution I propose here also constitutes a useful key to the understanding of a variety of linguistic facts in all the languages of northern Vanuatu.

I divide this section into two parts: first, the domain of LEXICAL RECONSTRUCTION; and second, the study of HISTORICAL MORPHOLOGY and its syntactic corollaries, especially regarding the marking of objects on the verb and possessors on the noun.

6.1 LEXICAL RECONSTRUCTION

6.1.1 Methodological preliminaries. Through a detailed examination of all Torres and Banks languages, I have attempted to track the evolution of their vowels, whether positioned at the end, middle, or beginning of words. Setting aside a certain number of exceptions, most of the modern forms attested in the Torres and Banks languages should now appear unproblematic from a historical point of view.

<table>
<thead>
<tr>
<th>LGG</th>
<th>NAME</th>
<th>LOSS OF POSTTONIC V2?</th>
<th>VOWEL HYBRIDIZATION?</th>
<th>PRIMARY VS. SECONDARY STRESS OUTCOME?</th>
<th>PRETONIC VOWEL Vi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hiu</td>
<td>Hiu</td>
<td>[–sonorous] &gt; 0</td>
<td>yes</td>
<td>different</td>
<td>altered &gt; /a/</td>
</tr>
<tr>
<td>LTG</td>
<td>Lo-Toga</td>
<td>[–sonorous] &gt; 0</td>
<td>yes</td>
<td>different</td>
<td>altered &gt; /a/</td>
</tr>
<tr>
<td>LHI</td>
<td>Lehali</td>
<td>all</td>
<td>yes</td>
<td>different</td>
<td>total assimilation</td>
</tr>
<tr>
<td>LHR</td>
<td>Lehalurup</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>VLW</td>
<td>Volow</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>MTP</td>
<td>Mwotlap</td>
<td>all</td>
<td>yes</td>
<td>same except *a...(i,u)</td>
<td>total assimilation (including prefixes)</td>
</tr>
<tr>
<td>LMG</td>
<td>Lemering</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>VRA</td>
<td>Vera’a</td>
<td>[–sonorous] &gt; 0</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>VRS</td>
<td>Vurës</td>
<td>[–sonorous] &gt; 0</td>
<td>yes</td>
<td>same except diphthong</td>
<td>partial assimilation (including prefixes)</td>
</tr>
<tr>
<td>MSN</td>
<td>Mwesen</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>MTA</td>
<td>Mota</td>
<td>high *i/u &gt; 0</td>
<td>no</td>
<td>same</td>
<td>unchanged (except high *i/u &gt; 0)</td>
</tr>
<tr>
<td>NUM</td>
<td>Nume</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>DRG</td>
<td>Dorig</td>
<td>all</td>
<td>yes</td>
<td>same except long vowel</td>
<td>deleted</td>
</tr>
<tr>
<td>KRO</td>
<td>Koro</td>
<td>all</td>
<td>yes</td>
<td>same except diphthong</td>
<td>total assimilation</td>
</tr>
<tr>
<td>OLR</td>
<td>Olrat</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>total assimilation</td>
</tr>
<tr>
<td>LKN</td>
<td>Lakon</td>
<td>all</td>
<td>yes</td>
<td>same</td>
<td>unchanged</td>
</tr>
<tr>
<td>MRL</td>
<td>Mwerlap</td>
<td>all</td>
<td>yes</td>
<td>same except diphthongs</td>
<td>partial assimilation (including prefixes)</td>
</tr>
</tbody>
</table>
To take just one example, such forms as MTP na-tya, VRA ?urua, and LKN taro ‘Columba vitiensis’ now clearly appear to be perfectly regular and predictable reflexes—taking into account each language’s own history—of their PNCV etymon *taroa (‘white-throated pigeon’). Even better, had not this etymon already been reconstructed based on other languages (Clark, in prep.), the model and rules proposed in the present study should be powerful enough to calculate the form *taroa based only on these three modern reflexes.

Indeed, the absence of vowel copy on the article na- in Mwotlap indicates that it was followed by an odd number of syllables, in this case three: hence *tVrVV. The quality of the pretonic vowel is revealed by Lakon: hence *tarVV. As for the identity of the last two vowels, the charts in appendix 1 for both Mwotlap and Lakon show that /a/ may reflect either *o…e, *o…a, or *o…o: the penultimate vowel of the protoform was thus necessarily *o, hence *taroV. Finally, the Vera’a final sequence /u/ is the regular reflex of a sequence *oa with no intervening consonant (see fn. 26). Consequently, the only possible source for these three modern forms necessarily had the form *taroa.

Up until now, I have always endeavored to illustrate each phonetic change with etyma already well established, either from Proto-Oceanic or from Proto–North-Central Vanuatu (see fn. 5). But now that all regular correspondences (appendix 1) as well as the general processes of change have been firmly established, it becomes possible to utilize them as a tool for the discovery of new unknowns. In particular, one can reconstruct certain lexical items that are particularly well reflected in northern Vanuatu, but whose protoforms were until now unclear, due to the complexity of modern vowel systems and the embarrassing variety of attested forms. The result of this research takes the form of a selection of lexical reconstructions, given in appendix 2.

6.1.2 Paving the way for subgrouping studies. The reconstructions proposed in appendix 2 are not necessarily intended to describe any specific protolanguage, such as a hypothetical “Proto Torres–Banks.” Such a claim would require external data and further discussion that lie beyond the scope of the present study. Nevertheless, subgrouping matters are not totally absent from this list of reconstructions, albeit indirectly.

The rationale behind this list is to show how the understanding of vowel hybridization constitutes the first necessary step in any effort toward unraveling the genetic history of northern Vanuatu languages. Indeed, not only does it help assess the cognacy of modern forms, but it even permits us to reconstruct protoforms. To take just one example, the correspondences regarding vowels and consonants now make it clear that LHI høy and LKN sa ‘(put on, wear)’ are cognate; and that they both point toward an etymon of the form °saru.30 The other languages of the area suggest the same protoform:

(134) °saru ‘put on, wear (clothes+)’: LTG hør; LHI høy; MTP høy; VRS sør; MTA sar; DRG sar; LKN sa.

Obviously, this stage of identifying cognate sets and reconstructing likely protoforms is a prerequisite before any language comparison—whether inside or outside the area under study—can even begin. Only then will it become possible to track the geo-

---

30 In order to distinguish typographically my own reconstructions from already established etyma, I shall use the degree sign ° instead of the asterisk *, hence °saru.
graphic expansion of each etymon’s reflexes, and thus to tackle the issues of subgrouping and protolanguage reconstruction per se. The complex issues of genetic classification must be kept for future research. However, I briefly illustrate here, with two examples, the usefulness of the vowel hybridization model when it comes to formulating fine-grained subgrouping hypotheses based on lexical data.

Despite their variety, the forms taken by the first excl. du pronoun can be grouped in two sets. In the first set, the pronoun’s last vowel is the regular reflex of a sequence *u…a: this is the expected outcome of a protoform *gama’rua (< *rua ‘two’). In the second set (underlined below), the hybridization pattern involved is *a…u, pointing to a truncated variant *ga’maru:

(67) **gamarua ~ **gamaru ‘1.excl du independent pronoun’: Hiu kama’ko; LTG kamar; LHI mæyo; VLW gemyu; MTP kamyu; LMG kamaru; VRA kamadur; VRS kumuruk; MSN kemenu; Mta (kara); Num kamar.

Interestingly, the reflexes of *gamaru (setting aside Lo-Toga) outline a consistent geographical area: the six southernmost languages of the Banks group. Along with additional evidence (François 2004), this sort of observation could well prove helpful in defining shared innovations and diagnosing subgroups—in this case, a possible southern Banks branch (?) within the small group of northern Vanuatu languages.

The same method can also help define the precise form taken by a well-known Oceanic etymon in this particular area. For example, Torres and Banks languages designate kava with forms that generally contain a front vowel:

(61) °… ‘kava’: Hiu ya; LTG yi; VLW na-ya; LHR n-ya; MTP na-ya; LMG n-ya; VRA yie; VRS yi; MSN ye; Mta yea; DRG ye; KRO ye; OLR ye; LKN ye; MRL (nas-melop).

Most of these items reflect a premodern form *ya, while a few (HIU, LHR, VLW, MTP, LMG) suggest *ya. This matches exactly the usual distribution of reflexes when the etymon shows a sequence */aya/. Consider the forms for ‘eel’ (PNCV *maraya):

(#95) °maraya ‘moray, eel’ [PNCV *maraya]: Hiu ?; LTG mari; LHR ?; VLW n-maya; MTP na-mya; LMG ?; VRA mere; VRS mari; MSN ?; Mta mare; Num ?; DRG mere; KRO mere; OLR mere; LKN mare; MRL ne-mere.

This means that the most probable reconstruction for ‘kava’ in the Torres and Banks would take the form °ya. Crucially, this might be an irregular reflex of POC *kawar(i) ‘root with special properties;31 kava’ (Lynch 2002), involving an unexpected change of glide from *w to *y. *kawa(r) → *kaya > *ya. If this hypothesis were to be confirmed by additional data, such an instance of irregular sound change would constitute strong evidence toward the identification of a shared innovation, and hence of a possible subgroup.32

31. POC *kawari was also retained under the form *yawari > *yoari ‘root’—see (#63).

32. The precise shape of the *kaya isogloss remains to be ascertained. Although most other Vanuatu languages show a reflex of ‘early post-PCNV *maloku’ (Lynch 2002), *kaya is also witnessed in southern Espiritu Santo, with Araki hae ‘kava’ (François 2002:250). The sequence /eel/ recalls the form mara ‘eel’ taken by PNCV *maraya in several nearby languages, such as Raga (Clark, in prep.).
6.1.3 Tracing back the paragogic *-i. In sum, although vowel hybridization per se cannot be taken as diagnostic evidence for subgrouping matters (see 3.4), it proves useful when it comes to identifying cognate sets and reconstructing protoforms. As we have just seen, the evidence it provides is all the more valuable when it helps trace back irregular sound change. In this regard, another instance of formal irregularity in the lexicon deserves discussion here, because of its statistical significance in northern Vanuatu: the existence, in a number of lexemes scattered throughout the area, of a non-etymological final vowel *-i.

A first observation is that for some lexemes, several northern Vanuatu languages appear to have unexpectedly preserved a final consonant of a POc etymon that normally was supposed to have disappeared long ago. For example, the final *p in POc *ruap 'high tide', as expected, was deleted in MTP (*ruap > *rua > yu); but it was surprisingly preserved in MTA ruaβ, NUM ruaβ, MRL ruεp. Once again, the key to the problem is not the history of consonants, but of vowels. These three forms become perfectly regular again if their etymon is reconstructed not as *rua(β), but as *ruaβ-i, with an extra vowel *i. Indeed, the charts of these three languages in appendix 1 reveal that the regular reflexes of *a...i are MTA /a/, NUM /ɛ/, MRL /ɛ/. And, of course, the addition of a word-final vowel had the effect of shifting word stress by one syllable, which explains why the vowel hybridization subcase here is no longer *u...a (as in *rua > yu), but *a...i (as in *ruaβ-i > ruεp). In other words, for the same etymon, two reconstructions must be proposed, one with and one without this extra vowel *-i: ʰrua ~ ʰruaβi; or to make it shorter, ʰrua[i].33

At first sight, this vowel *-i is reminiscent of the former POc applicative suffix *-i, which could explain its presence on transitive verbs. However, none of these modern languages uses the suffixed vs. unsuffixed contrast as a morphosyntactic device, such as opposing intransitive and transitive forms. Furthermore, *-i is found on nouns as well as on verbs, with no clear semantic contribution, and therefore must be disregarded as a genuine morpheme. This *-i should better be described as a “paragogic” vowel: that is, a device that allows consonant-final languages to regularly “create phonetically open syllables by inserting a ‘default’ vowel after a coda” (Klamer 2002:368).

The existence of this paragogic vowel, also known as an “echo-vowel” (Lynch 2000:73), has already been documented for several areas of the Austronesian family, including in Clark’s (1985:204) reconstruction of PNCV. But whereas it is generally observed directly in the form of a word-final /i/, what makes the northern Vanuatu area worthy of mention is that due to the vowel reduction process, this paragogic *-i is never present as such in the modern forms. Its presence can only be inferred by analyzing the phonetic marks it has left in the modern lexicons, resorting to the vowel hybridization model as a heuristic tool. In the examples below, those reflexes that point to an augmented protoform are underlined. They can be recognized, thanks to the presence of the etymon’s word-final consonant.34

33. When citing protoforms, I will follow here Clark’s (in prep.) usage to group the final *i with the preceding consonant, because the latter got preserved only in the presence of the *i suffix: e.g., PNCV *liko-ti ‘tie up, tether’ rather than *likot-i.
34. In some instances, even the presence of that consonant must be inferred from the traces it has left in the modern word. For example, although LKN tu ‘stand’ resembles the plain form of the etymon *tūu, its long vowel presupposes the former presence of /ɛ/ (see 4.3.2), which in turn betrays the former presence of paragogic *-i! That is, tu < *tur < *turi < *tūu-ri < *tuqr + *-i.
(49) POC *saqat → PNCV *saqa-ti > *saaf[i] ‘bad’: HIU sa; LTF hi; LIH set; LHR set; VLW hil; MTP hit; LMG seí; VRS (tis); MSN (tis); MTA tatas; NUM tis; DRG itas; KRO sa; OLR sa; LKN sa; MRL st.

(50) POC *tuqur → *tuuy-ti > *tuuy[i] ‘stand’: HIU tu; LTF tu; MTP úy; LMG (túr); VRS úir; MSN tur; MTA tur; NUM tur; DRG tur; KRO tur; OLR úy; LKN ú; MRL tur.

(51) POC *ma-takut → *matayu[i] ‘fear, be afraid’: LTF ma(tay)tú; LIH matò; LHR metfè; VLW meteýtý; MTP me(ty)tey; LMG mekoý; VRS máluy; MSN mekoý; MTA matayay ∼ matayú; DRG matuw; KRO mawúr; OLR mawúr; LKN mawúr; MRL mawúr.

(52) PNCV *bala-ti ‘wattled structure’ → *bara[i] ‘take (stones) with tongs’: MTP bal; VRS bal; MTA pala ~ palat; NUM bala; DRG balt; LKN pekel.

As mentioned earlier, the paragogic *-i is not restricted to verbs or adjectives, and is also found in several nouns (see also [#108]):

(53) POC *tawan > *tawa[ni] ‘Pometia pinnata’: LTF towá; MTP na-twen; LMG ñewen; VRS ñewen; MSN ñewen; MTA tawan.

(54) POC *rarap > PNCV *rara[bí] ‘Erythrina indica’: MTP na-yay; VRS ñip; MSN ñip; MTA rara ∼ raraβ; DRG raraβ; LKN raraβ.

(55) POC *ñamuk > PNCV *namu-ki > *namu[yi] ‘mosquito’: LTF nem; MTP ne-nem; VRS nam; MSN nem; MTA nam; NUM nem; DRG ñem; KRO mun; OLR mun; MRL ne-nem.

(56) POC *quran > *ura[ni] ‘lobster’: HIU (êkay); LTF (êkay); MTP n-yy; VRS n/ir; VRS y; MSN y; MTA yra; NUM w/or; DRG or; KRO raf; OLR n/ir; LKN iwra; MRL n-oor.

Although certain augmented protoforms are well represented throughout the area—see (49), (50), (53), (54)—the phenomenon seems to be concentrated toward the south of the area, especially in Gaua. The language that possesses the greatest number of augmented reflexes is no doubt Lakon, a deviant language in many respects. Table 5 lists a selection of modern Lakon forms, whether verbs or nouns, that show indirect traces of the paragogic vowel *-i; they are shown in contrast with languages from further north (such as Mwotlap, Mwesen, and Vurës) that reflect a plain form.

6.2 HISTORICAL MORPHOLOGY. In sum, the model of vowel hybridization that is developed here makes it possible to reconstruct the precise phonological shape of words in earlier historical stages. On some occasions, it even helps us retrieve the earlier presence of certain phonemes that have now disappeared from the modern languages. This powerful tool can be of great help when it comes to unraveling the history of their morphosyntax.

In this section I mention the major aspects of grammatical analysis that can benefit from this reconstruction of vowel change: first, the verbal morphology related to object-marking and valency; second, the nominal morphology related to possession.
6.2.1 Verbal morphology and the coding of arguments

6.2.1.1 Plural subject morphology in Lo-Toga. In Lo-Toga, several verbs show a different root according to the number of the subject. In some instances, the strategy used is pure suppletion, as in *met ‘die:SG’ vs. *papun ‘die:PL’. But in other cases, the stem alternation seems to amount historically to a derivational process: thus *tu ‘stand:SG’ vs. *bertur ‘stand:PL’; *hay ‘sit:SG’ vs. *berhayir ‘sit:PL’; in *lie:SG vs. *beraβiβ ‘lie:PL’; *kare ‘cry:SG’ vs. *berkari ‘cry:PL’.

These plural verb roots, which have become opaque in synchrony, can be analyzed in the perspective of historical phonology. It appears that the modern irregularities, in fact, betray a perfectly regular morphological process in the protolanguage, combining prefixation and suffixation. On the one hand, the element *ber- evidently reflects the POC prefix *pari- ‘unified or conjoined action by a plural subject’ (Pawley 1973:151). On the other hand, the quality of word-final vowels and the frequent presence of an extra consonant point toward a suffix *-i (table 6) in a way very similar to 6.1.3 above.35

In other words, and unlike Banks languages further south, Lo-Toga has clearly kept a trace of the POC circumfix *pari-…-i, which has been described as “combined or repeated action by a plurality of actors or affecting a plurality of entities” (Pawley 1973:152; see also

### TABLE 5. TRACES OF A FORMER PARAGOGIC VOWEL *-i IN LAKON

| ‘cut, chop’ | POC *tarak | *tara > | MSN tar | *tara-i > | LKN tare |
| ‘carry on back’ | POC *bebe | *bebe > | MTP bem | *be-be-i > | LKN ppi |
| ‘lie flat’ | PNCV *tab’a | *tab’a > | MTP takp’ | *tab’a-βi > | LKN takaβ’aeβ |
| ‘step on’ | PNCV *bara-si | *bara > | MTP bay | *bara-si > | LKN beraih |
| ‘swallow’ | POC *dolom | *dolo > | VRS dol | *do’lo-mi > | LKN rilm |
| ‘husk coconut’ | POC *kojom | *yo-so > | MTP yoh | *yo-so-mi > | LKN yhum |
| ‘forage seafood’ | POC *paanoda | *paanoda > | MTP paan | *paan-o-da > | LKN paanle |
| ‘house’ | POC *rumaq | *yum’a > | MSN um | *yu’m-a-i > | LKN umwe’ae |
| ‘blood’ | POC *raarak | *dara > | MTP day | *da’ra-i > | LKN rerai |
| ‘earth, ground’ | POC *tanoq | *tano > | MSN tan | *ta’no-i > | LKN tanu |
| ‘green coconut’ | PNCV *busa | *busa > | VRS bus | *bua-si > | LKN bahuay |

### TABLE 6. TRACES OF A FORMER CIRCUMFIX *pari-…-i IN LO-TOGA

<table>
<thead>
<tr>
<th>SINGULAR SUBJECT</th>
<th>PLURAL SUBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘stand’</td>
<td>tu &lt; *tuu &lt; *tuqur</td>
</tr>
<tr>
<td>‘sit’</td>
<td>hay &lt; *saye &lt; *sake</td>
</tr>
<tr>
<td>‘lie’</td>
<td>in &lt; *eno &lt; *qenop</td>
</tr>
<tr>
<td>‘cry’</td>
<td>kare &lt; *ga’rai &lt; *...</td>
</tr>
</tbody>
</table>

35 The consonant that occurs before *-i normally reflects the original consonant of the etymon (e.g., /r/ in *tuqur, /β/ < *p in *qenop), but this is not always what happens. In many instances, whether with *-i or with *aki(n) below, a consonant appears that was not present in the etymon (e.g., /r/ added to *sake…).
6.2.1.2 Traces of the applicative *-aki(n). Another example is the well-known POC applicative suffix *-aki(n) ‘remote-object’. Due to the phonetic erosion that took place in all the northern Vanuatu area, this suffix is often retained as a syllable of the type -Cay ~ -Cey, or even -Ce in some languages. These reflexes make it difficult to trace back the suffix, unless careful attention is paid to vowel hybridization.

For other etyma, the suffix *-aki(n) appears in all the languages of the area. This is true for the verb ‘breathe’, which in other languages reflects PNCV *mabu-si (Clark, in prep.), but for this area is best reconstructed as °m[aw]ab[aw]u-sa:

(57) PNCV *mabu-si > °m[aw]ab[aw]u-sa ‘breathe; take rest’: LTG makwhe; LHI moksae; LHR moŋse; MTP ɡmʊkhey; LMG mɔpse; VRA mɔmɔse; VRS memse; MSN mɔpse; MTA ɡmɔpsay; DRG makbry; KRO memse; OLR mupsa; LKN mahpæ.

For other words, suffixed and unsuffixed forms are both found in my corpus. If we take the example of °ro¥o[ta] ‘hear’ (POC *ro¥o), it appears that LTG rʊŋ ‘feel, hear s.t./s.o.’ and the same verb suffixed with *-aki(n) (LTG rʊŋte ‘pay attention, listen to s.t./s.o.’). Other languages seem to have merged the two forms, generalizing either the plain form (HIU, DRG, OLr) or the suffixed one (VLW, MTP, VRS, MSN, NUM):

(58) POC *roŋor > °roŋo[ta] ‘hear, feel; listen to’: HIU rʊŋ; LTG rʊŋ ~ rʊŋte; LHI yeŋ ~ yeŋte; VLW yʊŋte; MTP yʊŋtey; VRA rʊŋ ~ rʊŋda; VRS rʊŋtey; MSN rʊŋte; MTA roŋo ~ roŋotay; NUM rʊŋte; DRG rʊŋ; OLR rʊŋ; LKN rʊŋ ~ rʊŋte; MRL rʊŋ ~ rʊŋta.

It sometimes happens that a single language even possesses three reflexes for the same root: the plain verb, the verb suffixed with *-i, and the verb suffixed with *-aki(n): see (59) for Mwotlap. Yet no productive derivational process can relate these three forms in synchrony: they have become no more than an etymological triplet in the lexicon—in this case, a set of three distinct transitive verbs.

(59) An etymological triplet in Mwotlap:
°lamwa(s) > laŋm ‘beat s.t. (drum+) with a stick’
°lamwa-i > leŋmeh ‘beat s.o./s.t. with a flexible stick, whip’
°lamwa-ayi > laŋmehy ‘lash s.t. (a fishing line, a tail)’

To my knowledge, Mota and Lo-Toga are the only languages that still use the reflex of *-aki(n) as a productive device to turn a plain verb (usually intransitive) into a transitive verb: see table 7 for Lo-Toga.

6.2.1.3 The massive decline of object pronoun suffixes. Somehow related to these valency-changing suffixes is the destiny of object-indexing suffixes in these languages.
Originally, a set of personal enclitics served to encode the direct object on the verb. The forms that are reconstructed for POC (Evans 1995, cited by Lynch, Ross, and Crowley 2002:67) are *=au ‘1sg’, *=ko ‘2sg’, *=a ‘3sg’, and *=ra ‘3 non-sg’. This system is still alive in many conservative languages of Vanuatu, including Mota (Codrington 1885:266). These pronominal forms (among which *=au was lost) can be suffixed to verbs as well as verb-like prepositions:

(60) Object suffixes in Mota:
\[
\begin{align*}
\beta us(i)-ko & \text{‘hit thee’} \\
\beta us-i & \text{‘hit him/her’} \\
\beta us(i)-ra & \text{‘hit them’} \\
nan(i)-ko & \text{‘from thee’} \\
nan-i & \text{‘from him/her’} \\
nan(i)-ra & \text{‘from them’}
\end{align*}
\]

Like any other word-final syllable, object suffixes were altered during vowel hybridization. Modern Mwerlap still employs the post-hybridization reflexes of these four suffixes, or more precisely of their combination with the transitivizer *-i: thus -\(1sg\) < *-(i)\(au\); -\(2sg\) < *-iko; -\(3sg\) < *-\(a\); -\(3pl\) < *-\(ra\). They can be suffixed on transitive verbs and on verb-like prepositions as well:

(61) Object suffixes in Mwerlap:
\[
\begin{align*}
r\text{t}n & \text{‘hear me’} \\
r\text{t}-\text{ak} & \text{‘hear thee’} \\
r\text{t}- & \text{‘hear him/her’} \\
r\text{t} & \text{‘hear them’} \\
nr & \text{‘from me’} \\
n-\text{ak} & \text{‘from thee’} \\
n- & \text{‘from him/her’} \\
n & \text{‘from them’}
\end{align*}
\]

The verb (or preposition) appears unsuffixed with NPs: \(\text{r}\text{t}n\,\text{li}\text{y}l\) ‘heard my voice’.

In fact, the effects of vowel hybridization in Mwerlap were not limited to the object suffixes themselves, but were even able to affect considerably the shape of certain verb roots. As a result, Mwerlap has developed an unusually complex system of morphological alternations between different stems that can be compared to a system of verb conjugations. Thus the verb ‘bite’ appears under three allomorphs: y\(t\) (< *\(y\)at-i < POC *\(k\)arat-i) for direct constructions; y\(at\)- for 1sg suffix (y\(at\)-\(u\) < *\(y\)at-\(au\)); y\(at\)- for other suffixed forms (e.g., y\(at\)-\(ak\) < *\(y\)at-\(iko\)). The same kind of stem alternation is attested with certain prepositions (e.g., [#42] \(\text{\^dani}\):

(62) Object suffixes and allomorphic alternations in Mwerlap:
\[
\begin{align*}
y\text{t}n & \text{‘bite me’} \\
y\text{t}-\text{ak} & \text{‘bite thee’} \\
y\text{t}- & \text{‘bite him/her’} \\
y & \text{‘bite you’} \\
n\text{t}n & \text{‘from me’} \\
n-\text{ak} & \text{‘from thee’} \\
n- & \text{‘from him/her’} \\
n & \text{‘from you’}
\end{align*}
\]

From a cognitive point of view, these morphological alternations evidently tend to be perceived as burdensome, and indeed they prove to be unstable over time. This observation is suggested by the strong tendency, which can be observed in the field, to eliminate these irregularities in favor of more transparent strategies. In the four languages that have kept object suffixes alive (Hii, Lo-Toga, Mota, Mwerlap), this

<table>
<thead>
<tr>
<th>TABLE 7. TRACES OF THE APPLICATIVE SUFFIX *-aki(n) IN LO-TOGA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PLAIN VERB</strong></td>
</tr>
<tr>
<td>'go' (\text{^\text{n}})</td>
</tr>
<tr>
<td>'return' (\text{^\text{n}})(\text{^\text{n}})</td>
</tr>
<tr>
<td>'stay' (\text{^\text{n}})(\text{^\text{n}})</td>
</tr>
</tbody>
</table>
push toward functional simplification and formal transparency takes the form of alternate patterns for coding objects that manage to bypass morphological variation.

For example, the inherited stems for the verb ‘lie, deceive’ (PNCV *kale) are yelylel with 1sg -o, and yelylel otherwise. Similarly, the verb ‘watch’ alternates between matan-, matan-, and mata:

(63) Object suffixes and allomorphic alternations in Mwerlap:

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>yelylel-o</td>
<td>‘deceive me’</td>
</tr>
<tr>
<td>yelylel-eak</td>
<td>‘deceive thee’…</td>
</tr>
<tr>
<td>yelylel kemi</td>
<td>‘deceive you’</td>
</tr>
<tr>
<td>matan-o</td>
<td>‘watch me’</td>
</tr>
<tr>
<td>matan-eak</td>
<td>‘watch thee’…</td>
</tr>
<tr>
<td>mata kemi</td>
<td>‘watch you’</td>
</tr>
</tbody>
</table>

Younger speakers and adults in situations of lax speech resort to avoidance strategies that allow the use of an invariant root for each verb. This has an obvious cognitive advantage: namely, that whatever the nature of their object, all verb roots become invariant again—that is, easier to memorize and process. One strategy, attested with the verb ‘deceive’, consists in combining the default form (yelylel) with the independent, heavy form of all personal pronouns. Another strategy, illustrated here with ‘watch’, resorts to a peripheral construction, using the oblique preposition yin:

(63') Alternate strategies for coding objects in Mwerlap:

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>yelylel ino</td>
<td>‘deceive me’</td>
</tr>
<tr>
<td>yelylel enek</td>
<td>‘deceive thee’…</td>
</tr>
<tr>
<td>yelylel kemi</td>
<td>‘deceive you’</td>
</tr>
<tr>
<td>mata yin-o</td>
<td>‘watch me’</td>
</tr>
<tr>
<td>mata yin-enek</td>
<td>‘watch thee’…</td>
</tr>
<tr>
<td>mata yin kemi</td>
<td>‘watch you’</td>
</tr>
</tbody>
</table>

The same simplifying tendency can be currently observed in Hiu, Lo-Toga, and Mota. Everywhere, object suffixes are in declining use, and are being slowly replaced by free invariant pronouns and/or with oblique structures.

Remarkably, this evolution has even come to its extreme in the 13 remaining languages of the Banks and Torres, which have now simply lost all traces of all object suffixes, whether on verbs or prepositions. For example, the translation of (62) in Mwesen would be:

(62') The generalization of free pronouns for object marking (Mwesen):

<table>
<thead>
<tr>
<th>Stem</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>yar no</td>
<td>‘bite me’</td>
</tr>
<tr>
<td>yar nk</td>
<td>‘bite thee’</td>
</tr>
<tr>
<td>yar mu</td>
<td>‘bite him/her’</td>
</tr>
<tr>
<td>yar kimi</td>
<td>‘bite you’</td>
</tr>
<tr>
<td>nen no</td>
<td>‘from me’</td>
</tr>
<tr>
<td>nen nk</td>
<td>‘from thee’</td>
</tr>
<tr>
<td>nen mu</td>
<td>‘from him/her’</td>
</tr>
<tr>
<td>nen kimi</td>
<td>‘from you’</td>
</tr>
</tbody>
</table>

Even if the use of independent pronouns for object cross-referencing was probably already a tendency in earlier stages of the protolanguage, it is most likely that its generalization to all persons was accelerated by the drastic effects of vowel hybridization upon verbal morphology.

6.2.2 Nominal morphology and the coding of possessors. The last important domain where the history of vowels plays an important role is the morphology of possession.36

6.2.2.1 Emergence of stem alternations. Originally, the marking of inalienable possession involved the combination of a fixed root with a set of personal suffixes:

(64) POC: ‘my eyes’ *na mata-gu ‘his/her eyes’ *na mata-ña

The double phenomenon of vowel reduction and vowel hybridization deleted the final vowel of the suffix and regularly modified the penultimate vowel, usually rais-
ing it in the case of 1SG *-gu and lowering it in the case of 3SG *-ña. This situation is witnessed, for example, in Mwotlap:

(65) Possessive suffixes and allomorphic alternations in Mwotlap:
‘my eyes’ na-mte-k ‘his/her eyes’ na-mta-n

This historical process had the following consequence. In most languages of the Torres and Banks Islands, inalienable nouns present two distinct allomorphs, one ending with a vowel higher than the other. Each language normally presents five pairs of such reflexes, corresponding to the five possible (root-final) vowels of the original etymon, and to their hybridization with posttonic *u and *a. For example, all etyma ending in *o are reflected in Mwotlap by a pair of stems, one ending in /i/ (< *o...u), the other in /ə/ (< *o...a): for example, POC *lipon ‘teeth’ → ni-lwia-k : ni-lwia-n; POC *nakon ‘face’ → na-nyi-k : na-nyi-a-n; POC *laso ‘testicles’ → na-hl-k : na-hla-n.

One could draw a parallel with the process of transphonologization deﬁned in 3.2, and speak here of a process of “transmorphologization.” That is, what was historically a difference of vowel on the possessive sufﬁxes has become a rule of stem alternation affecting the noun roots themselves. Interestingly, this pattern of evolution is paralleled in several Micronesian languages, in which vowel changes have resulted in the emergence of similar inﬂectional morphology—see Goodenough (1992:101) for Chuukese, Lee (1975:62–73) for Kosraean, Rehg (1981:166–78) for Ponapean. New Caledonia is another area where such metaphony-induced inﬂections are common, such as in Iaai (Ozanne-Rivierre 1976:96–105) or Cemuhé (Rivierre 1980:83).

In several languages—Volow, Vurès, Mwesen, Mwerlap, for example—the alternation actually involves not just a change in one vowel, but affects the phonetic shape of the whole word. Table 8 shows ﬁve such pairs of forms in Vurès. The ﬁnal vowels found on the noun stems, namely {i œ ø ü} for the 1sg and {i œ ø ø} for the 3sg, correspond rigorously to the hybridization of the ﬁve protovowels {*i e a o u} with, respectively, posttonic *u and *a (see the chart of Vurès in appendix 1). Furthermore, due to the total or partial assimilation of the pretonic to the stressed vowel (5.2.4), it looks as if the features [±higher] and [±back] had diffused across syllable boundaries. This recalls the way features spread across the word in languages with vowel harmony.

### Table 8. Morphology of Possession: Stem Alternations in Vurès

<table>
<thead>
<tr>
<th>MEANING</th>
<th>ETYMON</th>
<th>1 SG STEM</th>
<th>3 SG STEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>*i ‘arm/hand’</td>
<td>POC *banic ‘wing’</td>
<td>bmi-k</td>
<td>bani-n</td>
</tr>
<tr>
<td>*e ‘thigh’</td>
<td>(#176) ōøﬂage</td>
<td>ōñki-k</td>
<td>ōñki-a</td>
</tr>
<tr>
<td>*a ‘belly’</td>
<td>POC *tob-a</td>
<td>təkøø-k</td>
<td>təkøø-a</td>
</tr>
<tr>
<td>*o ‘face’</td>
<td>POC *nakon</td>
<td>nøyø-k</td>
<td>nøyø-n</td>
</tr>
<tr>
<td>*u ‘head’</td>
<td>POC *bøatu</td>
<td>kəøøtøø-k</td>
<td>kəøøtøø-u</td>
</tr>
</tbody>
</table>

37. And indeed, Mwotlap can be said to have developed a genuine case of ATR vowel harmony, directly resulting from these stem alternations: e.g., iplu-k ‘my friend’ (< *i βa'lu-gu, cf. PAN *baliw) vs. iplu-n ‘his friend’ (< *i βa'lu-na). See François (2001:95; 2005).
In most languages, the two stems thus created are also used with other persons in such a way that each alienable noun alternates between two allomorphs. For example, Mwotlap presents complex rules of combination for stem 1 and stem 2 with the different possessive suffixes or other kinds of possessors (François 2001:468–75; 2005). Basically, stem 1 is found on 1sg and 2sg as well as with [–human] possessors (e.g., na-mte baya ‘shark’s eyes’) and stem 2 is used for 3sg and most nonsingular forms (e.g., na-mta-mayu ‘the eyes of you-du’).

6.2.2.2 Tracing back 2sg possessive suffixes. The model of vowel hybridization proves indispensable when it comes to understanding the history of the 2sg possessive suffix. Among the 17 languages of northern Vanuatu, only three have preserved the *-mu suffix of POc: Lemerig, Vera’a, and Mwesen. They combine a suffix -m with a noun stem that reflects a posttonic vowel /u/, the same as for 1sg: e.g., MSN tma-k ‘my father’, tma-m ‘thy father’ (< *tama-mu), tama-n ‘his/her father’.

Four other languages, namely Hiu, Lo-Toga, Volow, and Mwotlap, encode their 2sg possessor in the form of a -Ø suffix. The modern stem-final vowel regularly points to a former posttonic vowel /u/: for example, MTP na-ni-k ‘my face’, na-ni ‘thy face’, na-ni-m ‘his/her face’. In other words, these four languages reflect a truncated variant of the 2sg possessive suffix, a form *-u with no consonant: na-ni < *na na-u.

But the majority of northern Vanuatu languages (namely LHI, VRS, NUM, DRG, KRO, OLR, LKN, and MRL) show an even less expected 2sg suffix /-¥/. Crucially, in all of these languages, the stem that combines with this /-¥/ suffix is not stem 1 used with 1sg /-k/, but stem 2 used with 3sg /-n/. Table 9 illustrates this for Dorig.

Are we going to reconstruct a protosuffix *-ṇa? Such a form would be hard to explain historically. The solution to the problem is given by Mota, where the 2sg suffix has the form /-¥m•a/, e.g., na•vo-¥m•a ‘thy face’. This form /-¥m•a/, which is also witnessed in other Vanuatu languages in the form /-m•a/ or /-¥•a/ (Clark 1985:207), is an irregular reflex of the original suffix *-mu (Pawley 1972:113). The labial consonant in *-mu went through a first stage of labiovelarization, while its vowel was dissimilated into /a/ (*-mu > *-m•a > *-¥m•a). With the exception of Mota, which has preserved final /a/ until today, the process of vowel reduction in all other languages resulted in the labiovelar consonant forming the end of the word. Eventually, the labial element in this final consonant got lost, resulting in a plain velar (*-¥m• > -¥) — a sound change.

### TABLE 9. MORPHOLOGY OF POSSESSION: THE 2SG SUFFIX IN DORIG

<table>
<thead>
<tr>
<th>MEANING</th>
<th>ETYMON</th>
<th>1 SG</th>
<th>2 SG</th>
<th>3 SG</th>
</tr>
</thead>
<tbody>
<tr>
<td>*i ‘shoulder’</td>
<td>POc *banic ‘wing’</td>
<td>bni-k</td>
<td>bni-ŋ</td>
<td>bni-n</td>
</tr>
<tr>
<td>*e ‘thigh’</td>
<td>(#176) ōbage</td>
<td>bkr-k</td>
<td>bkr-ŋ</td>
<td>bkr-n</td>
</tr>
<tr>
<td>*a ‘belly’</td>
<td>POc *tob•a</td>
<td>tkp•a-k</td>
<td>tkp•a-ŋ</td>
<td>tkp•a-n</td>
</tr>
<tr>
<td>*o ‘face’</td>
<td>POc *nakon</td>
<td>nyo-k</td>
<td>nyo-ŋ</td>
<td>nyo-n</td>
</tr>
<tr>
<td>*u ‘head’</td>
<td>POc *b•atu</td>
<td>kp•tu-k</td>
<td>kp•tu-ŋ</td>
<td>kp•tu-n</td>
</tr>
</tbody>
</table>

38. Apart from these three languages, Hiu, Volow, and Mwotlap show a vestigial suffix *-mu in the irregular inflection of their possessive classifiers: e.g., VLW n-γ-m < *na ka-mu ‘thy X (food classifier)’.
the history of the vowels of northern Vanuatu languages

6.2.2.3 Retrieving lost morphemes. Certain languages present an even greater complexity, as they use not two but three or even four sets of allomorphs, depending on the morphological and syntactic context. For example, besides the two stems *mete- and *mata- for 'eye', Vurës requires a third stem *mete in two cases. One is the combination with a construct suffix -n introducing an overt human NP (compare na mata-n 'his eyes' with na mete-n i Wemal 'Wemal's eyes'); incidentally, this 'overt human NP' also includes all nonsingular independent personal pronouns: na mete-n kumoruŋ [lit. 'the eyes of you-DU'] 'your eyes'. The second context is when the possessor is an overt nonhuman (and generally nonspecific) NP, in which case this stem 3 is constructed directly: *mete bøyu 'shark's eyes'.

Thanks to what we now know of vowel hybridization in Vurës, it becomes possible to formulate a hypothesis on the origin of this third stem (François 2001:494–508). While *mata-n comes from 3sg *mata-ña, mete-n is the regular reflex of a form *mata-ni. This suggests that Vurës has transmorphologized onto the noun root an earlier contrast between two suffixes: *-na '3sg possessor' (< POc *-ña) and a genitive suffix of the form *-ni. This hypothesis is supported by other languages of Vanuatu such as Araki (François 2002:97) and Northeast Ambae (Hyslop 2001:167), which make use of a suffix *-ni in exactly the same conditions as Vurës—namely the introduction of [+specific] [+human] NP possessors with inalienable nouns. Furthermore, the contrast between *-ña '3sg possessor' and *-ni 'construct suffix' is explicitly set forth by Dyen (1949:422) to account for similar pairs in modern Chuukese: masa-n ‘his eye’ < *mata-ña vs. mese-n ‘eye of’ < *mata-ni.

As for the unsuffixed form VRS *mete, it necessarily proceeds from the hybridization of a premodern form *mata-i. In all likelihood, this corresponds to POc *qi, indeed a possessor linker used between inalienable nouns and [+specific] possessors (Hooper 1985, Ross 2001): thus VRS *mete bøyu < *ma’ta-i bøyoa < POc *mata qi bakewa. As table 10 shows, when inalienable nouns are followed in Vurës by a nonspecific nonhuman possessor, their final vowels are {i e a o u}. Once again, this matches exactly the hybridization of the five original vowels {*i e a o u} with a posttonic *i. In other words, POc *qi is no longer reflected as a segmental suffix: it only survives in the subtle, hidden form of a raised vowel on the possessed noun.

Other languages of the Banks also provide evidence for the same conclusion. For example, Mwotlap would translate 'shark’s eyes' as na-mte bøy < *na ma’ta-qi bakewa. This is worthy of mention, because the same *qi has been wrongly attributed by Ross

39. Total delabialization of syllable-ending labiovelars is well attested across the area: e.g., see the reflexes under (#103), (#104), (#137), (#141). In two languages, Lehali and Mwerlap, it is even the rule. This is how certain consonants that were originally plain labials eventually became plain velars, via a labiovelar stage: e.g., POc *rumaq ‘house’ > PNCV *yum-a > *iµm-a > LHI çpj ~ MRL çpj; POc *qumun ‘stone oven’ > *µm-µn > LHI n-aj; PNCV *damu ‘yam’ > *dañm-µn > LHI dap; POc *quma ‘clear land for garden’ > *µm-µn > MRL n-aj; PNCV *tab-a ‘lie flat’ > *taµp-a > LHI/MRL tak; POc *karab-a ‘new’ > *yarakp-a > MRL yarak.

40. A morpheme *ni has been reconstructed with a different function for POc (Hooper 1985, Ross 1998); namely, the introduction of [+specific] [+human] possessors with inalienable nouns.
(2001) to another morpheme of Mwotlap:41 the suffix -ʌe, which is used, among other things, to encode the generic human possessor of an inalienable noun (François 2001:527–39), e.g., na-mt-ʌe ‘the (human) eye’. In fact, the history of Mwotlap vowels now makes it clear that -ʌe can reflect neither *qi nor *ki, and is more certainly the reflex of a disyllable: POC *kai ‘native, inhabitant of a place, person’ (Pawley 1976).42 Ironically, *qi is not totally absent from a form like na-mt-ʌe, because the latter should be reconstructed as *na ma’ta=qi ʌkai, lit. ‘the eye of a (nonspecific) person’—which is exactly parallel to na-mt-ʌe boʌ ‘the eye of a (nonspecific) shark’.

6.2.2.4 Reacting against morphological complexity. The historical process of vowel hybridization constitutes the direct source for these stem alternations, and for the intricate morphology of possession that is characteristic of the whole linguistic area. One language, namely Mwerlap, even shows allomorphic alternations both in the domain of inalienable possession and in the morphology of object marking. The parallel between the two patterns is striking:

(66) Allomorphic alternations in (a) verbs and (b) nouns, in Mwerlap:

(a) yaʌ ’bite me’ yaʌ-ʌi ‘bite him/her’ yaʌ kʌm ‘bite you’
(b) na-kʌtʌ-k ‘my head’ na-kʌ-tʌ-n ‘his/her head’ ne-kʌ ʌkʌm ‘your heads’

Although it is still well represented throughout the northern Vanuatu area, this sort of vestigial morphology is, again, structurally unstable. The functional pressure toward morphological transparency later triggered the four languages Lo-Toga, Vera’a, Nume, and Lakon to react against this emergent complexity. They have suppressed the alternation between stems by generalizing one allomorph for all persons: for example, LTG na-te-k ‘my eyes’, na-te-nə ‘his/her eyes’, na-te-nə Wemal ‘Wemal’s

**TABLE 10. TRACES OF POC *qi ON INALIENABLE NOUNS IN VURÈS**

<table>
<thead>
<tr>
<th>MEANING</th>
<th>VURÈS</th>
<th>PRE-VURÈS</th>
<th>POC</th>
</tr>
</thead>
<tbody>
<tr>
<td>*i ‘pig’s bone’</td>
<td>sirî k̩pu</td>
<td>&lt;*su’ri-i b̩oe</td>
<td>&lt; *suri qi borok</td>
</tr>
<tr>
<td>*e ‘pig’s feces’</td>
<td>tî k̩pu</td>
<td>&lt;*ta’e-i b̩oe</td>
<td>&lt; *taqe qi borok</td>
</tr>
<tr>
<td>*a ‘pig’s belly’</td>
<td>tekg̩̩̩̩̩̩̩̩̩̩</td>
<td>&lt;*t̩o’b̩a-i b̩oe</td>
<td>&lt; *tob’a qi borok</td>
</tr>
<tr>
<td>*o ‘pig’s tusk’</td>
<td>lûwîk̩̩̩̩̩̩̩̩̩̩</td>
<td>&lt;*lî’b̩o-i b̩oe</td>
<td>&lt; *lipo(n) qi borok</td>
</tr>
<tr>
<td>*u ‘pig’s head’</td>
<td>k̩p̩̩̩’stû k̩p̩̩̩̩̩̩̩̩̩̩</td>
<td>&lt;*b̩a’tu-i b̩oe</td>
<td>&lt; *b̩atu qi borok</td>
</tr>
</tbody>
</table>

41. More precisely, Ross (2001:274) claims that -ʌe results from a merger of POC *ki ‘free-form derivative suffix’ and *qi ‘nonspecific inalienable possessive marker’, and explains this merger saying “*qi has no productive reflexes in Mwotlap.” In fact, Mwotlap possesses reflexes of both *qi and *ki, neither of which is -ʌe. Ross’s *ki seems to have a phonetically regular reflex in the form of an anaphoric suffix -ʌi in several Banks languages. The latter combines with inalienable nouns, with different but related meanings: MSN/LMG -ʌi ‘nonhuman possessor suffix’; VRA -ʌi ‘3sg possessor suffix’; MTP -ʌi ‘anaphoric suffix’ (François 2001:334). As for the personal article *i, mentioned by Hooper (1985) and Ross (2001) in their discussion of *qi, it is also reflected in northern Vanuatu languages: see François (forthcoming).

42. The same etymon *kai is found in several Banks languages, including Mwotlap, as part of the marker for human nonsingular articles (François forthcoming): e.g., MTP yaʌ-ʌe taŋ’ʌn ‘the two men’ < *rua kai tam’mane (contra Ross 2001:269). In both instances, *kai can be said to have specialized from a lexical meaning ‘inhabitant, person’ to a grammatical function, coding for a human referent in general (cf. French on < Lat. homo).
eyes’, m̃ate pagewa ‘shark’s eyes’. Due to this process of morphological realignment, the vowels in most of these forms are historically irregular. Indeed, the expected Lo-Toga reflexes of *mata-gu, *mata-ni, and *mata-qi (respectively **m̃ate-k, **m̃ate-n, **m̃ate) have gone through a process of analogical leveling based on a unique stem m̃ate. The latter proceeds from the segmentation of m̃ate-na, itself the perfectly regular outcome of 3sg *mata-nə.

In sum, the origins of the various possessive suffixes attested today in the modern languages of northern Vanuatu can only be understood properly provided precise vowel correspondences are taken into account. This patient work of reconstruction helps lift the veil of their morphological intricacies, and brings to light their profound continuity with the grammar of their Proto-Oceanic ancestor.

7. CONCLUSION. As the final part of this study has shown, the double process of vowel reduction and vowel hybridization is not merely a matter of phonology. The understanding of this massive phenomenon is also a prerequisite for whomever may want to unravel the often complex morphology of the Banks and Torres languages, and track the history of their syntax. Yet, if one were to analyze in any detail all the grammatical aspects of these languages to which the vowel hybridization model provides the key, much more than one paper would be necessary.

APPENDICES

Appendix 1. Charts of Regular Vowel Correspondences

The following tables present the regular vowel correspondences I have been able to establish for the 17 languages of my corpus. These charts of regular vowel correspondences are introduced in more detail in 2.3.

For each sequence of protovowels *V(C)V₂, the stressed vowel *V₁ is represented in rows, while the posttonic vowel *V₂ appears in columns. Most of the time, posttonic *V₂ disappears altogether from the modern forms, following a pattern {*V₁(C)V₂ > V'(C)}—for example, *kani > xen. In this case, one can consider that V₁ and V₂ regularly hybridized into a single vowel V’, and this appears in the corresponding box: for example, in Lehali, the sequence *a(C)i regularly hybridized into /æ/.

In four languages (Hiu, Lo-Toga, Vera’a, Mota), the sequence *V₁(C)V₂ is sometimes reflected by another sequence of syllables {*V₁(C)V₂ > *V'(C)V₁}. In this case, the (optional) consonant slot between *V’ and *V₁ is indicated by an empty underscore “_”. For example, in Hiu, *u(C)o regularly hybridized into *ø(C)a. In all other languages, this optional consonant slot is not indicated, because it systematically follows the modern vowel.

When there is more than one regular reflex for a given combination of vowels, these are indicated in the same box (either in two different lines, or separated by ‘||’). In those cases where a sequence of two adjacent vowels *V₁V₂ did not hybridize in the same way as a sequence *V₁CV₂, this is indicated by angled brackets: for example, in Vurës, a sequence *eCa hybridized into /a/̃a/, whereas *ea became /æ/ (see 4.2).
<table>
<thead>
<tr>
<th></th>
<th>HIU</th>
<th></th>
<th>LO-TOGA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>i</em></td>
<td><em>e</em></td>
<td><em>i</em></td>
</tr>
<tr>
<td></td>
<td><em>a</em></td>
<td><em>o</em></td>
<td><em>a</em></td>
</tr>
<tr>
<td></td>
<td><em>o</em></td>
<td><em>u</em></td>
<td><em>o</em></td>
</tr>
<tr>
<td></td>
<td><em>u</em></td>
<td></td>
<td><em>u</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>LHI</th>
<th></th>
<th>LHR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>i</em></td>
<td><em>e</em></td>
<td><em>i</em></td>
</tr>
<tr>
<td></td>
<td><em>a</em></td>
<td><em>o</em></td>
<td><em>a</em></td>
</tr>
<tr>
<td></td>
<td><em>o</em></td>
<td><em>u</em></td>
<td><em>o</em></td>
</tr>
<tr>
<td></td>
<td><em>u</em></td>
<td></td>
<td><em>u</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>VLW</th>
<th></th>
<th>MTP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>i</em></td>
<td><em>e</em></td>
<td><em>i</em></td>
</tr>
<tr>
<td></td>
<td><em>a</em></td>
<td><em>o</em></td>
<td><em>a</em></td>
</tr>
<tr>
<td></td>
<td><em>o</em></td>
<td><em>u</em></td>
<td><em>o</em></td>
</tr>
<tr>
<td></td>
<td><em>u</em></td>
<td></td>
<td><em>u</em></td>
</tr>
</tbody>
</table>

† For *a…i and *a…u, the two reflexes /t/ are only found in word-internal syllables: see 5.1.2.1.
### VURÈS

<table>
<thead>
<tr>
<th>Vrs</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>e</td>
<td></td>
<td>æ</td>
<td>æ</td>
<td>e</td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>ü</td>
<td>ü</td>
<td>ü</td>
<td>ü</td>
<td></td>
</tr>
</tbody>
</table>

### MWESEN

<table>
<thead>
<tr>
<th>Msn</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>e</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td></td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### MOTA

<table>
<thead>
<tr>
<th>Mta</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i_</td>
<td>(i)_</td>
<td>(i)_</td>
<td>(i)_</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e_</td>
<td>e_</td>
<td>e_</td>
<td>e_</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>a_</td>
<td>a_</td>
<td>a_</td>
<td>a_</td>
<td></td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u_</td>
<td>(u)_</td>
<td>(u)_</td>
<td>(u)_</td>
<td></td>
</tr>
</tbody>
</table>

### NUME

<table>
<thead>
<tr>
<th>Num</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
<td>i</td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>a</td>
<td></td>
<td>e</td>
<td>e</td>
<td>a</td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o</td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### DORIG

<table>
<thead>
<tr>
<th>Drg</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>a</td>
<td></td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### KORO

<table>
<thead>
<tr>
<th>Kro</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>e</td>
<td></td>
<td>e</td>
<td>e</td>
<td>e</td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### OLRA T

<table>
<thead>
<tr>
<th>OLR</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>a</td>
<td></td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o</td>
<td></td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### LAKON

<table>
<thead>
<tr>
<th>LKN</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>i</td>
<td>i</td>
<td>i</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>æ</td>
<td>æ</td>
<td>æ</td>
<td>æ</td>
<td></td>
</tr>
<tr>
<td><em>o...</em></td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td>o_</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### MWERLAP

<table>
<thead>
<tr>
<th>Mrl</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>i</td>
<td>ëa</td>
<td>ëa</td>
<td>ëa</td>
<td></td>
</tr>
<tr>
<td><em>e...</em></td>
<td>e</td>
<td>e</td>
<td>e</td>
<td>e</td>
<td></td>
</tr>
<tr>
<td><em>a...</em></td>
<td>æ</td>
<td></td>
<td>æ</td>
<td>æ</td>
<td></td>
</tr>
<tr>
<td><em>o...</em></td>
<td>ð</td>
<td></td>
<td>ð</td>
<td>ð</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>u</td>
<td>u</td>
<td>u</td>
<td>u</td>
<td></td>
</tr>
</tbody>
</table>

### SAKAO†

<table>
<thead>
<tr>
<th>SAK</th>
<th><em>...i</em></th>
<th><em>...e</em></th>
<th><em>...a</em></th>
<th><em>...o</em></th>
<th><em>...u</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><em>i...</em></td>
<td>û</td>
<td>û</td>
<td></td>
<td>ñ</td>
<td>ñ</td>
</tr>
<tr>
<td><em>e...</em></td>
<td>ð</td>
<td>ð</td>
<td></td>
<td>ð</td>
<td>ð</td>
</tr>
<tr>
<td><em>a...</em></td>
<td>æ</td>
<td>æ</td>
<td>æ</td>
<td>æ</td>
<td></td>
</tr>
<tr>
<td><em>o...</em></td>
<td>ð</td>
<td></td>
<td>ð</td>
<td>ð</td>
<td></td>
</tr>
<tr>
<td><em>u...</em></td>
<td>û</td>
<td>û</td>
<td></td>
<td>ñ</td>
<td>ñ</td>
</tr>
</tbody>
</table>

† In order to help the reader compare Sakao (see 3.4) with northern Vanuatu languages, I reproduce here (as the 18th chart) the correspondences outlined in Guy (1977).
Appendix 2. A selection of northern Vanuatu reconstructions

Thanks to the vowel correspondences set out in appendix 1, it is possible to reconstruct lexical items in the premodern stages of the attested languages, that is, to calculate their form before the processes of vowel reduction and vowel hybridization. The reconstructions below constitute a selection of such premodern forms taken from the shared lexicon of northern Vanuatu languages. For more details, the reader is referred to the explanations in section 6.1.

Each premodern reconstruction is cited together with its reflexes when they are known, and when indeed they are cognate. I have selected only those lexical items that are shared by at least five languages of the Torres and Banks area, eliminating many items that belong to smaller linguistic areas. Even under such a condition, the list is by no means comprehensive, and represents no more than an arbitrary selection, based on frequency or linguistic significance. I generally avoid protoforms that can be easily linked to an already well-established POc or PNCV reconstruction (they appeared in sections 1 through 5), and prefer to list here words that were developed particularly in sections 1 through 5, and prefer to list here words that were developed particularly in the Torres and Banks Islands—in fact, Tryon (1976) and Clark (in prep.) often show evidence of cognate forms further south—but that either a phonetic or a semantic peculiarity, or simply their importance in the vocabulary, make them worthy of mention here. It is likely that other cognate forms will be found in other languages of the Pacific.

All reconstructions are invariably stressed on their penultimate: e.g., °ta.mara'ai. In general, the consonant inventory used for these premodern northern Vanuatu forms matches that of POc, with a few differences: POc *p > °β; POc *k > °γ; POc *r > °dr; POc *j > °s; POc *R > °r; POc *q > Ø. All voiced stops must be understood as prenasalized (see fn. 6). Whenever useful, I use numbered tags in order to select, for each modern form, either one out of several reconstructed protoforms (as in #55 or #86), or one out of several meanings (as in #111 or #151).

---

(#1) *abena ‘instrumental anaphoric (with it); inanimate oblique anaphoric (at/about… it); Existential predicate’ < PNCV *abe-na ‘his/her/its body’ (?): LHI pen; VLW ben; LMG pan; VRA bene; MSN pen; MTA apana; NUM abene; MRL bm.

(#2) *aia ‘locative anaphoric (there); inanimate oblique anaphoric (at/about… it); Existential predicate’: HIU ix; LTG i; MTP ar; VRA ar; VRS ar; MTA aia; DRG ar; KRO ir; OLR ir; LKN (ht).  

(#3) *alasi ‘Semecarpus vitiensis’: MTP ne-leh; VRA les; VRS les; MTA las; DRG wala; LKN eliwh.

(#4) *aliga-gu ‘my voice’ [POc *qaliqa-]: HIU (na) yap-k; LTG (na) lye-k; MTP na-lye-k; VRA nəl̂ya-k; VRS elye-k; MSN elya-k; MTA lya-k; NUM na-l̂ya-k; DRG lya-k; OLR l̂ya-k; LKN elə-la-k; MRL na-l̂iyə-k.

(#5) *aloa ‘sun’: LTG elo; VLW n-l; MTP na-l; VRA la; VRS la; MSN ls; MTA loa; NUM wala; DRG la; OLR la; LKN alɔ; MRL n-a13.

(#6) *arasu ‘far, remote’: LHR yas; VLW yeh; MTP yeh; VRS ares; MSN area; MTA aras; NUM area; DRG aras; KRO areas; OLR ras; LKN rah.

(#7) *asi ‘song’: LTG eh; LHI n-ah; VLW n-ih; MTP n-eh; LMG n-es; VRA nes; VRS a; MSN e; MTA a; NUM wle; DRG a; KRO āes; OLR nis; LKN akeh; MRL n-es.
(8) *awua ~ *auwa 'turtle' [PNCV *ʔaβua]: LTG eyar; LHI ow; MTP na-ı; LMG n-ow; VRA n/waw; VRS ow; MSN ow; MTA urar; NUM n/low; DRG ow; KRO ow; OLRL n/low; LKN aw; MRL n-ow.
(9) *baeyo 'breadfruit, Artocarpus' [PNCV *baeko; see (#15)]: LTG pey; LHI pe; VLW n-bey; MTP ne-bey; LMG n-pey; VRA biye; VRS biyi; MSN pex; OLRL pe; LKN pey.
(10) *bayabayaloa 'swallow. Collocalia sp.' [PNCV *bakababa 'swiftlet']: MTP baybayal; VRA baybayal; VRS baybayal; MSN paypayal; MTA paypayaloa; NUM baybayal; DRG baybayal; LKN paypayal.
(11) *balago-m'otu 'squirrelish, Sargocentron spiniferum' [lit. 'broken (fruits? of) Ficus wassa']: MTP na-mlaw-ynm'it; MTA palako-ynm'ot; DRG blak-ynm'ot; OLRL palako-ynm'it; LKN palak-ynm'it.
(13) *balu 'steal': LHI pol; VLW bel; MTP bel; VRA bol; VRS bol; MSN pol; MTA pal; NUM bal; DRG bel; KRO bel; OLRL pal; LKN pal; MRL bol.
(14) *baso 'finish; do completely; then; all': HIU pa; LTG pah; VLW bah; MTA paso; NUM bas; DRG bas; KRO bas; OLRL pah; LKN pah; MRL bas.
(15) *batau 'breadfruit, Artocarpus' [PNCV *batafu; see (#9)]: MTP na-mte; MTA patau; NUM bata; DRG bta; MRL butu.
(16) *bei 'fresh water' [PNCV *bei]: HIU pe; LTG pe; LHI pe; VLW n-bir; MTP n-bir; LMG pr; VRA br; VRS br; MSN pr; MTA pei; NUM br; DRG br; KRO br; OLRL pr; MRL n-br.
(17) *bewu 'Dioscorea bulbifera': HIU pew; LTG pew; LHI pew; MTP n-birw; VRA wol/bw; MSN pw; MTA pweu; NUM bw; MRL n-birw.
(18) *biy[i,u] 'eat meat': MTP biy; LMG piy; VRA biy; VRS biy; MSN pix; MTA piy; DRG biy; LKN piy; MRL biy.
(19) *birir[i,u] 'help, join (s.o.); with': LHI piyig; VLW biyi; MTP biyig; LMG piri; VRA birir; MSN piri; MTA piri; DRG biri; LKN piri.
(20) *buýoro 'woven food-chest standing above fire for storing almonds and dried breadfruit': VLW n-buyor; MSN puyor; MTA puyoro; NUM buyor; DRG byor; OLRL puyor; LKN puyor; MRL buyor.
(21) *bula-gu 'possessive classifier for farming valuables (pig, garden+): VRS builek; MSN pilo-k; MTA pula-k; DRG bule-k; OLRL pule-k; LKN pula-k; MRL n-bula-k.
(22) *b'ayare 'porcupine fish, Diodon sp.' [PNCV *b'akare]: MTP na-k'ayar; VRA k'p'ayar; VRS k'p'ayar; MSN k'p'ayar; MTA k'p'ayare; DRG k'p'yar; LKN k'p'ayer.
(23) *b'a[y][u]-gu 'my knee' [PNCV *b'au]: LTG k'ayuk; MTP na-k'ouk; VRS k'p'ouk; MSN k'p'ouk; MTA k'p'auk; DRG nyartalk'p'uuk; LKN huwu/k'ayuuk; MRL n-kouk.
(24) *b'a[y][u]-uro 'Dioscorea bulbifera': LMG k'p'uyor; VRA k'p'uro; VRS k'p'ur; MSN k'p'uro; MTA k'p'uo; OLRL k'p'urr; MRL n-k'oro.
(25) *b'alega 'disappear, be lost': VLW g'leleq; MTP k'p'eleq; LMG k'p'alaq; VRS k'p'ilaq; MTA k'p'aleq.
(26) *b'araŋa 'hole': HIU k'work; LTG k'ān; LHI k'ayip; LHR k'ayip; VLW n-g'ayip; MTP na-k'ayip; VRA k'p'araŋa; VRS k'p'arag; MSN k'p'arag; MTA k'p'araŋa; DRG k'p'arag; OLRL k'p'aryip; LKN k'p'aryip.
(27) *b'aratu 'flying-fox': HIU k'ar, LTG k'ar; LHI k'ar; LHR k'ar; VLW n-g'epe; MTP na-k'computed; LMG k'p'arad; VRA k'p'arad; VRS k'p'arad; MSN k'p'arad; MTA k'p'arad; NUM k'p'arad; DRG k'p'arad; MRL k'arad.
"b"ariyi 'today' [PNCV *b'arikí]: LHI k'i'iyi; Vlw gb'i'iyi; MTP kp'i'iyi; LMG kirí; VRA kp'irí; VRS (yarkp'e); MSN (yarkp'e); MTA kp'arii; Num akp'iri; DRG kp'iri; Kro kp'iri; OLR kp'iri; LKN kp'iri; MRL k'erítu.

"b'atu'baatuvalu 'Myzomea cardinalis' [lit. 'head of bird']: VRA kp'et-en; VRS kp'et-men; MTA kp'et-man; DRG walkp'eti-man; LKN (kp'akweate-mah).

"b'ete(ö) 'Sterculia vitiensis': MTP ne-kp'ey; VRA kp'ir; VRS kp'ir; MSN kp'er; LKN kp'e.

"b'ero 'mushroom; (slang) glans' [PNCV *b'ero 'mushroom']: Vlw n-gb'rey; MTP ne-kp'er; VRS kp'er; MSN kp'er; MTA kp'er; DRG kp'er; LKN kp'er; MRL n-k'er.

"b'eta 'taro (generic term)' [PNCV *b'eta]: HII k'etx; LTH k'etx; LHI kp'er; Vlw n-gb'ret; MTP ne-kp'at; LMG n-kp'at; VRS kp'at; MSN kp'er; MTA kp'eta; DRG kp'et; Kro kp'et; OLR kp'et; LKN kp'et; MRL n-k'et.

"b'eti 'be finished; completely; then; all': Vlw gb'et; MTP kp'et; LMG kp'et; VRA kp'et; VRS kp'et; MSN kp'et; MTA kp'et; DRG kp'et; LKN kp'et; MRL n-k'et.

"b'ibilo 'mangrove, Rhizophora': LTH murahk'ilx; MTP n-kp'ik'il; VRA kp'ik'il; VRS kp'ik'il; MTA kp'ik'il; DRG yarikp'ik'il; Kro yar-k'ik'il; LKN kp'ik'il.

"b'oe 'pig' [PNCV *boe]: LTH k'oe; Vlw n-gb'oe; MTP n-kp'oe; VRA kp'oe; VRS kp'oe; MSN kp'oe; MTA kp'oe; DRG kp'oe; Kro kp'oe; OLR kp'oe; LKN kp'oe.

"b'olo 'surgeon fish, Acanthurus sp.': MTP n-kp'ol ~ n-kp'olp'ol; VRA kp'ol; VRS kp'ol; MTA kp'olo; DRG walkp'ol; LKL kp'ol.

"b'onua 'Ducula pacifica, k.o. pigeon': LTH k'ona; MTP n-kp'ona; VRA kp'ona; VRS kp'ona; MTA kp'ona; DRG kp'ona; LKN kp'ona.

"b'oro-gu 'my ears' [PNCV *b'oro-]: VRS kp'oro-k; MSN kp'oro-k; MTA kp'oro-k; Num kp'oro-k; DRG kp'oro-k; MRL n-k'oro-k.

"daeru 'coconut crab, Birgus latro' [PNCV *daweru]: MTP na-diy; VRA diir; VRS dlr; MSN nr; MTA naer; DRG ufdr; Kro dr; OLR ifj; LKN ifj.

"dayo] 'do, make': HII ta; LTH ta; LHI da; LMG ta; VRA da; VRS da; MSN na; MTA na; Num da; DRG dav; Kro do; OLR daf; MRL da.

"damu 'yam (generic term)' [PNCV *damu]: LHI dnh; LHR n-dnh; LMG n-dn; VRA dnh; VRS dnh; MSN dnh; MTA dnh; Num dnh; DRG dnh; Kro dnh; OLR dnh; LKN dnh; MRL dnh.

"dani 'ablative prep./conj.: from; away; because; lest; than': LTH dnh; Vlw dnh; MTP dnh; LMG dnh; VRA dnh; VRS dnh; MSN dnh; MTA dnh; Num dnh; DRG dnh; Kro dnh; OLR dnh; LKN dnh; MRL dnh.

"dau 'leaf': LTH daw; MTP (n-ye); MTP (n-yo); LMG n-t'; VRA do-; VRS do-; MSN n-; MTA n-; Num do-; DRG daw; Kro daw; OLR faw; LKN faw; MRL do-.

"dau-talise 'Lutjanus gibbus, k.o. snapper' [lit. 'leaves of Terminalia (due to yellow color)']: MTP na-baw yo-talis; VRA do-talisi; VRS da-talis; MTA no-salte; DRG da-talis; Kro da-talis; LKN da-talish.

"dili(iu) 'Caranx spp.': MTP na-nil; VRA dili; Kro dili; OLR fili; LKN fili.

"dina 'reach; until': Vlw dina; MTP dina; LMG tag; VRA dina; VRS dina; MSN niga; MTA nga; Num dina; DRG dina; Kro dina; OLR fign; LKN fign; MRL dina.

"domi 'think; worry' [PNCV *domi 'think (about), love']]: HII toom; LTH pmton; LHI (den); Vlw (d/on); MTP dimon; VRA domon; VRS domon; MSN nonum; MTA nonom; Num domon; DRG dom; OLR fimon; LKN fimon; MRL donom.
(69) *gelu* ‘back, backward, again; Reflexive’: LHI (lek); MTP (lk); LMG kıl; VRA kal; VRS kıl; MSN kıl; MTA kıl; NUM kıl; DRG kıl; KRO kıl; OLR kıl; LKN kıl; MRL kıl.

(70) *gore* ‘horizontal slit drum’ [PNCV *[k,g]ore ‘make musical sound’]: LTG kør, LHI kere, VRS ṭọ-kọ́; VRS ṭọ̀kọ́; MSN ṭọ́kọ́; MTA kore; DRG ṭọ́kọ́-duː; KRO ṭọ́kọ́; OLR ṭọ́kọ́; MRL ṭọ́kọ́.

(71) *gula-gu* ‘my back’: HIU kyo-k; LTG kile-k; MTP nt-kle-k; LMG kọlo-k; VRA kọlo-k; VRS kile-k; MSN kọlo-k; MTA kula.-k.

(72) *gurio* [girio] ‘dolphin’ [PNCV *gurio ‘porpoise’]: HIU ke’riel; LMG kewari, MTP nt-ki, VRS kii, MSN kii, MTA kio, NUM wilki, KRO kii, OLR kii, LKN kii, MRL ne-ki.[3]

(73) *lal[b]i* ‘take, receive; give’ [PNCV *la[i]b*]: HIU (yi); LTG (sbl); VLA le; MTP lep; VRA le; VRS le; MSN le; MTA laʃ; NUM le; DRG la; OLR la; LKN le; MRL le.

(74) *lado* ‘name of a chiefly rank’: VLA wellan; MTP wellan; MTA lana; LKN laʃ.

(75) *laʃea-tea* ‘six’: LTI liias; LHI əliete; MTP liete; VRA liitii; VRS liete; MSN liete; MTA liete; DRG ss-liii; OLR liete; LKN (le-tuwa).

(76) *lave* ‘benny fish, *Ecensius sp.*’ MTP nt-’pi’ilawai; VRA law; MSN law; MTA lawe; DRG law; OLR law; LKN law.

(77) *leasi* ‘change; translate; replace’: LTI liʃ; VLA leh; MTP leh; VRS lies; MTA leas; DRG lts; LKN lʃlii.

(78) *liwɔa* ‘big’: HIU iwor; LTA lowa; HIJ lwo; VLR ylwa; MTP lwɔ; LMG lwɔ; VRA lwɔ; MSN lwɔ; MTA lwɔ; DRG lwɔ; KRO lwɔ.

(79) *lolo-b’oŋi* ‘be ignorant; forget’ [lit. ‘mind in night’]: LTI liɔnkɔ; VLA lɔŋkɔ; MTP lɔŋkɔ; LMG lɔŋkɔ; VRS lɔŋkɔ; MSN lɔŋkɔ; MTA lolo-na; NUM na-llə; DRG lɔŋ; KRO lə; OLR lɔŋ; LKN lɔŋ; MRL na-llə.

(80) *lolo-marani* ‘be intelligent; remember, understand, know’ [lit. ‘mind in daylight’]: HIU yɔmbɔn; LTI lolmar; VLP lɔlmən; MTP lɔlmən; VRA lɔlmən; MTA lolo maran; DRG lɔlmən; LKN lɔlmən; MRL lɔlmən.

(81) *lolo-na* ‘its inside; his/her mind’: HIU yɔ- lãŋ; LTA lis- lãŋ; HIJ lɔ-; VLR lɔls-; MTP na- lɔ-; LMG lolo-yi; VRA lɔls-; VRS lɔls-; MTA lolo-na; NUM na-llαι; DRG lɔŋ; KRO lə; OLR lɔŋ; LKN lə; MRL na-llαι.

(82) *lotu* ‘mashed breadfruit’: VLP n-lɔ; MTP n- lɔ; LMG n-lɔt; VRS lɔt; MSN lɔt; MTA lɔt; NUM lɔt; DRG lɔt; LKN lɔt; MRL lɔt.

(83) *humayaʃi* ‘young unmarried boy’: HIU yumayɔb; LTA lhmayaʃ; VLR lmyep; MTP lɔm- ye; MSN lɔmye; MTA lmaya; DRG lmu; MRL lmymep.

(84) *madu-gu* ‘my nose’: HIU miti-k; LTA mti-k; MTP m-idi-k; VRA mid-k; VRS m-δū-k; MSN mun- k; MTA manu-k; DRG mdut-k; LKN maʃ-k; MRL ms-ndu-k.

(85) *madu-a* ‘orphan’: VLP wolmdo; MTP wolmdo; VRS wodu; MTA manua; DRG md- ‘hungry’: LKN wmawaw.

(86) *mayarosa* [mama]ρosα [mamara]sα ‘maya rosa’ ‘maya rosa’ ‘mamara’ [mama]ρα ‘sad, sorry’: HIU bɔlmamako; LTA mayarina; LHI mayar, VLR mayas; MTP mayas; LMG mayarsan; VRA mayarsian; VRS mayarsian; MSN mayarsian; MTA mayaros, NUM mayaros; DRG (matneras); KRO mamrαs; OLR mayaros; LKN mayaros; MRL (matneras).

(87) *may[a,e]se-gu* ‘myself, on my own’: LTA mayi-k; MTP mahiy-k; LMG mays-k; VRS masy-k; MSN masy-k; MTA mayase-k = mayese-k; NUM mayese-k; DRG mayu-k; LOR mæsan-h; LKN mæsan-ky.

(88) *mayatea* ‘old woman’: HIU mate; MTP mayu; VRA mayi; MTA mayate; DRG maye; OLR mate; LKN maye.
the history of the vowels of northern vanuatu languages

(#89) m[a]y[u]-gu ‘general possessive classifier’: LHI mu-k; VLW n-mi-g-is; MTP na-mu-k; LMG mu-k ~ mu-yu-k; VRA mu-k; VRS mɔuyi-k; MSN mɔyu-k; MTA ɣmɔ-o-k; NUM mu-k; DRG mu-k; KRO mu-k; OLR mu-k; LKN mɔ-k; MRL mu-k.

(#90) m[a]yuma[y] ‘work, make effort’: LTI mɔ(y)muɔ; LHI muɔ; VLW muɔmuɔ; MTP mωumuɔ; MSN mwawawɔ; MTA mωmawɔ; DRG mɔuɔ; KRO mɔyuɔ; ORL mwawɔ; LKN muɔmuɔ.

(#91) m[a]n[i]-tabu ‘Pilinopus tannensis’ [lit. ‘sacred bird’ (?)]: MTP ne-menteŋp; MTA manataŋ; DRG menteŋat; LKN menteŋap.

(#92) maranaya ‘village chief’: HIU mɔuɔaŋ; LTI mɔranaya; VLW mayanay; MTP mɔyanay; VRA maranaya; VRS maranay; MSN maranaw; MTA maranaya; DRG mrnaŋa; ORL mrwan; LKN maranaya; MRL mooma.

(#93) marau-gu ‘(my) maternal uncle; (my) nephew’: LTI mermu-k; VLW n-mɔyu-ŋ; MTP mɔyu-ŋ; VRA maru-k; VRS mari-k; MSN mawmawu; MTA marau-k; DRG maru-k; LKN maru-k.

(#94) marawa ‘spider; name of a spirit’: HIU mɔɔawɔ; LTI marawa; VLW n-maow; MTP na-maow; VRA marawa; VRS maraw; MSN maraw; MTA marawa; DRG maraw; KRO maraw; ORL maraw; LKN marawa; MRL ne-merti.

(#95) maraya ‘moray, eel’ [PNCV *maraya]: LTI mɔri; VLW n-maya; MTP mɔny-a; VRA meraie; VRS marie; MTA marea; DRG mere; KRO mere; ORL mere; LKN mear; MRL ne-meri.

(#96) maraya b’oe ‘giant moray, Gymnothorax sp.’ [lit. ‘eel pig’]: MTP na-maya kɔpɔ; VRA merie kɔpɔ; VRS mario kɔpɔ; MTA maraw kɔpɔ; DRG mere kɔpɔ; KRO mere kɔpɔ; ORL mere kɔpɔ; LKN mere kɔpɔ.

(#97) maremhare ‘hard, strong; stubborn’: LTI mɔrmær; VLW maymay; MTP mayay; VRA marmar; MTA maremare; NUM (mɔmɔtaŋ); DRG marmar; KRO marmar; ORL marmar; LKN marmar; MRL mermere.

(#98) marosi ‘want, like’: LHI ne-mọyɔs; VLW n-mọyɔs; MTP ne-mọyɔs; MTT mọyɔs; VRA mọrɔs; MTS mọrɔs; MTA maros; NUM mọrɔs; DRG mɔrɔs; KRO mɔrɔs; ORL mɔrɔs; LKN mɔrɔs; MRL mɔros.

(#99) mataɓa(s)i ‘morning’: HIU mɔtɑ; LTI mɔtɑ; LHI matap; VLW metap; MTP le-metap; LMG mɑtɑ; VRA mɑtɑ; MSN mɑtaf; MTA mataɓa; ORL mɑtɑs; LKN mɑtɑpah.

(#100) mat[u]y[i]j[i] ~ mat[u]e(o)a ‘dry coconut, coconut tree’: HIU mɔtutu[i]; LTI matu[i]; LHI mii[i]; LHR mii[i]; VLW n–mii[i]; MTP na-mii[i]; LMG n–mii[i]; MTA mii[i]; VRS mii[i]; MSN mii[i]; MTA mii[i]; NUM mii[i]; DRG mii[i]; KRO mii[i]; ORL mii[i]; LKN na-mii[i]; MRL na-mii[i].

(#101) mat[u]y[i]tu[y]i ‘Areca catechu: MTP nɔ-wɔmmtiŋi; LMG ɣɔmmtiŋi; VRA wɔyɔŋ ɣůmiŋi; DRG wɔmtuŋtu; KRO mmtuŋtu; MRL nmtiŋtu.’

(#102) mɑʃataoa ‘name of a dance’: MTP na-mapɔ; MSN mɑʃataoa; MTA mɑʃataoa; DRG mɔʃɔta; LKN mɔʃɔtao; MRL mɔʃatao.

(#103) m’abɔ ‘put down, lay s.l.’: VLW smile; MTP ɣɔ uk; LMG mɔ; VRA ɣɔm; MSN mɔp; MTA mɔp; LMK ɣɔ.

(#104) m’abɔ ‘breathe; take rest’ [PNCV *mabu-si]: LTI mɔkɛ; LHI mɔkɔa; LHR m’ɔse; MTP ɣmɔ ɔkhe; LMG mɔps; VRA mɔmes; MSN mɔps; MTA ɣmɔsaps; DRG mwaps; KRO mɔmesay; ORL mɔps; LKN mɔnpay.

(#105) m’agaru ‘flying-fish, Exocetus’: LTI ɣɔkɔ; VLW n–ŋm eegey; MTP na–ŋm key; VRS ɣm ekær; MTA makar; DRG ɣm kar; KRO ɣm ekær; ORL ɣm ɔkay; MRL ɣɔkɔ.

(#106) m’ai ‘sea snake, Laticauda semifasciata’: LHI ɣɔe; MTP ne–ŋm e; VRA ɣm e; MTS ɣm e; MSN ɣm e; MTA ɣm ai; NUM ɣm e; DRG wɔ–ŋm e; LKN ɣm e.

(#107) m’alam’ala ‘young unmarried girl’ [PNCV *mala(mala) ‘naked’ (?)]: HIU ɣɔaŋ aŋ ɣɔ; LTI ɣɔe əŋ ɣɔ; VLW ɣm ñ’m al ɣm al; MTP ɣm al ɣm al;
VRS ɣɔnʷəlɔŋmʷəl; MSN ɣɔnʷəlɔŋmʷəl; MTΛ ɣɔnʷəlɔŋmʷəla; NUM ɣɔnʷəlɔŋmʷəl; DRG ɣɔnʷəlɔŋmʷəl; KρO ɣɔnʷəlɔŋmʷəl; OLR ɣɔnʷəlɔŋmʷəl; LKN ɣɔnʷəlɔŋmʷəl; MRL ɣɔnʷəlɔŋmʷəl.

(#108) ʼməra[y]i ʼChalcophaps indica, k.o. doveʼ: MTΛ ɲa-ɣɔnʷəlɔŋmʷəl; LMK ɣɔnʷəlɔŋmʷəl; VRA ɣɔnʷəlɔŋmʷəl; VRS ɣɔnʷəlɔŋmʷəl; MTA ɣɔnʷəlɔŋmʷəla; DRG wɔ-ɣɔnʷəlɔŋmʷəl; LKN ɣɔnʷəlɔŋmʷəl.

(#109) ʼmətiga ʻpurple swanmhen, Porphyrio porphyrioʼ: LMK ɣɔnʷəlɔŋmʷəl; VRA ɣɔnʷəlɔŋmʷəl; VRS ɣɔnʷəlɔŋmʷəl; MTA ɣɔnʷəlɔŋmʷəla; DRG ɣɔnʷəlɔŋmʷəl; LKN ɣɔnʷəlɔŋmʷəl.

(#110) ʼməsa ʻgoatfish, Mullidae spp.ʼ [see (154)]: MTΛ ɲa-ɣɔnʷəlɔŋmʷəl; VRA ɣɔnʷəlɔŋmʷəl; VRS ɣɔnʷəlɔŋmʷəl; MTA ɣɔnʷəlɔŋmʷəla; OLΛ ɣɔnʷəlɔŋmus; LKN ɣɔnʷəlɔŋmus.

(#111) ʼmətawasa[i] ʻempty space, place; momentʼ[1]; ʻgardenʼ[2] [PNCV *masawa ʻspace, sky, open seaʼ]: LHI mɔsɔ[1]; VΛW ɲa-mah[1]; MTΛ məh[1]; VRS masawhe[1]; MSN masawhe[1]; MTA masawo[1]; DRG ɣɔnʷəlɔŋmus[2]; KRO ɣɔnʷəlɔŋmus[2]; OLΛ ɣɔnʷəlɔŋmus[2]; LKN ɣɔnʷəlɔŋmus[2]; MRL ɣɔnʷəlɔŋmus[2].

(#112) ʼmele-dolu ʻa hundredʼ [lit. ʻa whole Cycas palmʼ]: LHI ɲe-ɬəld; MTΛ ɲe-ɬəld; LMK ɲe-ɬəld; VRA ɲe-ɬəld; VRS ɲe-ɬəld; MTA ɲe-ɬəld; MSN ɲe-ɬəld; OLΛ ɲe-ɬəld; LKN ɲe-ɬəld.

(#113) ʼmera ʻchildʼ [PNCV *mera ʻchildʼ]: LΤG ɲe-ɬə; LHI su-ɬə; VΛW ne-ɬə; MTΛ ne; LΜG ne; VΛW ne; MTA ne; MSN ne; NUM ne; DRG ne; KRO na; OLΛ na; LKN na; MRL na.

(#114) ʼnanara ʻPterocarpus indicusʼ: LΤG ɲiɾɬə; VΛW na-ɬə; MTΛ na-ɬə; VRA na-ɬə; VRS na-ɬə; MTA na-ɬə; MSN na-ɬə; DRG na-ɬə; KRO na; OLΛ na; LKN na; MRL na.

(#115) ʼnau ʻ1st sg free pronounʼ [PNCV *nau]: HIU nɔkə; LΤG nɔkə; LHI nɔ; VΛW ne; MTΛ nɔ; LΜG nɔ; VΛW nɔ; MTA nɔ; MSN nɔ; NUM nɔ; DRG nɔ; KRO nɔ; OLΛ nɔ; LKN nɔ; MRL nɔ.

(#116) ʼnigo ʻ2nd sg free pronounʼ [PNCV *nigo]: HIU ikə; LΤG nikə; LHI nək; VΛW nɨŋ; MTΛ nɨŋ; LΜG nɨŋ; VΛW nɨŋ; MTA nɨŋ; MSN nɨŋ; NUM nɨŋ; DRG nɨŋ; KRO nɨŋ; OLΛ nɨŋ; LKN nɨŋ; MRL nɨŋ.

(#117) ʼoraora ʻplay; gameʼ: VRA ̱ɾəɹə; VRS ̱ɾəɹə; MSN ̱ɾəɹə; MTA ̱ɾəɹə; NUM ̱ɾəɹə; DRG ̱ɾəɹə; KRO ̱ɾəɹə; LKN ̱ɾəɹə; MRL ̱ɾəɹə.

(#118) ʼraga ʻ[v.] lift up; [adv.] up, upward; immediately; (take) away/offʼ...: HIU ɬəkə; LΤG rako; LHI yəkə; VΛW yəŋ; MTΛ yəŋ; LΜG rako; VRA rako; VRS rako; MSN rako; MTA rako; DRG rako; KRO rako; OLΛ rako; LKN rako; MRL rako.

(#119) ʼraŋo-gu ʻmy legs/feetʼ: HIU ɛŋo-ɬə; LΤG ɛŋo-ɬə; LHI yɛŋ-ɬə; LHR yɛŋ-ɬə; VΛW nɨŋ-ɬə; MTΛ nɨŋ-ɬə; VRS nɨŋ-ɬə; MTA nɨŋ-ɬə; MSN nɨŋ-ɬə; DRG nɨŋ-ɬə; KRO nɨŋ-ɬə; LKN nɨŋ-ɬə; MRL nɨŋ-ɬə.

(#120) ʼraporaŋo ʻAcallypha spp.ʼ: MTΛ na-ɬəŋəŋ; VRA rəŋəŋ; VRS rəŋəŋ; MTA rəŋəŋ; DRG wəɬəŋəŋ; LKN rəŋəŋ.


(#122) ʼreŋaqisi ʻChamomysa plantarum, k.o. parrotʼ: MTΛ na-ɬəŋə; VRA reŋə; VRS reŋə; MTA reŋə; DRG wəɬəŋə; LKN ɬəŋə.ə.

(#123) ʼriya ʻswell; fat, bigʼ: MTΛ ɬəŋə; VRA ɬəŋə; VRS ɬəŋə; MSN ɬəŋə; MTA ɬəŋə; DRG ɬəŋə; KRO ɬəŋə; OLΛ ɬəŋə; MRL ɬəŋə.

(#124) ʼriρiyi ʻporpoise; whaleʼ: VRA riρiyi; VRS riρiyi; MSN riρiyi; MTA riρiyi; DRG riρiyi; OLΛ riρiyi; LKN riρiyi; MRL ne-ɬəŋə.ə.

(#125) ʼriʃaɬiyi ʻnear, closeʼ: HIU ʃəɬə; LΤG ʃəɬə; LHI yipə; LHR yipə; VΛW yipə; MTΛ ʃəɬə; VRS ʃəɬə; MTA ʃəɬə; MSN ʃəɬə; DRG ʃəɬə; KRO ʃəɬə; OLΛ ʃəɬə; MRL ʃəɬə.
the history of the vowels of northern vanuatu languages

L
M
L
M
L
M
V
V
L
V
su
sili
saumwa
sura
suwe
rowo
sala
rowou
tabia
sa
hiri
KN
TG
h¡lº
TG
sa
RG
sil
LR
RA
RS
s¨r
sa
si
TA
TG
*r°w°
M
*r°w°
L
*r°w°

su
sili
saumwa
sura
suwe
rowo
sala
rowou
tabia
sa
hiri
KN
TG
h¡lº
TG
sa
RG
sil
LR
RA
RS
s¨r
sa
si
TA
TG
*r°w°
M
*r°w°
L
*r°w°

su
sili
saumwa
sura
suwe
rowo
sala
rowou
tabia
sa
hiri
KN
TG
h¡lº
TG
sa
RG
sil
LR
RA
RS
s¨r
sa
si
TA
TG
*r°w°
M
*r°w°
L
*r°w°

su
sili
saumwa
sura
suwe
rowo
sala
rowou
tabia
sa
hiri
KN
TG
h¡lº
TG
sa
RG
sil
LR
RA
RS
s¨r
sa
si
TA
TG
*r°w°
M
*r°w°
L
*r°w°

su
sili
saumwa
sura
suwe
rowo
sala
rowou
tabia
sa
hiri
KN
TG
h¡lº
TG
sa
RG
sil
LR
RA
RS
s¨r
sa
si
TA
TG
*r°w°
M
*r°w°
L
*r°w°
(169) "tubu-gu" 'my grandparent; my grandchild' [POC *tubu-]: LTG tubu; MTP ik³pu; VRA tubu-k; VRS tibii-k; MSN tupu-k; MTA tupu-k; NUM tubu-k; DRG tubu-k; KRO tubu-k; LKN tupu-k.

(170) "tubei" 'cultivated garden': LHI tek'e; VLW n-ulg'ri; MTP m-k³ri; LMG a³ri; VRA a³ri; VRS tuk³ri; MSN tuk³ri; MTA k³ri; OLR tuk³ri.

(171) "tumus(i,u)" ~ "sumu(i,u)" 'picot, Siganus sp.': VRA tumus; MTA sumut; DRG sumat; LKN tumuh.

(172) "tur(i,u)(yi)" 'body, trunk; the real, main, very X; really': HIU tikt; LTG sir; MTP tîy; VRA tîr; VRS tîrû; MTA tur ~ turia-; DRG tru ~ turî; KRO turú; OLR tiriti; LKN tiriî; MRL tur.

(173) "tuwale" 'one': LTG tuew; LHI ße-twa; LHR ßu-ľowa; MTP ßi-tywal; VRA ßul/wal; VRS ßiwiwal; MTA ßwale; NUM ßi-twal; DRG su-twal; KRO ßu-twal; LKN ßowa; MRL tøwel.

(174) "un(i,u)" 'drink': LTG ûn; VLW ûn; MTP ûn; LMG ûn; VRA ûn; MTA ûn; OLR ûn; LKN ûn.

(175) "ulusu-i" 'top of (tree); end': VLW n-ûsi; MTP ûnsi; VRS ilesi; MSN ilesr; MTA iles; NUM iles; DRG ûls-yî; LKN ûhi; MRL n-ûlsi.

(176) "bage-gu" 'my thigh': LTG wroke; VLW ntîgr-g; MTP ñp-kîr-k; VRA ñkîr-k; VRS ñkîr-k; DRG ñkîr-k; LKN ñkîr-k; MRL ñkîr-k.

(177) "bala-gu" 'my (inner) mouth': LTG ßale-k; LHI ßol-k; LHR ßeale-k; MTP ñp-ple-k; VRS ñalek-k; MSN ßol-k; MTA ñala-k; NUM ñala-k; DRG ñlal-k; LKN ñalal-k; MRL ñolol-k.

(178) "bara" 'twins': LTG ñarepr; MTP ñapram; VRA ñarabî; ñas; MTA ñara; LKN ñarap.

(179) "bara-gu" 'my chest; my liver': HIU þolê-k; LTG ñole-k; MTP ñye-k; MSN ñolê-k; MTA ñare-k; NUM ñara-k; DRG ñare-k; LKN ñare-k; MRL ñare-k.

(180) "barusî" 'ask, enquire': LTG ñberûrû; MTP ñhûî; VRS ñorî; MSN ñorî; MTA ñûsî; NUM ñûsî; DRG ñûsî; OLR ñûsî; LKN ñûsî.

(181) "baso[yi]" 'to plant (taro+)' [POC *pasoq]: MTP ñah; VRA ñas; VRS ñas; NUM ñas; DRG ñas; KRO ñas; OLR ñas; LKN ñas.

(182) "ba[tanau" 'teach, learn': HIU ñatam; LTG ñatam; MTP ñâm; VRA ñata; VRS ñata; MTA ñatanâ; KRO ñata; OLR ñuta; LKN ñata; MRL ñatû.

(183) "betaye" 'already; complete aspect': VLW ñatay; MTP ñatoy; LMG ñatû; VRA ñata; VRS ñata; MSN ñaya; MTA ñeta; NUM ñata; DRG ñata; LKN ñata; MRL ñata.

(184) "betale" 'banana (generic term)' [PNVC *betali]: HIU ñata; LTG ñatel; LHI ñatel; LHR ñatel; VLW n-ñatel; MTP ñpatel; LMG n-ñatel; VRA ñatal; VRS ñatel; MSN ñatel; MTA ñatel; NUM ñatel; DRG ñatel; KRO ñatel; LKN ñatel; MRL ñatel.

(185) "bele-gu" 'my mother': MTP ñiñê-k; VRA ñe-k; MTA ñe-k; NUM ñafrî-k; DRG ñiñê-k; KRO ñiñê-k; OLR ñiñê-k; LKN ñe-k; MRL ñiñê-k.

(186) "biloyyi" 'umbrella leaf, Licuala sp.': VLW n-yelay; MTA ñiñê; DRG ñiñê; KRO ñiñê; LKN ñiñê; MRL ñiñê.

(187) "bina" 'shoot (arrow)' [PNVC *bana-i]: LTG ñinir; VLW ñin; MTP ñîm; VRS ñîm; MSN ñîm; MTA ñîne; DRG ñîm; KRO ñîm; OLR ñîn; LKN ñîne.

(188) "bini[i]" 'skin; bark' [PNVC *bînu-ti 'skin, husk, rind']: HIU ñîn; VLW ni-ñîn; MTP ni-ñîn; LMG ñîn; VRA ñî-nî; VRS ñîiti; MSN ñîtti; MTA ñîni; ñîni; NUM ñîni; DRG ñîni; LKN ñîni; MRL ñîni.

(189) "bururu bururu bilaye" 'Plectorhynchus orientalis' [lit. ... (striped like) rail bird]': MTP wayway bilay; VRA wuwr buyla; MTA wuwr pilaye; DRG ñiñê bilay; KRO ñafrî bilay; OLR wayway pilaye; LKN wuwr pilaye.

(190) "bûsi" 'hit; kill': HIU wu; LTG wu; VLW wîh; MTP wîh; VRA wûs; VRS wûs; MSN wûs; MTA wûs; DRG wûs; KRO wûs; OLR wûs; LKN wûs; MRL wûs.


REFERENCES


