

## A Phonological Sketch of Lewotobi Lamaholot

NAGAYA, Naonori  
Rice University

In this paper, I present a preliminary analysis of the phonology of the Lewotobi dialect of Lamaholot (Central Malayo-Polynesian, eastern Indonesia), including phonemes, allophones, phonotactics, syllable structures, stress placement, and morphophonemic processes. I also argue that the Lewotobi dialect differs from the neighboring Lamaholot dialects with regard to at least three features. First, [v] appears in the positions where [w], [v], or [f] occurs in other dialects. Second, this dialect only allows open syllables, with the exception that the glottal stop can occur as a word-final coda. Third, /a/ is raised to [ə] either when nasalized or before a nasalized vowel. The description and analysis presented here are entirely based on a database of approximately 1,000 words collected through my fieldwork.

**Keywords:** Lamaholot, Central Malayo-Polynesian, dialect chain, phonology, phonotactics

1. Lamaholot and its dialects
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3. Phonotactics
4. Stress placement
5. Morphophonological processes
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### 1. Lamaholot and its dialects\*

The Lamaholot language is a Central Malayo-Polynesian language of the Austronesian language family (Blust 1993, 2009a; cf. Donohue and Grimes 2008) and is spoken in the eastern part of Flores Island and neighboring islands in the Lesser Sunda Islands of

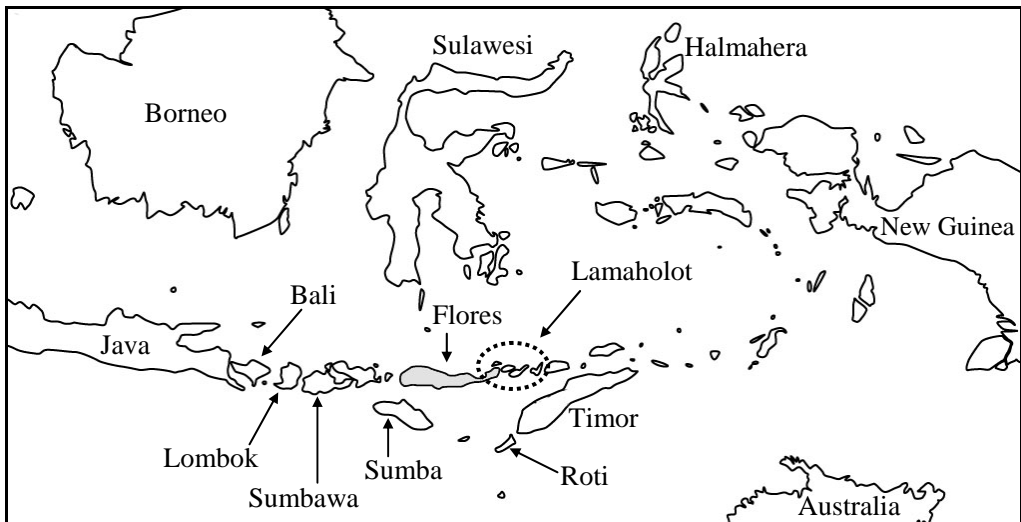
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Indonesia, serving as the lingua franca of the region (Grimes et al. 1997; Lewis 2009). The position of Flores Island relative to the other islands of Indonesia is shown in Map 1, where the Lamaholot speaking region is indicated by a dotted circle. Within Central Malayo-Polynesian languages, it is considered to be in a subgroup with the languages of Timor and Roti rather than with those of central and western Flores (Wurm and Hattori 1983; Lewis 2009; cf. Fernandes 1996). The reported number of speakers of the entire language is somewhere between 150,000 and 200,000 (Nishiyama and Kelen 2007).

Lamaholot is spoken adjacent to Sikka to the west and Alorese (Klamer ms.), Kedang (Samely 1991), Larantuka Malay (Paauw 2009), and “Papuan” languages to the east. “Papuan” or non-Austronesian languages of this region include Abui (Kratochvíl 2007), Adang (Haan 2001), Klön (Baird 2008), and Teiwa (Klamer 2010). See also Stokhof (1975).

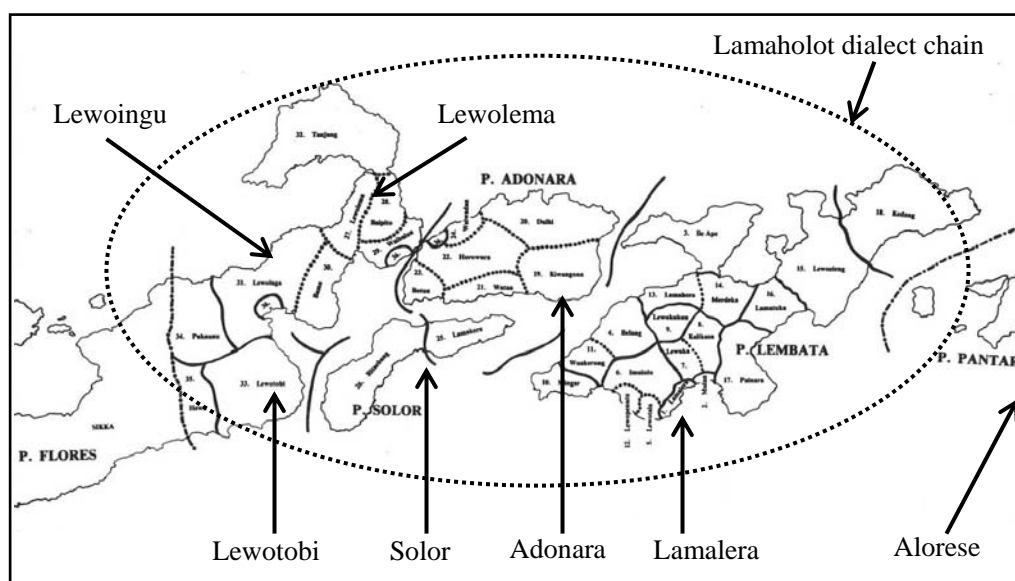
From a sociolinguistic perspective, it is noted that almost all Lamaholot speakers are bilingual or multilingual: they learn Indonesian as the official language of the Republic of Indonesia at school, and some of them also speak local languages such as Sikka and Larantuka Malay. Alternative names for Lamaholot include *Solorese* (Lewis 2009) and *Koda Kiwan* ‘the language of the forest’ (Pampus 1999, 2001).



**Map 1: Flores Island and the islands of Indonesia**

Although the speakers of Lamaholot usually think of it as a single language, it is better understood as a dialect chain with substantial enough differences between some of the dialects, making them mutually incomprehensible (Keraf 1978; Bowden 2008). By comparing Swadesh 200-word lists across Lamaholot dialects, Keraf (1978) concludes that

there are 33 dialects in this language (see Map 2). The dialects studied with at least some detail include the Solor dialect (Arndt 1937), the Lamalera dialect (Keraf 1978), the Lewolema dialect (Pampus 1999, 2001), the Lewoingu dialect (Nishiyama and Kelen 2007), and the Adonara dialect (Grangé 2009). Vatter (1932), Barnes (1996), and Kohl (1998), among others, are anthropological studies of the Lamaholot societies. Concerning the internal relationships among Lamaholot dialects, Keraf (1978) provides a hypothetical language tree by calculating lexicostatistic percentages based on Swadesh 200-word lists across dialects, although it mainly discusses the morphosyntax of the Lamalera dialect. Doyle (2010) is a comparative study of the historical relationships between Lamaholot dialects and other languages in the Flores-Lembata subgroup. Klamer (forthcoming) explores morphosyntactic similarities and differences between Lamaholot and its closest relative, Alorese. Thus, although most languages of eastern Indonesia are underdescribed (Klamer and Ewing in press), Lamaholot is perhaps “the most thoroughly documented of all the CMP languages” (Bowden and Ross 2003:143).



**Map 2: Lamaholot dialects (adapted from Keraf 1978)**

Despite this relatively rich literature, however, no work has focused on the Lewotobi dialect of Lamaholot, which is the most westerly dialect of the chain and is spoken by approximately 6,000 speakers in Kecamatan Ile Bura. In Grimes et al. (1997) and Lewis (2009), the Lewotobi dialect is distinguished from Lamaholot and treated as a separate language named “the Lewotobi language.” A short list of Swadesh 200 words is available

in Keraf (1978), but there is no substantial work beyond that, and grammatical details remain to be described.

The purpose of this paper is to present a preliminary analysis of the phonology of the Lewotobi dialect of Lamaholot on the basis of data collected through the present author's fieldwork. Various issues on Lewotobi Lamaholot phonology are addressed, including segmental phonemes, their phonetic descriptions, phonotactics, stress assignment, and morphophonological processes. I also point out that Lewotobi Lamaholot has three phonological innovations that may possibly differentiate it from other dialects. The analysis presented here is entirely based on the data that I have collected through my own fieldwork at Desa Nurri of Kecamatan Ile Bura of Kabupaten Flores Timur in Nusa Tenggara Timur of Indonesia. The database examined is composed of approximately 1,000 words.

The paper is organized as follows. In Section 2, I present the phoneme inventory and phonetic descriptions of each consonant and vowel phoneme. I go on to discuss phonotactics ranging from syllable structures to consonant clusters in Section 3. In Section 4, I briefly provide an analysis of stress assignment. In Section 5, morphophonological processes such as nasalization and assimilation are described. Finally, the paper is concluded in Section 6. At the end of the paper, the Swadesh 200-word list compiled by the present author is provided as an appendix.

## 2. Phoneme inventory

Lewotobi Lamaholot has 27 indigenous phonemes, namely, 16 consonants and 11 vowels (Tables 1 and 2). In addition, there are three loan phonemes shown in parentheses, /tʃ, ɲ, j/, which only appear in loan words borrowed from Indonesian and other Malay varieties in the region. This paper only discusses the native phonemes, and the three loan phonemes are excluded from the following discussions.

The inventory of consonantal phonemes for Lewotobi Lamaholot is set out in Table 1. It has a relatively simple set of consonantal contrasts and displays two characteristics to note compared to other languages in Flores. First, Lewotobi Lamaholot lacks a bilabial approximant /w/ (see Section 2.1). Second, it only makes a two-way contrast between stops, namely, voiceless and voiced stops, which does not seem typical of Flores languages. Some other Flores languages have a three- or four-way distinction. For example, the Udiworowatu Kéo phonemic inventory makes a four-way distinction between stops: voiceless, voiced, preglottalized and prenasalized (Baird 2002). Furthermore, the existence of prenasalized stop consonants is considered one of the typical features of languages in eastern Indonesia (Klamer 2002). However, Lewotobi Lamaholot does not contain them in its consonant phoneme inventory.

The inventory of vowel phonemes is laid out in Table 2. Its most noteworthy feature is the existence of contrastive vowel nasalization, which Lamaholot speakers characterize as *sengau* ‘talk through the nose’ (Indonesian). Although “[p]honemically nasalized vowels are rare in AN [NN—Austronesian] languages” (Blust 2009b:654), the Lewotobi dialect has five nasalized vowels in addition to six oral vowels: /e, i, a, ə, o, u/ and /ẽ, ĩ, ǣ, õ, ũ/. The difference in number between oral and nasalized vowels is found quite widely among languages with contrastive nasalized vowels. In his typological survey on nasalized vowels, Hajek (2008) notes that “[t]he number of contrastive nasal vowels in a language is often less than that of oral vowels.”

**Table 1: Consonantal phonemes**

|             | BILABIAL | LABIO-DENTAL | DENTAL | ALVEOLAR | ALVEO-PALATAL | VELAR | GLOTTAL |
|-------------|----------|--------------|--------|----------|---------------|-------|---------|
| Stop        | p b      |              | t̚     | d        |               | k g   | ʔ       |
| Nasal       | m        |              |        | n        | (ɲ)           | ŋ     |         |
| Fricative   |          | v            |        | s        |               |       | h       |
| Affricate   |          |              |        |          | (tʃ) dʒ       |       |         |
| Lateral     |          |              |        | l        |               |       |         |
| Trill       |          |              |        | r        |               |       |         |
| Approximant |          |              |        |          | (j)           |       |         |

**Table 2: Vowel phonemes**

|      | FRONT | CENTER | BACK |
|------|-------|--------|------|
| High | i ĩ   |        | u ũ  |
| Mid  | e ẽ   | ə ǣ    | o õ  |
| Low  |       | a      |      |

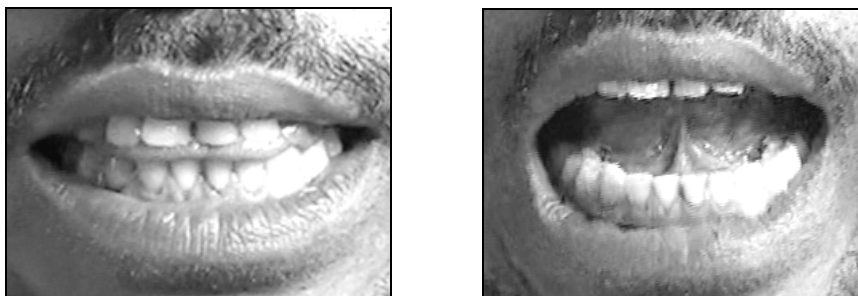
## 2.1. Phonetic descriptions: Consonants

This section provides a phonetic description of the consonantal phonemes by listing each one and its major allophonic variants, if any, with examples of the phonemes in words. As will be discussed in Section 4, stress regularly falls on the penultimate syllable and is not phonemic. For this reason, penultimate stress is not marked in any of the phonetic transcriptions, unless it is relevant to a particular point being discussed. Consonant clusters will be discussed separately in Section 3.3.

First, consider stops. Lewotobi Lamaholot has seven stops: three voiceless stops /p, t̚, k/ and three voiced stops /b, d, g/ in addition to the glottal stop /ʔ/ (see later discussion in this section). All stops are unaspirated. The phonemes /p, t̚, k, b, d, g/ can appear in word-initial and word-medial positions.

|     |      |   |
|-----|------|---|
| /p/ | [p]  | voiceless bilabial stop<br>[pana] ‘walk, leave’<br>[lapɔ̃] ‘rope’   |
| /b/ | [b]  | voiced bilabial stop<br>[belo] ‘cut’<br>[səba] ‘look for, search’   |
| /t/ | [t̪] | voiceless apico-dental stop<br>[to:] ‘hope’<br>[t̪itoʔ] ‘touch’   |
| /d/ | [d]  | voiced apico-alveolar stop<br>[dai] ‘come (from the direction of the sea, etc.)’<br>[lodo] ‘go down, move down’ |
| /k/ | [k]  | voiceless dorso-velar stop<br>[kavo] ‘whisper’<br>[soka] ‘dance’  |
| /g/ | [g]  | voiced dorso-velar stop<br>[gaka] ‘cry’<br>[sogaʔ] ‘lift’   |

Note that /t/ is realized as a dental stop [t̪], whereas its voiced counterpart, /d/, is pronounced as an alveolar stop [d]. The difference in place of articulation between /t/ and /d/ is evident from Figure 1, in which photographs of a male speaker are shown. The left photograph illustrates the position of the tongue during the consonant [t̪] in [t̪ane] ‘weave.’ It is obvious that the tongue is against the teeth. In contrast, the right photograph shows that the consonant [d] in [dai] ‘come’ is articulated with the tongue against the alveolar ridge, not the teeth.



**Figure 1: The position of the tongue during [t̪] in [t̪ane] ‘weave’ (left) and [d] in [dai] ‘come’ (right)**

This asymmetry in place of articulation is not uncommon in Austronesian languages of Indonesia. Blust (1990:233) observes “[a] number of Western Malayo-Polynesian languages and perhaps some others contrast a dental /t/ with an alveolar /d/ and /n/.” Ross (1992) reconstructs the contrast between a dental /t/ and an alveolar /d/ to Proto Austronesian (but see also Donohue 2009).

There are one voiced fricative /v/ and two voiceless fricatives /s/ and /h/. They can appear either word-initially or word-medially.

|     |     |   |
|-----|-----|---|
| /v/ | [v] | voiced labiodental approximant<br>/#_V or /(a)_(a)<br>[vae] ‘aunt’<br>[kova] ‘cloud’                              |
|     | [v] | voiced labiodental fricative<br>elsewhere<br>[vreŋo] ‘throw off, shake off’<br>[kvue] ‘crazy’<br>[luvu] ‘stomach’ |
| /s/ | [s] | voiceless alveolar fricative<br>[siʔa] ‘salt’<br>[kəsəʔ] ‘a little’   |
| /h/ | [h] | voiceless glottal fricative<br>[hama] ‘same’<br>[mehaʔ] ‘alone’   |

The phoneme /v/ needs more description. It is realized as [v] either when it occurs in the word-initial position and is directly followed by a vowel or when it appears before or after the low central vowel /a/; it is pronounced as [v] elsewhere. The waveforms and spectrograms of [vae] ‘pig’ (left) and [luvu] ‘stomach’ (right) are given in Figure 2. On the one hand, it is clear from the spectrogram of [vae] that there are no noticeable fricative noises that are characteristic of fricatives. On the other hand, fricative noises caused by a turbulent airstream are observed in the middle of the spectrogram of [luvu]. In both spectrograms, the relevant areas are indicated by arrows.

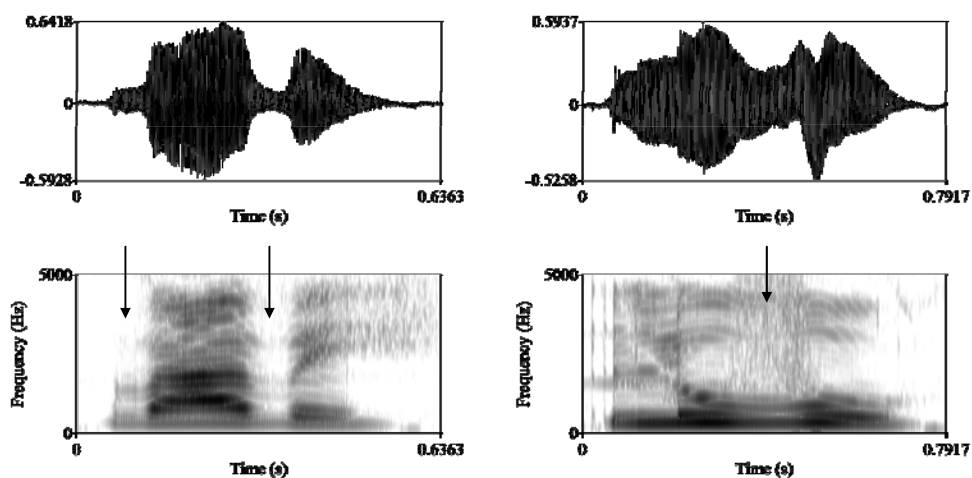


Figure 2: [vave] ‘pig’ (left) and [luvu] ‘stomach’ (right)

Positing the fricative phoneme /v/ with an approximant allophone is chosen over the approximant phoneme /v/ with a fricative allophone for two reasons (Mark Donohue, pers. comm.). First, the phonotactics of /v/ in consonant clusters indicates that /v/ behaves like a fricative (see Section 3). The fact that /v/ allows /vr/ and /vl/ clusters parallels /sr/ and /sl/; it behaves like a fricative and more like an obstruent. Second, the lower lip touches the upper front teeth even in the environments where [v] appears. The photographs of two male speakers in Figure 3 illustrate the position of the lips during the word-initial consonant [v] in [vave] ‘pig.’ The lower lip touches the upper front teeth slightly, although the vocal tract is not constricted to such an extent that a noisy airstream is produced.

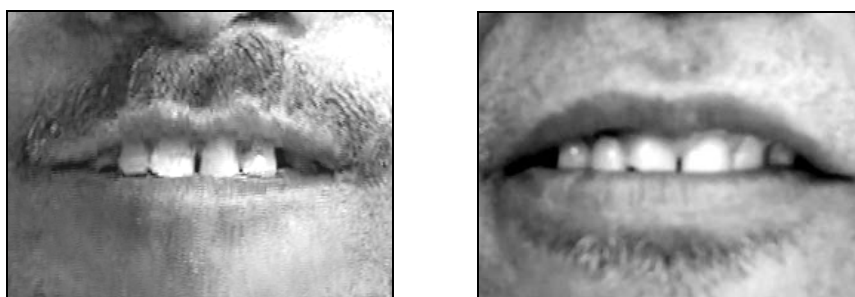


Figure 3: The position of lips during the initial consonant [v] in [vave] ‘pig’

As mentioned above, a noteworthy feature of the Lewotobi Lamaholot consonant inventory is the existence of [v]: /v/ is realized as [w], [v], or [f] in the neighboring dialects of Lamaholot and is often spelled as “w” in the informal orthography commonly used



among Lamaholot speakers. Compare relevant words across dialects in Table 3, which shows that reflexes of PMP \*b and \*w are realized as [w], [v], or [f] in other dialects but as [v] in the Lewotobi dialect.<sup>1</sup>

**Table 3: Reflexes of PMP \*b and \*w<sup>2</sup>**

| PMP               | Lewotobi | Lewoingu | Lewolema | Solor | Lamalera | Alorese |
|-------------------|----------|----------|----------|-------|----------|---------|
| *bulan ‘moon’     | vulõ     | wulan    | vulã     | 'wulɑ | fulâ     | 'fulɑŋ  |
| *batu ‘stone’     | vaʈo     | wato     | vato     | 'wato | fato     | 'fato   |
| *buah ‘fruit’     | vuõʔ     | wua      | vuã      | 'uã   | fuã      | 'kulaŋ  |
| *ka-wanan ‘right’ | vənõ     | wanan    | vanã     | 'wana | fana     | di'kẽ:  |
| *wahiR ‘water’    | vaiʔ     | waiʔ     | vaiʔ     | N/A   | fai      | fei     |

The phoneme /dʒ/ is the only affricate in Lewotobi Lamaholot, although its voiceless counterpart /tʃ/ appears in loan words from Malay (e.g., *baca* [batʃa] ‘read’). /dʒ/ can appear either word-initially or word-medially.

/dʒ/            [dʒ]            voiced alveo-palatal affricate  
                          [dʒəkʊ]    ‘dead’  
                          [kadʒoʔ]    ‘tree’

The liquids /l/ and /r/ appear in either word-initial or word-medial position.

/r/                [r]                voiced alveolar trill  
                          [raʈaʔ]        ‘hair’  
                          [pira]         ‘how many’  
 /l/                [l]                voiced alveolar lateral  
                          [loʔi]         ‘cold’  
                          [həlaʔ]       ‘not’

Lewotobi Lamaholot has three nasals, namely, /m/, /n/, and /ŋ/, which are realized as voiced bilabial, alveolar, and velar nasals respectively. The distribution of /ŋ/ is limited: it only occurs as the word-medial onset. Other nasals can appear either word-initially or word-medially.

<sup>1</sup> Lewotobi Lamaholot speakers use a labiodental approximant [v] rather than a bilabial approximant [w] even when they pronounce Indonesian words with /w/ such as *waktu* ‘time’ and *warna* ‘color.’

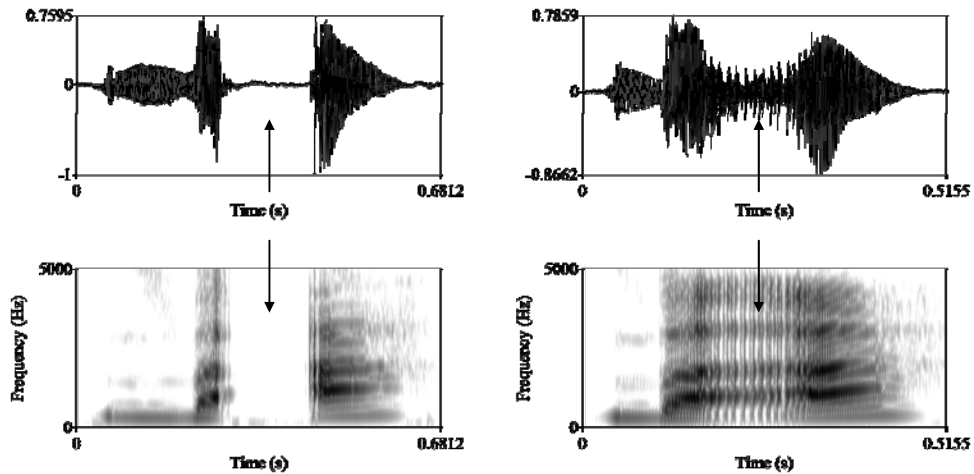
<sup>2</sup> Sources are: Lewoingu (Nishiyama and Kelen 2007), Lewolema (Pampus 1999 cited in Doyle 2001), Solor (Klamer’s field notes included in Klamer ms.), Lamalera (Keraf 1978), Alorese (Klamer ms.), and Proto Malayo-Polynesian (PMP) (Blust 1993:280–284).

|     |     |  |
|-----|-----|--|
| /m/ | [m] | voiced bilabial nasal stop<br>[maʦa] ‘eye’<br>[kame] 1PL.EXC |
| /n/ | [n] | voiced alveolar nasal stop<br>[naŋe] ‘swim’<br>[pana] ‘walk’ |
| /ŋ/ | [ŋ] | voiced dorso-velar nasal stop<br>[vəŋə] ‘rice’               |

The glottal stop /ʔ/ occurs either as a word-medial onset or a word-final coda. It does not occur phonologically in the word-initial position. As will be discussed in Section 3.1, Lewotobi Lamaholot displays a strong preference for open syllables, but the glottal stop is an exception to this generalization.

|     |     |  |
|-----|-----|--|
| /ʔ/ | [ʔ] | voiceless glottal stop                           |
|     | [V] | creaky voice<br>[baʔa] ‘heavy’<br>[kotəʔ] ‘head’ |

The glottal stop phoneme may also manifest itself as creaky voice or laryngealization, in which “the vocal folds are held more tightly together than in regular voicing” (Ladefoged 2005:143). Figure 4 shows the waveforms and spectrograms of /baʔa/ ‘heavy’ pronounced by a female speaker in careful speech (left) and in casual speech (right). Those on the left side highlight that when pronounced carefully, the phoneme /ʔ/ is realized as a complete stop. The vocal folds do not vibrate due to complete closure of the glottis. In contrast, as seen in the waveform and spectrogram on the right, the casually pronounced /ʔ/ is realized as laryngealization of two adjacent vowels. Look at irregular pulses in the middle.



**Figure 4: /baʔa/ in careful speech (left) and casual speech (right)**

From a crosslinguistic perspective, this is not uncommon. “Creaky voice often occurs as the phonetic realization of a phonological glottal stop” (Ladefoged 2003:175); “[i]n the great majority of languages we have heard, glottal stops are apt to fall short of complete closure, especially in intervocalic positions. In place of a true stop, a very compressed form of creaky voice or some less extreme form of stiff phonation may be superimposed on the vocalic stream” (Ladefoged and Maddieson 1996:75).

The glottal stop may appear phonetically to indicate the beginning of a word when no other consonant is present. For example, /aʔa/ ‘gum’ can be pronounced as [ʔaʔa] with a glottal stop added to the word-initial onset. The waveform and stereogram of [ʔaʔa] in Figure 5 indicate that the same kind of burst is observed in both the word-initial and the word-medial positions. However, the glottal stop in this position is not phonemic: its existence or absence does not constitute a difference in meaning. Native speakers of Lewotobi Lamaholot do not recognize any phoneme in the onset of a vowel-initial word.

When it appears in word-medial positions, the glottal stop is treated as the onset of the following syllable rather than the coda of the preceding syllable. There are two reasons for this analysis. First, consonant clusters of the /ʔ.C/ type do not appear in any positions of words in my database. If the glottal stop could appear as the coda of a word-medial syllable, /ʔ.C/ consonant clusters would be possible. Second, when asked to slowly pronounce words with a word-medial glottal stop, speakers syllabify a glottal stop as the onset of a syllable. See Figure 6, which illustrates the waveform and spectrogram of /baʔa/ ‘heavy’ pronounced slowly by a male speaker. Observe that the vowel of the first syllable does not show any sign of laryngealization or burst which that of the second syllable does.

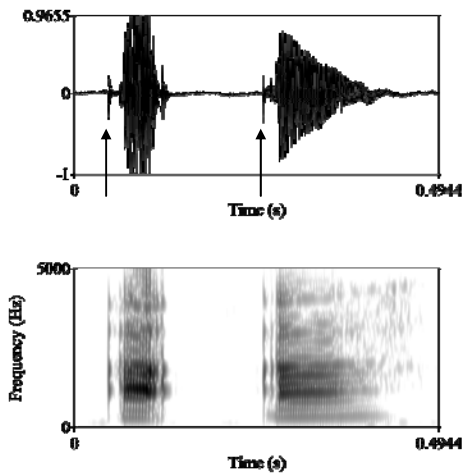


Figure 5: /aʔa/ [ʔaʔa] ‘gum’

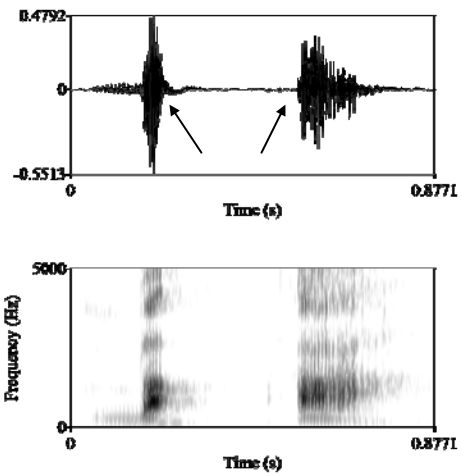


Figure 6: /baʔa/ [ba.ʔa] ‘heavy’

Contrast between various pairs of phonetically similar consonants can be established by means of the following minimal pairs. In a few cases in which no minimal pairs exist in the corpus, near-minimal pairs are shown.

|     |    |     |                                    |
|-----|----|-----|------------------------------------|
| /p/ | vs | /b/ | [pao] ‘mango’                      |
|     |    |     | [bao] ‘float’                      |
|     |    | /m/ | [pao] ‘mango’                      |
|     |    |     | [mao] ‘recover’                    |
| /t/ | vs | /d/ | [ʔai] ‘(we) go’                    |
|     |    |     | [dai] ‘come’                       |
|     |    | /n/ | [ʔai] ‘(we) go’                    |
|     |    |     | [nai] ‘(he or she) goes’           |
| /k/ | vs | /g/ | [həkəʔ] ‘stop’                     |
|     |    |     | [həgəʔ] ‘numb’                     |
|     |    | /ŋ/ | [məkə̃] ‘(you pl.) eat’            |
|     |    |     | [məgə̃] ‘a handful of’             |
|     |    |     | [məŋə̃] <sup>3</sup> ‘play’ (verb) |
| /v/ | vs | /s/ | [vũ] ‘forbidden by taboo’          |
|     |    |     | [sũ] ‘year’                        |
|     |    | /m/ | [vae] ‘aunt’                       |
|     |    |     | [mae] ‘good’                       |

<sup>3</sup> The vowel of the initial syllable is nasalized due to the nasality spread rule discussed in Section 2.2.

|      |    |      |         |                          |
|------|----|------|---------|--------------------------|
|      |    | /b/  | [vaha]  | ‘paddle’ (noun)          |
|      |    |      | [baha]  | ‘paddle’ (verb)          |
| /s/  | vs | /t̥/ | [sũ]    | ‘year’                   |
|      |    |      | [t̥ũ]   | ‘store (corn or rice)’   |
|      |    | /d/  | [soʔo]  | ‘be afraid’              |
|      |    |      | [doʔo]  | ‘clean (bamboo)’         |
|      |    | /k/  | [soso]  | ‘shuffle’                |
|      |    |      | [soko]  | ‘jump’                   |
|      |    | /h/  | [siʔi]  | ‘clean (corn)’           |
|      |    |      | [hiʔi]  | ‘be angry’               |
| /dʒ/ | vs | /t̥/ | [odʒo]  | ‘wave’                   |
|      |    |      | [oʔo]   | ‘car’                    |
|      |    | /d/  | [odʒo]  | ‘wave’                   |
|      |    |      | [odoʔ]  | ‘push’                   |
| /r/  | vs | /t̥/ | [rae]   | ‘landward’               |
|      |    |      | [t̥ae]  | ‘excrement’              |
|      |    | /d/  | [roʔ]   | 3SG.Primary Object       |
|      |    |      | [doʔ]   | ‘scoop (soup)’           |
|      |    | /l/  | [rua]   | ‘two’                    |
|      |    |      | [lua]   | ‘go seawards’            |
| /h/  | vs | /k/  | [nahuʔ] | ‘(he or she) gets water’ |
|      |    |      | [naku]  | ‘borrow’                 |
|      |    | /ʔ/  | [mehaʔ] | ‘alone’                  |
|      |    |      | [meʔa]  | ‘red’                    |
|      |    | ∅    | [paho]  | ‘fart’                   |
|      |    |      | [pao]   | ‘mango’                  |
| /ʔ/  | vs | ∅    | [boʔǝ]  | ‘when’                   |
|      |    |      | [boǝ]   | ‘bark’                   |
|      |    |      | [bauʔ]  | ‘pour’                   |
|      |    |      | [bau]   | ‘tomorrow’               |

## 2.2. Phonetic descriptions: Vowels

Lewotobi Lamaholot has an inventory of six oral vowels and five nasalized vowels, as shown in Table 2. Only the high and mid vowels have corresponding nasalized variants, the low central vowel having only an oral variant. Phonetically long vowels are found only in certain monosyllabic words, but they are not phonemic (see also Section 3.1).<sup>4</sup>

<sup>4</sup> There is only one exception to this statement: [nǝnǝ] ‘ask, request’ vs [nǝnǝ̃] ‘(he or she) weaves’ (*n-* is an S/A-agreement prefix for third person singular).

First, consider oral vowels. They can appear in any position of a word.

|     |     |  |
|-----|-----|--|
| /i/ | [i] | high front unrounded vowel<br>[ipəʔ] ‘tooth’<br>[tʰiʔoʔ] ‘touch’<br>[loʔi] ‘cold’                    |
| /e/ | [e] | mid front unrounded vowel<br>[ekə] ‘weather’<br>[tʰedə] ‘wait’<br>[pohe] ‘help’                      |
| /ə/ | [ə] | mid central unrounded vowel<br>[əmə] ‘don’t exist’<br>[pəro] ‘salty’<br>[kmogə] ‘feel lazy’          |
| /a/ | [a] | low central unrounded vowel<br>[ane] ‘feed chicken’<br>[bali] ‘turn over’<br>[koda] ‘talk; language’ |
| /o/ | [o] | mid back rounded vowel<br>[onəʔ] ‘inside’<br>[plohe] ‘deadly hungry’<br>[piʔo] ‘seven’               |
| /u/ | [u] | high back rounded vowel<br>[ue] ‘taro; potato’<br>[tuba] ‘stab’<br>[riʔu] ‘bone’                     |

Contrasts between the six oral vowels in Lewotobi Lamaholot are illustrated by the following minimal and near-minimal pairs.

|     |    |     |                             |                            |
|-----|----|-----|-----------------------------|----------------------------|
| /i/ | vs | /e/ | [giʔi] ‘itchy’              | [giʔe] ‘clean animal skin’ |
|     |    | /ə/ | [viʔi] ‘goat’               | [vəʔi] ‘later’             |
|     |    | /a/ | [gehi] ‘hate’               | [gehaʔ] ‘pull’             |
|     |    | /o/ | [loʔi] ‘cold’               | [loʔo] ‘go fishing’        |
|     |    | /u/ | [giʔi] ‘itchy’              | [guʔi] ‘scoop’             |
| /e/ | vs | /ə/ | [gəle] ‘roar with laughter’ | [gələ] ‘tired’             |
|     |    | /a/ | [geka] ‘laugh’              | [gaka] ‘cry’               |
|     |    | /o/ | [gile] ‘glance’             | [gilo] ‘sour’              |

|     |    |     |         |              |         |                 |
|-----|----|-----|---------|--------------|---------|-----------------|
|     |    | /u/ | [kaheʔ] | ‘shout’      | [kahuʔ] | ‘(I) get water’ |
| /ə/ | vs | /a/ | [məna]  | ‘vagina’     | [mana]  | ‘kind of fish’  |
|     |    | /o/ | [pəro]  | ‘salty’      | [poro]  | ‘cut’           |
|     |    | /u/ | [məkoʔ] | ‘bad’        | [muko]  | ‘banana’        |
| /a/ | vs | /o/ | [mia]   | ‘be ashamed’ | [mio]   | 2SG             |
|     |    | /u/ | [haka]  | ‘come’       | [haku]  | ‘mix’           |
| /o/ | vs | /u/ | [mo]    | 2SG          | [muʔ]   | ‘always’        |

Now consider contrastive nasalized vowels. The distribution of phonemic nasal vowels is limited to word-final positions (but see discussion below).<sup>5,6</sup> Paaauw (2009) reports that the same kind of word-final contrastive nasalization also occurs in Larantuka Malay, which is spoken in contact with Lamaholot dialects.

|      |      |  |
|------|------|--|
| /ĩ/  | [ĩ]  | nasalized high front unrounded vowel<br>[deʔĩ] ‘stand’ |
| /ẽ/  | [ẽ]  | nasalized mid front unrounded vowel<br>[hapẽ] ‘hang’   |
| /ə̃/ | [ə̃] | nasalized mid central unrounded vowel<br>[ikə̃] ‘fish’ |
| /õ/  | [õ]  | nasalized mid back rounded vowel<br>[siõ] ‘kiss’       |
| /ũ/  | [ũ]  | nasalized high back rounded vowel<br>[vuʔũ] ‘new’      |

Minimal and near-minimal pairs that show a contrast between the oral and the nasalized vowels are given below.

|     |    |      |   |
|-----|----|------|---|
| /i/ | vs | /ĩ/  | [miʔi] ‘urologic disease’<br>[miʔĩ] ‘taboo in food’             |
| /e/ | vs | /ẽ/  | [lereʔ] ‘short; not tall’<br>[lerẽ] ‘dry in the sun by hanging’ |
| /ə/ | vs | /ə̃/ | [gə] ‘and then’<br>[gə̃] ‘(he or she) eats’                     |
| /o/ | vs | /õ/  | [go] 1SG  |

<sup>5</sup> Mark Donohue (pers. comm.) commented that he is not convinced about the nasalized vowels being phonemic for this reason.

<sup>6</sup> Another possible analysis of nasalized vowels in Lewotobi Lamaholot is to posit an archiphoneme /N/, which is realized as nasalization on the preceding vowel, as done for Larantuka Malay (Paaauw 2009). This possibility should be examined in my future research.

|     |    |      |                           |
|-----|----|------|---------------------------|
|     |    | [gõ] | ‘(you (SG)) eat’          |
| /u/ | vs | /ũ/  | [bohuʔ] ‘full, satisfied’ |
|     |    |      | [bohũ] ‘wind, breeze’     |

Most probably, distinctive nasalization in Lewotobi Lamaholot has developed as a result of sound change VN >  $\tilde{V}$ N >  $\tilde{V}$  in word-final positions, which is composed of two connected steps, (a) nasalization and (b) N-deletion (cf. Hajek 1997). In some cases, deleted word-final Ns can be easily detected: (i) word-final nasals that historically existed in Proto Malayo-Polynesian and (ii) word-final nasals of loan words. See below. However, in many other cases, nasalized vowels are fully lexicalized, and it is not possible to tell what the phonetic value of deleted Ns was.

(i) PMP words (Blust 1993):

| Lamaholot          | PMP       | English      |
|--------------------|-----------|--------------|
| miṭṣ̃              | *ma-qitem | ‘black’      |
| ø-enũ <sup>7</sup> | *inum     | ‘drink’      |
| vulṣ̃              | *bulan    | ‘moon’       |
| urṣ̃               | *quzan    | ‘rain’       |
| larṣ̃              | *zalan    | ‘road, path’ |

(ii) Nativization of loan words:

| Lamaholot | Source  | English (Source)     |
|-----------|---------|----------------------|
| dagĩ      | dagiŋ   | ‘meat’ (Indonesian)  |
| blakṣ̃    | bəlakəŋ | ‘back’ (Indonesian)  |
| noṭṣ̃     | nonton  | ‘watch’ (Indonesian) |
| nipṣ̃     | nippon  | ‘Japan’ (Japanese)   |

Nasalization in this language has a few important grammatical functions. One of its functions is to form the inalienable possessive construction, which indicates that someone owns something considered permanently or necessarily possessed. Observe below that inalienable possession is expressed by means of nasalization of a word-final vowel of inalienably possessed nouns.<sup>8</sup> In contrast, the alienable possessive construction is marked by =kṣ̃.

<sup>7</sup> The symbol “ø-” means that the designated verb inflects for person and number of subject (an intransitive subject S or a transitive subject A), which are marked on the verb by means of S/A-agreement prefixes. See Nagaya (2009a, b, 2010) for the details of S/A-agreement prefixes.

<sup>8</sup> Possessive relationship in Lamaholot is marked only when a possessor is third person.



Inalienable possessive construction:

|                  |   |                              |
|------------------|---|------------------------------|
| Plain form       | → | Possessed form               |
| [koʔəʔ] ‘head’   | → | [koʔəʔ̃] ‘his or her head’   |
| [lei] ‘leg’      | → | [leĩ] ‘his or her leg’       |
| [ʔæ] ‘excrement’ | → | [ʔæẽ] ‘his or her excrement’ |

Although contrastive nasalization only occurs in word-final positions, phonetic nasalization may spread regressively from the word-final nasalized vowel to its preceding vowel(s) either when there is no consonant between them or when a nasal, /h/, or /ʔ/ is in between. In other words, the nasal spreading passes through these “transparent” consonants without affecting them (see Borroff 2005, 2007 for the transparency of glottal stop to nasality spreading).<sup>9</sup>

**Nasality spread rule:**

$$V \rightarrow \tilde{V} / \_ \left( \begin{array}{c} \text{nasal} \\ /h/ \\ /ʔ/ \end{array} \right) \tilde{V}$$

|           |                         |                  |
|-----------|-------------------------|------------------|
| Examples: | [mĩə̃] ‘wait’           | [kmə̃mũ] ‘young’ |
|           | [nə̃nə̃] ‘ask, request’ | [kmũhũ] ‘baby’   |
|           | [nə̃ʔə̃] ‘and’          | [və̃ʔĩ] ‘soup’   |

However, nasalization in non-word final positions is not phonemic and does not result in meaningful contrasts. Further, the spreading of nasality does not apply to all words and is optional in some. It remains to be investigated when this rule applies and when it does not.

Words that do not undergo nasality spread

|                    |                    |
|--------------------|--------------------|
| [riə̃] ‘village’   | [loĩ] ‘untie’      |
| [ə̃mũ] ‘not exist’ | [kenũ] ‘(I) drink’ |
| [briŋĩ] ‘sick’     | [bəhĩ] ‘just now’  |
| [deʔĩ] ‘stand’     | [duʔũ] ‘sell’      |

Words that optionally undergo nasality spread

|                   |             |
|-------------------|-------------|
| [və̃ũ] ~ [vəũ]    | ‘bad smell’ |
| [ə̃mə̃] ~ [ə̃mə̃] | ‘mother’    |

<sup>9</sup> Note in passing that there is no nasal spreading from a nasal consonant to a vowel on its right.

### 3. Phonotactics

In this section, the phonotactics of Lewotobi Lamaholot is discussed: phenomena to be described are syllable structures (Section 3.1), vowel sequences (Section 3.2), and consonant clusters (Section 3.3).

#### 3.1. Syllable structures

The syllable structures available in Lewotobi Lamaholot are V, CV, and CCV, but CCV only appears in the word-initial syllable. The language does not allow any word-internal or word-final codas except the glottal stop /ʔ/ can appear as a word-final coda. In word-final syllables, therefore, Vʔ and CVʔ are also possible. Thus, the following syllable structures are found in the different positions of a word:

| <u>Word-initial σ</u> | <u>Word-medial σ</u> | <u>Word-final σ</u> |
|-----------------------|----------------------|---------------------|
| V                     | V                    | V                   |
| CV                    | CV                   | Vʔ                  |
| CCV                   |                      | CV                  |
|                       |                      | CVʔ                 |

Most indigenous words are disyllabic, and only a handful of words are monosyllabic, many of which are grammatical words such as pronouns and agreement markers. Monosyllabic words are often, but not always, pronounced with the nucleus vowel lengthened. Below is a list of all the attested syllable structures with examples of each.

|                     |      |        |                                 |
|---------------------|------|--------|---------------------------------|
| Monosyllabic words: | V    | [a:]   | ‘what’                          |
|                     | Vʔ   | [əʔ]   | 1SG (enclitic)                  |
|                     |      | [aʔ]   | 3SG (enclitic)                  |
|                     | CV   | [dʒõ]  | ‘ship’                          |
|                     |      | [da:]  | ‘broken’                        |
|                     | CVʔ  | [buʔ]  | ‘blow’                          |
|                     |      | [tɛʔ]  | ‘be about to; almost’           |
|                     | CCV  | [pro]  | ‘get a permission to eat/drink’ |
|                     |      | [kpõ]  | ‘whistle’                       |
|                     | CCVʔ | [kreʔ] | ‘small’                         |
| [kluʔ]              |      | ‘far’  |                                 |
| Disyllabic words:   | V.V  | [ue]   | ‘taro; potato’                  |
|                     |      | [ĩũ]   | ‘wake up someone’               |
|                     | V.Vʔ | [auʔ]  | ‘(small) bamboo’                |

|         |  |          |                             |
|---------|--|----------|-----------------------------|
|         |  | [eoʔ]    | ‘meteor’                    |
| V.CV    |  | [aho]    | ‘dog’                       |
|         |  | [ile]    | ‘mountain’                  |
| V.CVʔ   |  | [aloʔ]   | ‘mullet’                    |
|         |  | [anaʔ]   | ‘child; person’             |
| CV.V    |  | [lei]    | ‘leg’                       |
|         |  | [hoa]    | ‘disappear’                 |
| CV.Vʔ   |  | [pueʔ]   | ‘screw’                     |
|         |  | [meiʔ]   | ‘blood’                     |
| CV.CV   |  | [pana]   | ‘walk’                      |
|         |  | [manu]   | ‘chicken’                   |
| CV.CVʔ  |  | [bahaʔ]  | ‘wash’                      |
|         |  | [vohoʔ]  | ‘outside’                   |
| CCV.V   |  | [brea]   | ‘happy’                     |
|         |  | [kvue]   | ‘crazy’                     |
| CCV.Vʔ  |  | [kʔaoʔ]  | ‘full; cannot eat any more’ |
|         |  | [kleaʔ]  | ‘light; not heavy’          |
| CCV.CV  |  | [kʔəgə]  | ‘strong’                    |
|         |  | [knauʔ]  | ‘sprout’                    |
| CCV.CVʔ |  | [kləkəʔ] | ‘upper arm’                 |
|         |  | [kpəsuʔ] | ‘short; not long’           |

Phonetically speaking, CCCV syllables exist in two contracted words, [brvəĩ] ‘woman’ and [gblakĩ] ‘man,’ which are abbreviated from the compounds [kbarə vəĩ] ‘woman’ and [kbai lakĩ] ‘man’ respectively.

|         |          |         |
|---------|----------|---------|
| CCCV.V  | [brvəĩ]  | ‘woman’ |
| CCCV.CV | [gblakĩ] | ‘man’   |

There are no words of more than four syllables in my database, and words of more than two syllables are quite rare except for compounds and reduplicated words. Only two three-syllable and four four-syllable words have been attested. All the attested words are listed here.

|                       |            |                          |                                     |
|-----------------------|------------|--------------------------|-------------------------------------|
| Three syllable words: | CV.CV.CV   | [ <sup>1</sup> dʒugudʒo] | (interjection in traditional songs) |
|                       | CV.CV.CVʔ  | [no <sup>1</sup> ʔoroʔ]  | ‘enough’                            |
| Four syllable words:  | CV.V.CV.Vʔ | [vao <sup>1</sup> koēʔ]  | ‘all’                               |

|             |             |                 |
|-------------|-------------|-----------------|
| CV.V.CV.CV  | [pao'lolō]  | ‘squid’         |
| CV.CV.CV.V  | [dægə'rau]  | ‘stair’         |
| CV.CV.CV.CV | [kəŋə'ŋəŋə] | ‘talk in sleep’ |

Table 4 shows the distribution of consonants in a word. In my database of approximately 1,000 words, neither the glottal stop /ʔ/ nor the velar nasal /ŋ/ appears as a word-initial onset.<sup>10</sup> Other consonants can occur in either word-initial or word-medial syllable onset. The glottal stop is the only consonant that may occur in the coda of a word-final syllable. All oral vowels can appear in any position of a word, while contrastive nasalized vowels are limited to the word-final syllable.

**Table 4: Distribution of consonants**

|                         | p | b | t | d | k | g | ʔ | m | n | ŋ | v | s | h | dʒ | l | r |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|
| Word-initial<br>σ onset | + | + | + | + | + | + | * | + | + | * | + | + | + | +  | + | + |
| Word-medial<br>σ onset  | + | + | + | + | + | + | + | + | + | + | + | + | + | +  | + | + |
| Word-final<br>σ coda    | * | * | * | * | * | * | + | * | * | * | * | * | * | *  | * | * |

The lack of codas is also characteristic of Larantuka Malay (Pauw 2009), and a preference for open syllables is counted as one of the typical features of eastern Indonesian languages (Klamer 2002). However, the preference for open syllables in Lewotobi Lamaholot is exceptionally strong even compared with other Lamaholot dialects. Other dialects allow word-final codas other than the glottal stop (see Table 5, for example). Assuming Proto Malayo-Polynesian allows word-final codas (e.g., \**ijun* ‘nose’, \**ɟajan* ‘name’, and \**perɛq* ‘squeeze,’ Blust 1993), the preference for open syllables in the Lewotobi dialect can be considered an innovation.

**Table 5: Word-final consonants across Lamaholot dialects (in IPA)**

|           | Lewotobi | Lewoingu | Lewolema | Solor | Lamalera | Alorese    |
|-----------|----------|----------|----------|-------|----------|------------|
| ‘bone’    | riʔu     | riʔuk    | riʔuk    | riʔuk | riuk     | ruʔiŋ      |
| ‘nose’    | iru      | irun     | iru      | irũ   | niruŋ    | ʔir:uŋ     |
| ‘tongue’  | veve     | wewel    | veve(r)  | wewel | efel     | ʔefel      |
| ‘name’    | narã     | naran    | naran    | narã  | naraŋ    | ʔnaraŋ     |
| ‘squeeze’ | piʔu     | peʔuk    | piʔuk    | N/A   | piuk     | N/A        |
| ‘other’   | gehã     | geha     | gehak    | ikər  | geak     | ʔhama laʔe |

<sup>10</sup> The constraint that the word-initial /ŋ/ is prohibited comes into play in at least two morphophonological processes: nasal substitution and assimilation. See Sections 5.2 and 5.3 respectively. I thank Kazuya Inagaki (pers. comm.) and Laura C. Robinson (pers. comm.) for drawing my attention to this.

Interestingly, since codas other than the glottal stop are prohibited, the name of this language, [lamaholot], is phonologically ungrammatical in Lewotobi Lamaholot. Instead of [lamaholot], therefore, speakers of this dialect pronounce the name of the language without the word-final coda, as in [lamaholo], or more often simply use other names, such as *Koda Kiwan* [koda kiuḁ] (or simply [kiuḁ]) ‘the language of the forest’ and [koda titēʔ] ‘our language.’

### 3.2. Vowel sequences

All the attested vowel sequences in the corpus are given in Table 6. There are two important constraints to note regarding the combinations of vowels. First, geminate vowels are prohibited. Vowel sequences cannot be composed of two of the same vowel (e.g., \*/aa/). Second, /ə/ cannot constitute a vowel sequence. There is only one word exceptional to this generalization: [uə] ‘buttocks.’ Interestingly, these two generalizations are also observed in Kéo (Baird 2002): in Kéo, “there are no geminate vowels, and only five of the six vowels occur in adjacent pairs—all vowels [NN—/i, e, a, o, u/] other than the mid-central schwa /ə/.”

**Table 6: Vowel sequences**

| Second V |     | /i/ | /e/ | /ə/ | /a/ | /o/ | /u/ |
|----------|-----|-----|-----|-----|-----|-----|-----|
| First V  | /i/ |     | +   | *   | +   | +   | +   |
|          | /e/ | +   |     | *   | +   | +   | +   |
|          | /ə/ | *   | *   |     | *   | *   | *   |
|          | /a/ | +   | +   | *   |     | +   | +   |
|          | /o/ | +   | +   | *   | +   |     | +   |
|          | /u/ | +   | +   | (+) | +   | +   |     |

|    |      |                                  |
|----|------|----------------------------------|
| ie | hie  | ‘open’ (curtain, etc.)           |
| ia | via  | ‘yesterday’                      |
| io | krio | ‘clothing’                       |
| iu | niu  | ‘bark, woof’ (dog, etc.)         |
| ei | ei   | ‘cut something while holding it’ |
| ea | ṭea  | ‘where’                          |
| eo | reo  | ‘kind of tree’                   |
| eu | geu  | ‘mix using feet’                 |
| ai | ai   | ‘get’                            |
| ae | kvae | ‘wife’                           |
| ao | sao  | ‘anchor’                         |
| au | hau  | ‘sew’                            |

|    |      |               |
|----|------|---------------|
| oi | doi  | ‘money’       |
| oe | groe | ‘fast’        |
| oa | boa  | ‘throw away’  |
| ou | ʔou  | ‘pull’        |
| ui | gui  | ‘chip away’   |
| ue | gue  | ‘turn around’ |
| uə | uə   | ‘buttocks’    |
| ua | rua  | ‘two’         |
| uo | guo  | ‘shout’       |

Importantly, Lewotobi Lamaholot does not have diphthongs. The vowel sequences listed above are not diphthongs but belong to separate syllables. Evidence comes from stress placement patterns discussed in Section 4.

### 3.3. Consonant clusters

Consonant clusters are strictly limited to word-initial positions and can be either homorganic or heterorganic. Here, a complete listing of all the word-initial consonant clusters found among the words in my database and examples of each are provided. The patterns of consonant clusters found in Lewotobi Lamaholot words are largely consistent with the sonority hierarchy.

#### Stop + stop<sup>11</sup>

|    |        |   |
|----|--------|---|
| kp | kpəsuʔ | ‘short; not long’                                       |
| kt | kʔəgə  | ‘strong’  |
| kb | kbora  | ‘burp’  |
| kd | kdaso  | ‘slip’  |
| gb | gbula  | ‘open one’s eyes wide’                                  |
| gd | gdə    | The first element of the compound [gdə: gba:] ‘jobless’ |

#### Stop + fricative

|    |        |                               |
|----|--------|-------------------------------|
| ks | ksi:   | ‘fart without making a sound’ |
| kv | kvaŋaʔ | ‘listen’                      |
| gv | gvali  | ‘return’                      |

<sup>11</sup> Many consonant clusters in Lewotobi Lamaholot begin with /k/. This is I think because *k-* is the fossilized prefix for (i) a stative event, (ii) a non-volitional action, (iii) insects, and (iv) furniture.

Stop + nasal

|    |        |   |
|----|--------|---|
| pn | pnoa   | ‘yawn’                                      |
| km | kmihe  | ‘ant’                                       |
| kn | knave  | ‘door’                                      |
| gm | gmesuʔ | ‘play around with something with one’s toe’ |
| gn | gnato  | ‘deliver’ (verb)                            |

Stop + liquid

|    |        |                                 |
|----|--------|---------------------------------|
| pr | pro    | ‘get a permission to eat/drink’ |
| pl | plaʔe  | ‘run’                           |
| tr | ʔrili  | ‘intestine’                     |
| kr | kreʔ   | ‘small’                         |
| kl | klami  | ‘sweet, delicious’              |
| br | brea   | ‘be happy’                      |
| bl | blahaʔ | ‘long’                          |
| gr | groe   | ‘fast, quick’                   |
| gl | glərə  | ‘tickle’                        |

Fricative + fricative

|    |     |              |
|----|-----|--------------|
| sv | sva | ‘almost dry’ |
|----|-----|--------------|

Fricative + nasal

|    |        |                                       |
|----|--------|---------------------------------------|
| sm | sməkoʔ | ‘(sexually) promiscuous man or woman’ |
| sn | snəpə  | ‘fisher’                              |

Fricative + liquid

|    |       |                        |
|----|-------|------------------------|
| sr | sri   | ‘droplet’              |
| sl | slia  | ‘spread wings’         |
| vr | vreʔo | ‘throw off, shake off’ |
| vl | vlelō | ‘throw away, dump’     |

Nasal + nasal

|    |       |             |
|----|-------|-------------|
| mn | mnera | ‘delicious’ |
|----|-------|-------------|

#### 4. Stress placement

Stress in Lewotobi Lamaholot regularly falls on the penultimate syllable of a word, unless the word is monosyllabic, in which case it falls on the only syllable of the word. Vowels in stressed syllables seem to have higher pitch, longer duration, and greater intensity than those in unstressed syllables, but this has not been measured acoustically.

Stress assignment patterns can be affected when a word is followed by an enclitic. Lewotobi Lamaholot has two sets of enclitics: (i) the nominalization enclitic =*kə̃* (or =*nə̃* after a nasalized vowel; see also Section 5.3) and (ii) S-agreement enclitics (see also Section 5.3).<sup>12</sup> These enclitics form a phonological word together with the word to which they are attached and attract the position of stress from the penultimate syllable to the ultimate syllable of each word (i.e., the penultimate syllable of a phonological word). Thus:

(i) Nominalization enclitic:

|                                      |          |   |                            |                   |
|--------------------------------------|----------|---|----------------------------|-------------------|
| [ <sup>1</sup> kni <sup>1</sup> pu]  | ‘narrow’ | → | [kni <sup>1</sup> pu kə̃]  | ‘that narrow one’ |
| [ <sup>1</sup> be <sup>1</sup> lə̃ʔ] | ‘big’    | → | [be <sup>1</sup> lə̃ʔ nə̃] | ‘that big one’    |

(ii) S-agreement enclitics:

|                      |           |   |                          |           |
|----------------------|-----------|---|--------------------------|-----------|
| [ <sup>1</sup> koda] | ‘talk’    | → | [ko <sup>1</sup> da əʔ]  | ‘I talk’  |
| [ <sup>1</sup> kenū] | ‘I drink’ | → | [ke <sup>1</sup> nū nəʔ] | ‘I drink’ |

Stress placement patterns provide evidence that vowel sequences discussed in Section 3.2 are not diphthongs but rather two vowels that belong to different syllables. Words with vowel sequences behave like disyllabic words above in terms of stress assignment: the second vowel is counted as a separate syllable.

S-agreement enclitics and verbs with vowel sequences:

|                     |         |   |                        |                 |
|---------------------|---------|---|------------------------|-----------------|
| [ <sup>1</sup> niu] | ‘bark’  | → | [ni <sup>1</sup> u aʔ] | ‘(a dog) barks’ |
| [ <sup>1</sup> gei] | ‘shave’ | → | [ge <sup>1</sup> i əʔ] | ‘I shave’       |

#### 5. Morphophonological processes

There are a few morphophonological processes that need to be mentioned: /a/ to [ə] vowel raising (Section 5.1), nasal substitution (Section 5.2), assimilation (Section 5.3), and reduplication (Section 5.4).

<sup>12</sup> S-agreement enclitics mark person and number of an intransitive subject (S) on the verb, while S/A-agreement prefixes inflect for person and number of either a transitive or an intransitive subject (S or A). See Nagaya (2009a, b, 2010) for more on these agreement markers.



### 5.1. /a/ to [ə] vowel raising

The low central vowel /a/ is raised to [ə] being conditioned by nasalization. As has been mentioned in Section 2.2, nasalization of a word-final vowel is used to form an inalienable possessive construction. It is also employed to produce nominalized forms of some types of adjectives, which work as referential expressions.

#### Inalienable possessive construction:

|        |             |   |        |                           |
|--------|-------------|---|--------|---------------------------|
| [lei]  | ‘leg’       | → | [leĩ] | ‘his or her leg’          |
| [tæe]  | ‘excrement’ | → | [tæ̃e] | ‘his or her<br>excrement’ |
| [uə]   | ‘buttocks’  | → | [uə̃]  | ‘his or her buttocks’     |
| [luvu] | ‘stomach’   | → | [luvū] | ‘his or her stomach’      |
| [keko] | ‘back’      | → | [kekō] | ‘his or her back’         |

#### Nominalization of adjectives:

|          |         |   |          |               |
|----------|---------|---|----------|---------------|
| [kvaʔi]  | ‘wet’   | → | [kvaʔĩ] | ‘a wet one’   |
| [lereʔ]  | ‘short’ | → | [lerēʔ]  | ‘a short one’ |
| [beləʔ]  | ‘big’   | → | [belōʔ]  | ‘a big one’   |
| [məkoʔ]  | ‘bad’   | → | [məkōʔ]  | ‘a bad one’   |
| [kɾəsuʔ] | ‘short’ | → | [kɾəsūʔ] | ‘a short one’ |

In either case, when it is nasalized, the low central vowel /a/ is raised to [ə]. In Section 2, it was demonstrated that the number of contrastive nasalized vowels is fewer than that of oral vowels in Lewotobi Lamaholot. The reason for this is /a/ to [ə] vowel raising.

#### Inalienable possessive construction:

|        |          |   |         |                   |
|--------|----------|---|---------|-------------------|
| [lima] | ‘hand’   | → | [limə̃] | ‘his or her hand’ |
| [məna] | ‘vagina’ | → | [mənə̃] | ‘her vagina’      |

#### Nominalization of adjectives:

|          |         |   |           |               |
|----------|---------|---|-----------|---------------|
| [blahaʔ] | ‘long’  | → | [bləhə̃ʔ] | ‘a long one’  |
| [kleaʔ]  | ‘light’ | → | [kleə̃ʔ]  | ‘a light one’ |
| [mara]   | ‘dry’   | → | [marə̃]   | ‘a dry one’   |
| [buraʔ]  | ‘white’ | → | [burə̃ʔ]  | ‘a white one’ |
| [meʔa]   | ‘red’   | → | [meʔə̃]   | ‘a red one’   |

In addition, /a/ may be raised to [ə] when it precedes a nasalized vowel, although this does not happen to all words. As in the spreading of nasality discussed in Section 2.2, nasals, /h/, and /ʔ/ are transparent to this raising.

**/a/ to [ə] vowel raising:**

$$/a/ \rightarrow [ə] / \_ \left( \begin{array}{c} \text{nasal} \\ /h/ \\ /ʔ/ \end{array} \right) \tilde{V}$$

|           |          |             |   |            |                        |
|-----------|----------|-------------|---|------------|------------------------|
| Examples: | [tæ]     | ‘excrement’ |   |            |                        |
|           |          |             | → | [təẽ]      | ‘his or her excrement’ |
|           | [manu]   | ‘chicken’   | → | [aʔ mənũʔ] | ‘bird’ (compound)      |
|           | [kame]   | 1PL.EXC     |   |            |                        |
|           |          |             | → | [kəmẽʔ]    | 1PL.EXC.POSS           |
|           | [blahaʔ] | ‘long’      | → | [bləhəʔ]   | ‘long’ (nominalized)   |
|           | [na]     | 3SG         | → | [nəʔẽ]     | 3SG.POSS               |
|           | [ra]     | 3PL         | → | [rəʔẽ]     | 3PL.POSS               |
|           | [rae]    | ‘landward’  |   |            |                        |
|           |          |             | → | [rəẽʔ]     | landward.POSS          |
| But:      | [baʔa]   | ‘heavy’     | → | [baʔə]     | ‘a heavy one’          |
|           | [taʔa]   | ‘hard’      | → | [taʔə]     | ‘a hard one’           |
|           | [kvaʔi]  | ‘wet’       | → | [kvaʔĩ]    | ‘a wet one’            |

Descriptions of other dialects of Lamaholot do not report on this kind of the /a/ to [ə] raising. Therefore, this morphophonemic process is most likely an innovation of the Lewotobi dialect.

## 5.2. Nasal substitution

Nasal substitution “replaces a base-initial obstruent with the homorganic nasal under prefixation” (Blust 2004:73). It is known as “arguably the most prominent morphological process seen in Austronesian languages” (*ibid.*). Pampus (1999:30ff) points out that the Lamalera dialect of Lamaholot has nasal substitution, which is, however, considered as “a historically independent development” by Blust (2004:81), as it has different functions from the types found in other Austronesian languages. Nishiyama and Kelen (2007:48-55) report that Lewoingu Lamaholot also shows a similar type of nasal substitution.

The Lewotobi dialect, too, has nasal substitution of the kind found in Lamalera Lamaholot and Lewoingu Lamaholot. However, nasal substitution in this language is highly lexicalized, and only a few words display the alternation. Here, I only show all the attested examples according to the functions of nasal substitution, leaving a detailed analysis for future investigation. Observe that nasal substitution is sometimes followed by another irregular phonological change; for example, *mniku* ‘a tool for clipping the flower of

the *tuak* tree (a species of palm tree) to extract the sap to produce palm wine' is derived from *piku* 'to clip the flower of the *tuak* tree' by means of nasal substitution of /p/ with /m/, but it is also accompanied by *n*-insertion. At this stage, it is not possible to present a full phonological analysis of these irregularities due to the paucity of relevant historical and dialectological data.

(i) Action verb (oral) vs instrument noun (nasal):

|       |                                    |        |                                      |
|-------|------------------------------------|--------|--------------------------------------|
| pəʔə  | 'cut'                              | məʔə   | 'cutting board'                      |
| pəʔuʔ | 'hit with <i>mətuʔ</i> '           | məʔuʔ  | 'short wood to hit someone'          |
| piku  | 'clip <i>tuak</i> tree'            | mniku  | 'tool for clipping <i>tuak</i> tree' |
| polē  | 'go across'                        | kmolē  | 'long wood'                          |
| biʔu  | 'do fishing with<br>a fishing rod' | mniʔu  | 'fishing rod'                        |
| boge  | 'wrap with cloth'                  | mnoge  | 'bandage'                            |
| ʔobo  | 'sit down'                         | noboʔ  | 'seat'                               |
| ʔuhu  | 'spear'                            | knuhu  | 'spear to bundle straw'              |
| ʔugoʔ | 'skew'                             | nugoʔ  | 'skewer'                             |
| dira  | 'use a fan'                        | mnira  | 'fan'                                |
| gaha  | 'grind'                            | mnaha  | 'sharp stick for grinding'           |
| gurū  | 'comb to remove lice'              | knurū  | 'louse-removing comb'                |
| giʔa  | 'scratch'                          | kniʔa  | 'match' (noun)                       |
| sakoʔ | 'hoe' (verb)                       | nakoʔ  | 'hoe' (noun)                         |
| valē  | 'throw a long wood'                | mnalē  | 'long wood to throw'                 |
| həreʔ | 'slice ( <i>tuak</i> tree)'        | məreʔ  | 'knife for slicing <i>tuak</i> tree' |
| huro  | 'spoon' (verb)                     | nuro   | 'spoon' (instrumental noun)          |
| hoʔe  | 'ladle, scoop' (verb)              | noʔe   | 'dipper, ladle'                      |
| hapē  | 'hang' (verb)                      | napē   | 'hook'                               |
| namo  | 'sweep'                            | mnamoʔ | 'broom'                              |

(ii) Action verb (oral) vs result noun (nasal):

|      |                   |      |           |
|------|-------------------|------|-----------|
| pakō | 'name'            | makō | 'name'    |
| ʔakə | 'build a ceiling' | nakə | 'ceiling' |
| hau  | 'sew'             | nau  | 'seam'    |

(iii) Action verb (oral) vs classifier (nasal):

|      |                 |       |                        |
|------|-----------------|-------|------------------------|
| bəwī | 'bundle (wood)' | mnəwī | 'bundle' (classifier)  |
| pala | 'cut, slice'    | mala  | 'slice' (classifier)   |
| pəgō | 'grasp'         | məgō  | 'handful' (classifier) |

(iv) Action verb (oral) vs profession noun (nasal):

|       |                     |        |                               |
|-------|---------------------|--------|-------------------------------|
| həreʔ | ‘slice (tuak tree)’ | nəreʔ  | ‘person who slices tuak tree’ |
| səko  | ‘have sex’          | sməkōʔ | ‘promiscuous man or woman’    |
| səpǎ  | ‘go fishing’        | snəpǎ  | ‘fisher’                      |

## 5.3. Assimilation

The two sets of enclitics that were mentioned in Section 4, the nominalization enclitic and S-agreement enclitics, show assimilation according to whether or not they are preceded by a nasalized vowel: an alveolar nasal stop is either replaced with the consonant of a consonant-initial enclitic or added to the onset of a vowel-initial enclitic. On the one hand, the nominalization enclitic =kǎ becomes =nǎ after a nasalized vowel. Importantly, the word-final glottal stop of an adjective is transparent relative to this assimilation process, too. Nasality spreads progressively whether or not a glottal stop is in between. Thus, the following nominalizations are found:

Nominalization enclitic:

|     |       |             |   |          |
|-----|-------|-------------|---|----------|
|     | gǎ    | ‘sharp’     | → | gǎ=nǎ    |
|     | milǎ  | ‘dirty’     | → | milǎ=nǎ  |
|     | sənǎ  | ‘beautiful’ | → | sənǎ=nǎ  |
|     | briŋĩ | ‘sick’      | → | briŋĩ=nǎ |
|     | belǎʔ | ‘big’       | → | belǎʔ=nǎ |
| cf. | blega | ‘wide’      | → | blega=kǎ |
|     | krubu | ‘dull’      | → | krubu=kǎ |

On the other hand, S-agreement enclitics change their form, assimilating to the preceding nasalized vowel as in Table 7. When they are preceded by a nasalized vowel, Set 2 is employed; otherwise, Set 1 is used.

**Table 7: S-agreement enclitics**

|   | Set 1 |     | Set 2 |     |
|---|-------|-----|-------|-----|
|   | SG    | PL  | SG    | PL  |
| 1 | =əʔ   | =kə | =nəʔ  | =nə |
| 2 | =ko   | =kə | =no   | =nə |
| 3 | =aʔ   | =ka | =naʔ  | =na |

Examples of Set 1 *lega* ‘walk, hang around’:

|            |          |              |                 |
|------------|----------|--------------|-----------------|
| go lega=əʔ | ‘I walk’ | ʔiŋe lega=kə | ‘we (INC) walk’ |
|            |          | kame lega=kə | ‘we (EXC) walk’ |

|            |                   |             |                 |
|------------|-------------------|-------------|-----------------|
| mo lega=ko | ‘you (SG) walk’   | mio lega=kə | ‘you (PL) walk’ |
| na lega=aʔ | ‘he or she walks’ | ra lega=ka  | ‘they walk’     |

Examples of Set 2 *ϕ-enũ* ‘drink’:

|              |                    |               |                  |
|--------------|--------------------|---------------|------------------|
| go k-enũ=nəʔ | ‘I drink’          | ʔite ʔ-enũ=nə | ‘we (INC) drink’ |
|              |                    | kame m-enũ=nə | ‘we (EXC) drink’ |
| mo m-enũ=no  | ‘you drink’        | mio m-enũ=nə  | ‘you (PL) drink’ |
| na n-enũ=naʔ | ‘he or she drinks’ | ra r-enũ=na   | ‘they drink’     |

Note that in either case, the velar stop /k/ becomes the alveolar nasal /n/ rather than the velar nasal /ŋ/. This may be because the word-initial /ŋ/ is not allowed in this language (see Table 4 again).

#### 5.4. Reduplication

Reduplication is not a productive morphophonological process in Lewotobi Lamaholot: only a small number of words are formed with reduplication. Full reduplication is the only type of reduplication observed in my data. Examples are given below:

Full reduplication:

|             |                              |                      |
|-------------|------------------------------|----------------------|
| adʒaʔ adʒaʔ | ‘many’                       | cf. adʒaʔ ‘many’     |
| dahe dahe   | ‘very near’                  | cf. dahe ‘near’      |
| kəsəʔ kəsəʔ | ‘little by little’           | cf. kəsəʔ ‘a little’ |
| nakə nakə   | ‘eat/drink little by little’ | cf. *nakə            |
| pəĩ pəĩ     | ‘eat/drink little by little’ | cf. *pəĩ             |
| pəũ pəũ     | ‘slowly’                     | cf. *pəũ             |

#### 6. Final remarks

In this paper, I have provided an analysis of the phonology of the Lewotobi dialect of Lamaholot on the basis of firsthand data collected through fieldwork. I have pointed out that Lewotobi Lamaholot has three phonological characteristics that may possibly differentiate it from other dialects. First, a labiodental approximant [ʋ] appears in the positions where a bilabial approximant [w], a voiceless labiodental fricative [f], or a voiced labiodental fricative [v] occurs in other dialects. Second, Lewotobi Lamaholot does not allow closed syllables, with the exception that the glottal stop /ʔ/ can appear as a word-final coda. Third, /a/ is raised to [ə] when nasalized or before a nasalized vowel. However, because this study is based on a relatively small corpus of about 1,000 words, the description and analysis presented here remain at a preliminary stage. More data are

necessary to prove (or disprove) them. There are also issues that I have not touched here: historical phonology, dialectology, loan phonology, orthography, and prosody/intonation. These issues will be addressed in my future studies.

### Abbreviations

The following abbreviations are used in the paper: EXC-exclusive, INC-inclusive, PL-plural, POSS-possessive, SG-singular, 1-first person, 2-second person, and 3-third person.

### Data

Here, a sample wordlist of Lewotobi Lamaholot is provided. This list is based on the modified Swadesh 200-word list that appears in Keraf (1978:262–297). Keraf’s (*ibid.*) word list of the Lewotobi dialect is also presented for comparison with my list. The word number (#) and Indonesian words are cited from Keraf (1978) and are followed by English translations of the sample words. “Keraf (1978)” refers to his Lewotobi Lamaholot data, and “Nagaya (2008–2010),” to my own data.

There are three major differences between Keraf’s Lewotobi data and mine. First, his data contains [w] instead of [v]. Second, all the consonant clusters are broken by [ə] in his word list. No consonant cluster is found in his data. Third, /a/ to [ə] raising is not observed: [ã] also appears in his data.

There are several possible interpretations of the differences. One interpretation is that Keraf’s data reflect an earlier stage of the Lewotobi dialect. Another is that Keraf (1978) and Nagaya (2008–2010) deal with different dialects of Lewotobi Lamaholot. At this stage, it is not possible to decide which interpretation is correct because Keraf (1978) provides no information on his data gathering procedure. He only notes that the name of his consultant is Ignatius Puka (*ibid.* XIII), who obviously comes from the same clan as my consultant, Hugo Puka.

| # | Indonesian | English   | Keraf (1978) | Nagaya (2008–2010) |
|---|------------|-----------|--------------|--------------------|
| 1 | tangan     | hand      | lima         | lima               |
| 2 | kiri       | left      | makĩ         | mekĩ               |
| 3 | kanan      | right     | wana         | vənã               |
| 4 | kaki       | foot      | lei          | lei                |
| 5 | kaki       | footprint | maka         | maka               |
| 6 | berjalan   | walk      | pana         | pana               |
| 7 | jalan      | road      | larã         | larã               |
| 8 | datang     | come      | səga         | səga               |

| #  | Indonesian | English | Keraf (1978) | Nagaya (2008–2010)   |
|----|------------|---------|--------------|--|
| 9  | balik      | return  | gəwali       | guali  |
| 10 | berenang   | swim    | naŋe         | naŋe   |
| 11 | mencuci    | wash    | baha         | baha?  |
| 12 | hapus      | wipe    | hamu         | həmu   |
| 13 | gosok      | rub     | doru         | doru?  |
| 14 | kotor      | dirty   | milā         | milā   |
| 15 | debu       | dust    | əwu          | kəvu   |
| 16 | kulit      | skin    | kuli         | kuli   |
| 17 | punggung   | back    | keko         | keko   |
| 18 | perut      | belly   | luwu         | luvu   |
| 19 | tulang     | bone    | riʔu         | riʔu   |
| 20 | isi perut  | stomach | tāI kənaluŋ  | tai knalū  |
| 21 | hati       | liver   | atē          | aʔē  |
| 22 | jantung    | heart   | puhū         | puhū   |
| 23 | tahu       | know    | koi, moi     | k-oi ‘I know’<br>m-oi ‘you (SG) know’<br>‘we (EXC) know’<br>‘you (PL) know’<br>n-oi ‘he or she knows’<br>ṭ-oi ‘we (INC) know’<br>r-oi ‘they know’ |
| 24 | pikir      | think   | hu           | hu:  |
| 25 | takut      | scared  | taku?        | ʔaku   |
| 26 | darah      | blood   | mei          | mei?   |
| 27 | kepala     | head    | koʔə         | koʔə?  |
| 28 | leher      | neck    | wuli         | uuli   |
| 29 | rambut     | hair    | rata         | rata   |
| 30 | hidung     | nose    | irū          | iru  |
| 31 | bernapas   | breathe | hari nāi     | hari nāi   |
| 32 | membau     | smell   | siō          | siō  |
| 33 | mulut      | mouth   | wəwa         | uəwa   |
| 34 | gigi       | tooth   | ipə          | ipə?   |
| 35 | lidah      | tongue  | wewe         | ueve   |
| 36 | tertawa    | laugh   | geka         | geka   |

| #  | Indonesian | English  | Keraf (1978) | Nagaya (2008–2010)  |
|----|------------|----------|--------------|---|
| 37 | menangis   | cry      | gaka         | gaka  |
| 38 | muntah     | vomit    | muta         | muṭa  |
| 39 | meludah    | spit     | pino         | pino  |
| 40 | makan      | eat      | təkā         | kā ‘I eat’<br>gō ‘you (SG) eat’<br>gō ‘he or she eats’<br>ṭəkā ‘we (INC) eat’<br>məkā ‘we (EXC) eat’<br>gē ‘you (PL) eat’<br>rəkā ‘they eat’                  |
| 41 | masak      | cook     | biho         | biho  |
| 42 | minum      | drink    | tenu         | k-enū ‘I drink’<br>m-enū ‘you (SG) drink’<br>‘we (EXC) drink’<br>‘you (SG) drink’<br>n-enū ‘he or she drinks’<br>ṭ-enū ‘we (INC) drink’<br>r-enū ‘they drink’ |
| 43 | gigit      | bite     | gori         | baka? ‘bite’<br>gori ‘munch’  |
| 44 | menetek    | suck     | tuho         | ṭuho  |
| 45 | telinga    | ear      | tilu         | ṭilu  |
| 46 | dengar     | listen   | bāi          | bāi   |
| 47 | mata       | eye      | mata         | mata  |
| 48 | melihat    | see      | notō         | notō  |
| 49 | tidur      | sleep    | туру         | ṭuru  |
| 50 | rebah      | lie down | ledānə       | hoba  |
| 51 | duduk      | sit      | tobo         | ṭobo  |
| 52 | berdiri    | stand    | deʔi         | deʔi  |
| 53 | orang      | person   | atadikā      | aṭadikā   |
| 54 | laki-laki  | man      | bailaki      | kbai lakī   |
| 55 | wanita     | woman    | kəbarawāi    | kbarə vāi   |
| 56 | anak       | child    | anaʔ         | anaʔ  |
| 57 | suami      | husband  | kəlake       | klake   |



| #  | Indonesian | English         | Keraf (1978) | Nagaya (2008–2010)                                 |
|----|------------|-----------------|--------------|--|
| 58 | isteri     | wife            | kəwae        | kuvae  |
| 59 | ibu        | mother          | əma          | əmǎʔ   |
| 60 | bapak      | father          | bapa         | baʔ  |
| 61 | kakak      | older sibling   | kaka         | kaka   |
| 62 | adik       | younger sibling | ari          | ari  |
| 63 | nama       | name            | narã         | narǎ   |
| 64 | bilang     | say             | mari         | marĩ   |
| 65 | tali       | rope            | tale         | ʔaleʔ  |
| 66 | mengikat   | tie             | pũi          | pũĩ  |
| 67 | menjahit   | sew             | hau          | hau  |
| 68 | pakaian    | clothing        | pakaian      | krio   |
| 69 | berburu    | hunt            | lərakə       | ləraʔ  |
| 70 | menembak   | shoot           | pasa         | pasa   |
| 71 | menikam    | stab            | tuba         | ʔuba   |
| 72 | bertinju   | fist            | tubuk        | ʔubu, sado   |
| 73 | berkelahi  | fight           | kəwuno       | pluku ‘fight physically’<br>kvuno ‘fight verbally’ |
| 74 | membunuh   | kill            | belo         | nǎʔǎ mata ‘make dead’                              |
| 75 | mati       | dead            | mata         | maʔa   |
| 76 | hidup      | alive           | mori         | mori   |
| 77 | menggaruk  | scratch         | ragu         | raguʔ  |
| 78 | memotong   | cut             | belo         | belo   |
| 79 | batang     | stem            | pukã         | pukǎ   |
| 80 | membelah   | split           | ləga         | lagaʔ  |
| 81 | tajam      | sharp           | gã           | gǎ   |
| 82 | tumpul     | blunt           | gəbohu       | krubu, gbohu                                       |
| 83 | bekerja    | work            | kəriã        | kriǎ   |
| 84 | bermain    | play            | məŋə         | mǎŋǎ   |
| 85 | menyanyi   | sing            | ñañi         | ɲani (Indonesian)                                  |
| 86 | menari     | dance           | soka         | soka   |
| 87 | bengkak    | swollen         | baʔa         | baʔa   |
| 88 | memeras    | squeeze         | piʔu         | piʔu   |
| 89 | memegang   | hold            | pehẽ         | pehẽ   |

| #   | Indonesian | English | Keraf (1978) | Nagaya (2008–2010)                     |
|-----|------------|---------|--------------|--|
| 90  | menggali   | dig     | guʔi         | guʔi                                   |
| 91  | memberi    | give    | sorõ         | sorõ, neĩ                              |
| 92  | menarik    | pull    | gehaʔ        | gehaʔ, ʔubo                            |
| 93  | mendorong  | push    | odo          | odoʔ, sogõ                             |
| 94  | melempar   | throw   | geba         | gebaʔ                                  |
| 95  | jatuh      | fall    | goka         | lõŋa, goka, gora                       |
| 96  | anjing     | dog     | aho          | aho                                    |
| 97  | burung     | bird    | kəpã         | aʔ mənũʔ                               |
| 98  | telur      | egg     | təlũ         | ʔelu                                   |
| 99  | bulu       | feather | rawu         | rauũʔ                                  |
| 100 | sayap      | wing    | kəpiʔ        | kəpiʔ                                  |
| 101 | terbang    | fly     | bəka         | bəka                                   |
| 102 | binatang   | animal  | binataŋ      | binatõ (Indonesian)                    |
| 103 | daging     | meat    | mətã         | dagĩ                                   |
| 104 | lemak      | fat     | worã         | vorõ                                   |
| 105 | ekor       | tale    | kiku         | kukuʔ                                  |
| 106 | ular       | snake   | ulaʔ         | ulaʔ                                   |
| 107 | cacing     | worm    | kəbeŋõ       | ulõ                                    |
| 108 | kutu       | louse   | kuto         | kuʔo                                   |
| 109 | ikan       | fish    | ikã          | ikõ                                    |
| 110 | pohon      | tree    | kadzopukã    | kadzõʔ pukõ                            |
| 111 | busuk      | rotten  | wuhu         | uõũ                                    |
| 112 | daun       | leaf    | ləpã         | ləpõʔ                                  |
| 113 | kulit kayu | bark    | kadzokəloka  | kadzõʔ kloka                           |
| 114 | akar       | root    | ramu         | ramu                                   |
| 115 | biji       | seed    | kulu         | kulũʔ                                  |
| 116 | bunga      | flower  | buŋa         | puhũ                                   |
| 117 | buah       | fruit   | wuã          | uuõʔ                                   |
| 118 | rumput     | grass   | luʔo         | krəmə<br>cf. luʔo ‘rumput alang-alang’ |
| 119 | tanah      | earth   | tana         | ʔana                                   |
| 120 | batu       | stone   | wato         | uəʔo                                   |
| 121 | pasir      | sand    | wəra         | uəra                                   |

| #   | Indonesian | English      | Keraf (1978) | Nagaya (2008–2010)       |
|-----|------------|--------------|--------------|--------------------------|
| 122 | air        | water        | waiʔ         | ʋaiʔ                     |
| 123 | membeku    | freeze       | N/A          | ʔaʔa                     |
| 124 | es         | ice          | N/A          | es (Indonesian)          |
| 125 | mengalir   | flow         | ba           | baʔ                      |
| 126 | terapung   | float        | bao          | bao                      |
| 127 | laut       | sea          | tahi         | ʔahi                     |
| 128 | garam      | salt         | siʔa         | siʔa                     |
| 129 | danau      | lake         | walã         | N/A<br>cf. valã ‘lumpur’ |
| 130 | sungai     | river        | luŋu         | suŋe                     |
| 131 | gunung     | mountain     | ile          | ile                      |
| 132 | hutan      | forest       | kərawo       | kraʋoʔ                   |
| 133 | langit     | sky          | kəlã         | kəlã                     |
| 134 | matahari   | sun          | ləra         | ləra                     |
| 135 | bintang    | star         | bəlia        | bliã                     |
| 136 | awan       | cloud        | kowa         | kova                     |
| 137 | embun      | dew          | apũ          | apũ                      |
| 138 | hujan      | rain         | urã          | urã                      |
| 139 | salju      | snow         | N/A          | N/A                      |
| 140 | angin      | wind         | aŋi          | aŋĩ                      |
| 141 | bertiup    | blow         | bu           | buʔ                      |
| 142 | panas      | hot          | pəlate       | plãte                    |
| 143 | dingin     | cold         | loʔi         | loʔi                     |
| 144 | kering     | dry          | marã         | mara, marã               |
| 145 | basah      | wet          | kəwaʔi       | kuaʔi                    |
| 146 | rata       | flat, smooth | rata         | raʔa                     |
| 147 | berat      | heavy        | baʔa         | baʔa                     |
| 148 | api        | fire         | ape          | ape                      |
| 149 | membakar   | burn         | tuno         | ʔuno, ora                |
| 150 | asap       | smoke        | rihũ         | rihũ                     |
| 151 | abu        | dust         | kəwu         | kəvu                     |
| 152 | hitam      | black        | mitã         | miʔã                     |
| 153 | putih      | white        | burã         | buraʔ, burãʔ             |

| #   | Indonesian  | English        | Keraf (1978) | Nagaya (2008–2010)     |
|-----|-------------|----------------|--------------|------------------------|
| 154 | merah       | red            | meʔã         | meʔa, meʔã             |
| 155 | kuning      | yellow         | kumã         | kumã                   |
| 156 | hijau       | green          | idʒo         | idʒõ                   |
| 157 | kecil       | small          | kərẽ         | kreʔ, krẽʔ             |
| 158 | besar       | big            | belã         | beləʔ, belãʔ           |
| 159 | pendek      | short          | pəsu         | kpəsũʔ, kpəsũʔ         |
| 160 | panjang     | long           | bələhã       | blahaʔ, bləhãʔ         |
| 161 | tipis       | thin           | mənipi       | mnipi                  |
| 162 | tebal       | thick          | kəwəra       | kvərẽʔ, kvərẽʔ         |
| 163 | sempit      | narrow         | kətəkə       | knipu                  |
| 164 | luas        | wide           | luas         | blega                  |
| 165 | lurus       | straight       | kəlodo       | klodo                  |
| 166 | tua         | old            | tua          | okĩ, tua (Indonesian)  |
| 167 | baru        | new            | wuʔũ         | uuʔũ                   |
| 168 | baik        | good           | sarẽ         | sareʔ, sarẽʔ           |
| 169 | jelek       | bad            | məko         | məkoʔ, məkõʔ           |
| 170 | betul       | right, correct | nādikã       | nãʔã dikãʔ             |
| 171 | malam       | night          | nokõ         | nokõʔ                  |
| 172 | tahun       | year           | sũ           | sũ                     |
| 173 | hari        | day            | lərõ         | lərõ                   |
| 174 | bilamana    | when           | boʔã         | boʔã                   |
| 175 | di          | in             | lau, rae     | ia                     |
| 176 | dalam       | inside         | onã          | onãʔ                   |
| 177 | di sini     | here           | pi           | pi:, pihi<br>te:, tehe |
| 178 | di situ     | there          | pehe         | pe:, pehe              |
| 179 | ini         | this           | teʔẽ         | piʔĩ, teʔẽ             |
| 180 | itu         | that           | teʔẽ         | peʔẽ                   |
| 181 | dekat       | near           | dãhe         | dahe                   |
| 182 | jauh        | far            | dõe          | doẽʔ                   |
| 183 | di mana     | where          | tea          | tea                    |
| 184 | saya        | 1SG            | go           | go                     |
| 185 | engkau/kamu | 2SG; 2PL       | mo/mio       | mo/mio                 |

| #   | Indonesian | English | Keraf (1978) | Nagaya (2008–2010) |
|-----|------------|---------|--------------|--------------------|
| 186 | dia        | 3SG     | na           | na                 |
| 187 | kita       | 1PL.INC | tite         | ṭiṭe               |
| 188 | kami       | 1PL.EXC | kame         | kame               |
| 189 | mereka     | 3PL     | ra           | ra                 |
| 190 | apa        | what    | a            | a:                 |
| 191 | siapa      | who     | hege         | hege               |
| 192 | lain       | other   | gehã         | gehã               |
| 193 | beberapa   | some    | bopirã       | pira               |
| 194 | banyak     | many    | ajã          | adʒaʔ, adʒãʔ       |
| 195 | sedikit    | few     | kəsə         | kəsəʔ              |
| 196 | semua      | all     | waokãe       | uaokoẽʔ            |
| 197 | dan        | and     | noʔõ         | nãʔã               |
| 198 | dengan     | with    | noʔõ         | nãʔã               |
| 199 | sebab      | because | pukã         | pukã               |
| 200 | jikalau    | if      | kalu         | nãʔã pe:           |

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