Phonologic variation in Palu’e, a language from Eastern Indonesia, and the devising of an orthographic system

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ABSTRACT

This article presents a phonological description of the Palu’e language variants and reflects on the problems of representing the language in writing. Verifiable lexical and phonological data are made available and an orthography is introduced. Data and analysis is drawn from a comprehensive documentation, and specific recordings of three speakers/language variants reading the same wordlist, available in an online audio collection. The phonetically transcribed recording of one speaker is compared with the other two and the corpus-based phonological description, and provided in an annotated appendix. The annotated recordings support the estimate of >99% lexical congruence and mutual intelligibility between variants. From a multi-variant perspective several phonemes are in free variation with each other. /ʃ/ does not occur mid-word/second syllable in the interior variants that use the initial PMP *c instead of the coastal /s/, but is in complementary distribution with mid-word /dʒ/. /s/ is neither in complementary distribution with /ʃ/ nor /dʒ/ in the coastal variants. Several Palu’e variants exhibit sufficient specific features to be referred to as dialects, including two of the recorded samples, whereas the speech patterns of the phonetically transcribed speaker make sense from the perspective of the surrounding variants.

Keywords: Austronesian, Palu’e, Flores, phonology, orthography, language variation, language documentation

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1. Introduction

1.1 Subject, aims, methods

This article describes some features of the phonology of Palu’e (ISO 639-3 code ple, local name sara Lu’a), which is spoken by the Palu’e (ata Lu’a) on the island Palu’e (Lu’a) near the north coast of Flores in the eastern Indonesian province Nusa Tenggara Timur. Description and analysis is grounded in the author’s comprehensive documentation of the Palu’e language and its oral traditions, including the transcription

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of over 300 recordings with speakers from all around the island. The article presents a phonological description of the Palu’e language variants, a preliminary dialectological description, and reflects on the problems of representing the language in writing. The orthography devised as the solution is displayed in the example sentences and in the glosses of the appendix. Verifiable lexical and phonological data are made available for further research.

After an introduction, the paper presents in (1.2), a description of the language situation; then in (1.3) a summary of previous research to further display in (1.4) an account of the specific comparative data. For this purpose three speakers representing three language variants or ‘dialects’, were recorded reading aloud from a wordlist in order to provide examples of phonological variation, and to assess the observed high level of mutual intelligibility and lexical congruence. Section 2 is a broad description of Palu’e phonology (2.3-2.4), beginning with (2.1) the orthographic issues and a brief description of structure and typology (2.2). Section 3 is the summary with conclusions.

The wordlist (English, Indonesian, phonetic transcription of one speaker, Palu’e glosses) is provided as an annotated appendix with comments on sounds, lexemes, ambiguities, alternates, and differences of pronunciation.

1.2 Language situation

The island of Palu’e is a municipality under the Sikka regency (Maumere) in Flores, Eastern Indonesia (see map in Figure 1). Uwa is the island’s largest settlement, hosting the municipality office, junior high schools, a harbour, and passenger boats. Less than 10 000 speakers reside on Palu’e, which only covers about 49 km². Several thousands more live in migrant communities on Flores. It is difficult to make a proper census on the island because many Palu’e reside both along the Flores north coast and on Palu’e, and many migrate far away for work, often for several years.

Figure 1. Map of Flores. The major Flores languages are indicated at their approximate positions.

1 See Himmelmann (2006) for a review and definition of endangered languages documentation. See item SD1-000 in Stefan Danerek Collection – Palu’e Audio, Kaipuleohone, the University of Hawai’i Digital Language Archive and Danerek (2017) for more detailed information about the project and the collection. Hereafter collection items will be referred to with item numbers only. Consult also the Palu’e-Indonesian dictionary (Danerek 2019), which was finalized during the editing of this article. The main fieldwork was followed up by shorter visits until 2019. In total, the author has spent a full year among Palu’e speakers.

2 Next to transparency and to account for shortcomings, the intention is to transfer additional information about the language.

after the volcanic eruptions on Palu’e in the mid 1980s. The population increased significantly with the influx of refugees after the 2012-2013 volcanic eruptions.

Palu’e is classified as Austronesian, Malayo-Polynesian, Central-Eastern Malayo-Polynesian, Bima-Lembata (Simons and Fennig 2019). Fernandez (1988) argues for a Flores group of languages with a source in a proto-Flores language. In subsequent works (1989a and 1996), he divides the Flores group into East, Central and West Flores languages, and labels the Central group ‘Ngadha-Lio-[Palu’e]’, including Nage, Kéo and Ende. Manggarai and Lamaholot languages respectively, dominate the West and East Flores groups.\(^4\)

The Central Flores linkage with Palu’e is described as a ‘dialect chain’ (Fox 1998: 3-5), which runs through the whole island of Flores. Like the other languages of the Central Flores group, Palu’e is an extremely isolating language of the SVO-type. The Central Flores languages are more related to the West Flores languages than the East Flores languages, which are less isolating and more grammatically complex. Blust (2013), like Fernandez (1996), lists Sikka (or ‘Sika’) in an East Flores subgroup with the Lamaholot languages, which are spoken also on Lembata and Solor islands. The language affinity of Palu’e can thus be described in the following order: Austronesian – Malayo-Polynesian – Central Malayo-Polynesian – (Central Eastern Malayo-Polynesian) – Bima-Lembata – Flores – Central Flores – Palu’e.\(^5\)

No other ethno-linguistic groups reside on Palu’e Island other than the Palu’e, who are more defined by place and language than by ethnicity. There are many origin groups, or clans (kuni), on Palu’e. Those who claim first settler status traditionally take political and ceremonial leadership before groups which came later, in each of the fourteen tribal lands with borders, called tana on Palu’e, and hereafter referred to with the anthropological term ‘(traditional) domain’. Palu’e ceremonial customs and culture are stronger and more elaborated in the seven ‘domains of buffalo blood’ (tana laja karapau),\(^6\) so defined by their largest sacrificial animal, the water buffalo. The other domains are often referred to as ‘domains of pig blood’ (tana laja wawi) according to the same principle.

The Palu’e language is not critically endangered, but certain language domains certainly are, notably, but not limited to, ritual-poetic use of language, Pa’e (‘speaking in pairs’).\(^7\) Today all Palu’e are able to speak Indonesian, in the style common to eastern Indonesia and Flores in particular. The grandparent generation generally received four to six years of elementary school, but not everybody of this generation did attend school. People who are around 40 years of age today often received six years of schooling. Today it is common to finish at least junior high school, and to continue to senior high school, and even on to proceed to higher education. Palu’e is still used in everyday conversation on Palu’e, whereas in Nangahure, Indonesian is used more frequently than on Palu’e. The youngest, if born on Palu’e, still learn Palu’e before Indonesian, but not all Palu’e are fluent in their mother tongue. For comparison, the author is not perfectly fluent in Palu’e,

\(^4\) Blust (2013), like Fernandez (1996), lists Sikka in an East Flores subgroup with the Lamaholot languages.


\(^6\) Vischer (2006:181) mentions 14 traditional domains. Three costal domains (see Palu’e map) are small, adjoined, and share a ceremony which is rarely carried out.

\(^7\) See for instance Fox (2014) about semantic parallelism.
but comes across speakers who are less proficient, due to their habit of using Indonesian or mixing.\(^8\)

Palu’e is endangered because of this process of language shift toward the national language, enhanced by frequent work migration to Malaysia where the Palu’e use Indonesian, influenced by the surrounding Malaysian Malay. In situations where non-speakers of Palu’e are present, or the more formal a situation, the more Indonesian is used. Language shift is more intense, but not limited to, in the coastal domains. The phenomenon is not limited to the youth only. The dominant factors of language shift are: 1) migration for work, primarily to Malaysia, or migration for higher education; 2) education and the influence of the national language; 3) relocation to Flores because of the recurring volcanic eruptions.

On the main island of Flores the Palu’e primarily use Indonesian in communication with other ethno-linguistic groups. In the case of migration to the island of Flores, Palu’e children often learn Lio with relative ease compared to Sikka (Maumere). These are the two other, significantly larger Flores languages, with which the Palu’e are in frequent contact with over 100 000 and some 250 000 speakers respectively. Palu’e men have a tradition of doing seasonal work on Flores during the dry season, often in small groups. None of the Flores languages are causes of language shift, but the modern culture of Sikka (Maumere) has a noticeable influence on the Palu’e.

All the different variants or dialects of Palu’e are mutually intelligible and largely coincide with the domains. The language documentation has only recorded few instances of words that are specific to one or more domains, yet often recognized by speakers from other domains. On the map below, the names of the domains are in bold letters and placed approximately at their respective main settlements. The others are names of settlements mentioned in the text, except from Woja, which is a semi-domain whose population are mostly descendants from Kéli. Both the Cawalo and Ko’a domains reach all the way from the north west coast to the south coast, but their populations, like the other, are concentrated in closely located settlements as indicated.

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\(^8\) In the author’s work with recordings it was unusual to receive narratives in 100% Palu’e even after the narrators had been instructed to use only Palu’e, and including of recordings done by local assistants.
The domains are since the late 1960s located among eight desa (administrative villages, local government). The administrative borders of a desa itself do not follow the borders of the domains therefore hereafter the terms ‘village’ or ‘hamlet’ refer to settlements. The domains form two main clusters of political alliance groups, which in the past meant commitment to support one another in ritual border warfare against enemy domains. The basic form of alliance is marriage and exchange of goods between houses of different origin groups, which used to be endogamous within the domain, or a closely allied domain. Today it is not unusual to marry outside of one’s domain, or even to take a spouse from Flores.

Since the 2000s cement roads between settlements have further contributed to integration. This external factor contributed to the weakening phonological differences among variants, but variation is still so significant that the origins of speakers are usually easily identified. Uwa, the commercial and administrative centre with workers and employees from outside, primarily from the regency capital Maumere, is more affected by language shift than other parts of the island. Uwa, centred on Maluriuwu but lacking a clear territorial definition, is formed by a cluster of adjoining seaside settlements, desa, and coastal domains, which reach all the way from the coastal hamlets of Ndéo until Ngalu. These coastal settlements do not form separate variants as found in the island’s interior, instead their shared speech patterns are locally referred to as a ‘dialect’.

1.3 Previous research

There are a few previously published descriptions and analyses of Palu’e. Inyo Fernandez (1989b) is a first sketch of Palu’e phonology, using lexical data from a 1,047 items ‘Holle wordlist’ to which ‘a number of lexical items were added’ during a fieldtrip

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9 Differences, if identifiable, between the coastal domains need to be examined specifically.
in July 1988 (Fernandez 1989b: 88). The lexical data contains a few errors, likely because of the short fieldwork. Fernandez (1989b:88) mentions four ‘dialects’ (Nitung, Uwa, Ona, Cawalo). He admits that the number and classification reflects ‘a common view’, also found in an unpublished survey by Widjatmika (1974) that he refers to. Fernandez acquired data from Nitung, Uwa, and (H)ona, but not Cawalo. The Hona variant is, as noted by Fernandez, very similar to Cawalo, whose lands stretch all the way to Hona. Had Fernandez stayed longer and walked around the island talking to the inhabitants, he would have discovered more variants. He makes an important distinction between coastal and interior dialects.

In the following rest of the paper, the term ‘interior’ is used to mention speech variants located on the hills toward the mountain at altitudes of >100 m above sea level. Fernandez’ description of the Palu’e phonemes is similar to this description (2.3, 2.4), except that he includes /gh/ and /z/, which he admits are unusual, and the semivowel /w/. He uses [w] instead of /v/ in the orthography for the sample words, despite the fact that /v/ should be in the phonological chart instead of /w/.

A previous wordlist of Palu’e by Mark Donohue, describing the ‘Nitung dialect’, is found in the Austronesian Basic Vocabulary Database (ABVD. Greenhill et al 2008). Donohue also compiled data for a more extensive wordlist (2003), a tri-lingual dictionary with over 600 entries (including subentries), acquired from Nitung speakers. Donohue (2005a) is a hypothesizing analysis of sound changes from Austronesian/Proto-Malayo-Polynesian (PMP) to the modern Palu’e, also based on data from Nitung speakers. Donohue (2005a) describes /ɔ/ as an epenthetic vowel that breaks up illegitimate consonant clusters, and Donohue (2005b) describes ‘the Palu’e passive’. Donohue (2009) is a short book chapter dealing with aspects of Palu’e phonology, relevant for this paper. It explores Palu’e nasality and breathiness, and the status of long vowels and diphthongs as mono- or disyllables.

Also to be mentioned among previous publications is a trilingual book for the learning of English, Indonesian and Palu’e, intended primarily for junior high school students, by Frans Sanda (2005), a Palu’e man and lecturer in Kupang. The phonology and orthography is based on the ‘Uwa dialect’. The choice of gh instead of k, kh to represent /k/ and near-sounding phones, such as ghita instead of the usual rendering kita for 1PL.IN ‘we’, and other letter combinations with h, and last but not least the description provided are proof that the data came from the Uwa variant. Being based on Uwa, it was criticized by this author’s Kéli friends. Generally speaking, the inhabitants of each domain consider their ways of doing things, including speaking, to be the more correct, although differences are petty.

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10 All translations are by the author. Fernandez attributes the unpublished wordlist to Michael Vischer in the bibliography. Blust (1993: 243) also refers to an unpublished Palu’e wordlist with the same word count: ‘1,047 items, Lusia Wese (n.d.). Palue vocabulary. Lexical questionnaire collected by Margrethe Dirkwager M. s., 20 pp.’ I have not been able to get a copy of this wordlist. It is not included in the bibliography for the mentioned reasons.

11 The main village of the domain Nitu lēa is named Nitung, a modern, Indonesian, rendering of Nitu.

12 SD1-234–236 are recordings of a Hona speaker.

13 [z] is heard primarily in the Cawalo dialect (see SD1-299). Fernandez’ conflation of /w/ with /v/ is likely influenced by his Flores background.

14 The data was initially collected from about 30 families of Nitung speakers living in Batam, and then corrected against data acquired in Nitung, Palu’e on two separate trips (Mark Donohue, personal communication).

15 It shows how favouring one dialect before others can make other speakers shun the orthography, although the individuals did not take the time to read the introduction about how the writing system was devised.
1.4 Wordlist work process

To compile the wordlist for this article the author began with the Swadesh wordlist (1952), compared it with wordlists of other Austronesian languages, including from ABVD, and replaced a number of items with more culturally relevant glosses, such as ‘bow’ and ‘betel’ (areca nut and piper betle). The wordlist was translated into Indonesian and a Palu’e orthography in 2015 after the author had acquired sufficient proficiency in the language. A similar orthography was already used in the very beginning of the documentation research, because a working orthography is immediately needed in any language documentation (see 2.1). The Indonesian was added so that the recorded speakers would not be dependent on the Palu’e glosses, and even correct them if they considered it necessary (see conclusions and comments to appendix). They read through the wordlist before beginning, and before recording they were instructed to read out the Palu’e glosses after a quick glimpse on the Indonesian to the left. This method was chosen to avoid direct translation, which could have resulted in hesitancy and pauses. It would also have resulted in too many lexical differences between the speakers, because of the synonyms, obstructing the aim of phonological comparison. Palu’e abounds with homonyms and like-sounding words, which are recognized in the context of a sentence, especially in writing. The Indonesian gloss exchanges the sentence context. The author has no reason to believe that the written Palu’e influenced their utterances. They, like others of their age group, are used to correctly identify Palu’e words in writing of persons speaking different Palu’e variants, including sentences written in the haphazard manner common in mobile text messages, which they will utter in their own way.¹⁶

In September 2015 the author left a printout of the wordlist with Miss Maria Meti, a 26 year-old resident of village Mata meré, Kéli, who was a language consultant at the time. Meti was learning how to record, and was tasked to record the wordlist after examining it thoroughly. The result is the recording SD1-300, of herself, done at home 9 October 2015. The other two speakers (items SD1-298 and SD1-299) were recorded during a subsequent fieldtrip on a visit to the Cawalo junior high school 28 May 2016. The intention was to record Miss Ofa Longge, an English teacher, about 25 years of age, resident of village Bako, Téo domain. There was time and space available for recording around midday, also of Mr. Nestor Langga, a teacher of sports, about 30 years of age and from the main Cawalo village. The speakers, who already knew the author, were first allowed to familiarize themselves with the wordlist.

The wordlist is quite long; each recording took over eight minutes, which is one reason why the words are spoken in isolation and not repeated. This has pros and cons. The speaker of SD1-299, for instance, used more intonation than the other two, more than would appear in everyday speech. The original materials consist of these three digital recordings, which together with the EAF-files, including metadata for resource recovery, constitute the archival form of the data. The phonetic transcriptions use the International Phonetic Alphabet (IPA 2015) and were made in ELAN, in which the EAF file is linked to the WAV file and the transcription is time-aligned to the recording. The files are archived and available online as items SD1-298–SD1-300 in the Stefan Danerek Collection - Palu’e Audio at Kaipuleohone, the University of Hawai‘i Digital Language

¹⁶ In fact, Meti, who recorded herself, also made an additional recording of the wordlist where she imitated another dialect (unpublished).
Archive. The [Palu’e] in the wordlist presentation form (appendix) is described from the recording of the Bako-Téo speaker (SD1-298). The other two recordings are partially transcribed and the words are numbered to facilitate comparison and reference.

2. Palu’e Phonology

2.1 Developing the orthography

A language’s natural variation and diversity, ‘heteroglossia’ in the terminology of Mikhail Bakhtin (1982: 263, 428), resists standardization. Compilers of dictionaries for endangered languages have often neglected the issue of variation within one language, and singling out any particular variant over the others is problematic (see Rice 2018). For example, speakers of variant A might refuse variant B as the model spoken form for the orthography. The author recognizes this problem for Palu’e, and it is a main reason behind the devising of an orthography that is not based on a singular variant. In writing, the Palu’e tend to follow the style of the Indonesian orthography, which they learn in school. The popular orthography found in SMS or chats on mobile phones, the main forum for writing, is naturally simplified. Educated Palu’e try in vain, without the necessary linguistic skills, to phonetically transcribe their language in with Latin letters (phonemic representation). The results given to the author in meetings or in long chats have been linguistically revealing and useful. The orthography has been developed in consultation with Palu’e assistants and friends, to whom linguistic explanations were given for the few modifications needed to devise a consistent orthography. The author has sought a balance between the advantages and disadvantages of the specialized and the popular options. Another compromise, relevant for a multi-variant orthography and in line with Frank Seifart’s (2006:294-295) examples of ‘multidialectal orthographies’, is that the orthography represents the distinction (/ʃ/) that is not contrastive in the coastal variants, but does not represent distinctions that are contrastive in only one or a few variants.

The orthography was fine-tuned before work began with the phonetic transcriptions for this paper, and it was acknowledged as consistent by a number of individuals consulted for language issues. Yet the author expects objections, which, for instance, can be replied at a future seminar on Palu’e or at the nearest university (Maumere). It is beyond the scope of this paper to explain at length why a common orthography for Palu’e has not yet been decided on at the island/municipality level.

One reason is that there is not yet a true need for it, another is that there are too many individual opinions, biased toward their respective domains. Perhaps the Palu’e-Indonesian dictionary (Danerek 2019), which comes with a language description and will be distributed among the Palu’e, will provide a basis for a future common orthography, decided on in deliberation with a range of stakeholders.

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18 Comments are also found on the tier ‘Notes’ in the EAF-files. The files, particularly SD1-299 and SD1-300, and the comments, are to be updated.

19 Earlier transcriptions in the audio collection made 2014-2015, if not updated, use a less consistent orthography, which neither depicts implosion adequately nor use é for /e/. 

20 Consult the previously mentioned works by the author for more information about these issues.
Actually a main problem is not the orthography per se, but which variant of a word it is applied on. Choices have to be made, which to an extent must be arbitrary because it is impossible to determine, for instance, the most widely distributed variant of each word or pronunciation variant. To circumvent this problem and orthographic/language variant authoritarianism, the author allows for variation primarily in, but not limited to, the level of example sentences, which has been appreciated in other contexts (see Keren 2019: 187). Entries are based on the interior variants because they are generally more resistant to language shift, and because several of the associated groups or domains probably have a longer history on the island. The example sentences display the same words as either interior or coastal, or another feature of phonological variation.

The orthographic system can be applied on all dialects. For instance, the coastal dialects that lack the phoneme /ʃ/ in their phonemic systems (see 2.3-2.4) can opt to use [s], as they pronounce the phoneme /ʃ/ or use the common [c]. The distinction does not cause problems for memorizing and reading. Neither do other smaller distinctions cause problems. Differences with the Indonesian orthography are: 1. /v/ is represented with w, as in Palu’e popular writing; 2. The glottal stop is represented with apostrophe [ ’ ]; 3. é represents /eː/. The two latter signs became obsolete in Indonesian after the spelling reform of 1972 (Pedoman umum) for practical reasons. The Indonesian orthography conflates /e/ and /ə/ in the grapheme e, which does not suite Palu’e well because it would conflate too many words. For example: 1. words with vocal sequences and words with the same vocals separated by glottal stop, such as lai ‘praise’ and la’i ‘lick’; 2. minimal pairs with two e-phones, such as kere [kəre] ‘cut’ and kére [kəreː] ‘stand (up)’ (more in examples in 2.2 and 2.4).

The Palu’e are often aware of the need to mark glottal stops with an apostrophe, but they do not use accent to mark /e/, which is important for learners of the language, including those who experience language shift. In addition, the orthography marks the implosives /ɓ/ and /ɗ/ as bh and dh, features that are recognized by the Palu’e, but often ignored (see 2.3). The orthography is in any case not imposed by a government, which might be an advantage, allowing it to sink in and be tested over a few years. Specific issues in the development of the orthography follow in the phonological description.

2.2 Structure, Typology

Palu’e is an extremely isolating SVO-language. All native words end in open syllables. There are no consonant clusters other than the pre-nasalized consonants. The basic structure of words is CV.CV, including initial breathy vowel/aspiration/onset to a VCV sequence. Other combinations are: V, CV, VV, CV.CV, CV.CVCV, CV.CVCVCV. The two latter are unusual, mostly mergers. The morphology is limited to the four genitive clitics *-ku, *-mo, *-ne, *-te that correspond to the 1SG/1PL.EX, 2SG/2PL, 3SG/3PL, 1PL.IN free pronouns. Nitung (including the adjoined domain Cu’a) is the only variant of Palu’e that exhibits the following traits (see Donohue 2005a: 435): The PMP clitics *-ku and *-ta are voiced as -gu and -de, and the third person genitive -n (PMP *-na) is the only morpheme that ends in a consonant. Generally, however, *-ku and *-ta are unvoiced as -ku and -te, and the third person genitive is realized as the open syllable -

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21 Oral traditions, both myths and oral history, suggest so. It is also logical that later settlers settle near the coast than in the interior, unless they conquered the territories of previous settling groups.

22 In Seifart’s (2006) terminology the Indonesian orthography can be described as ‘phonographic’, and ‘deep’ after the reform from a more ‘shallow’ type.
ne. Palu’e genitive clitics (attached with ‘-’ in the examples) are often uttered together with the antecedent pronoun as in examples 1a and 1b.

(1) a. Ia ngara-ne Cawa (Ngara-ne Cawa).
   3S name-3SG.GEN Cawa (name-3SG.GEN Cawa)
   ‘His name is Cawa.’

b. Kami poke-ku mara.
   1PL.EX throat-1PL.EX.GEN dry
   ‘We are thirsty.’

Palu’e must often use two words to express a one-word gloss in English or Indonesian, as in 1b (noun + adjective = adjective). Puna ‘do’ is the main auxiliary verb (see wordlist item 193), which forms ‘verbs’ together with adjectives. Palu’e is rich with homophones. [nai] and [lai], for example, have several homophones: nai 1. ‘long (time)’ 2. ‘breathing’; lai 1. ‘fly’ 2. ‘lungs’. Stress is not a prominent feature of Palu’e, but it can be contrastive, which it is not in Indonesian. The disyllabic structure tends to level out stress. When there is stress, it falls on the penultimate syllable, unless it contains a schwa /ə/, as in the following example: nera [nəˈra] ‘think’; néra [ˈnera] ‘lontar leaf mug’. Stress is not marked in the wordlist for these reasons.

2.3 Consonants and stops

The phonological chart (2.4 vocals) shows the orthographic representation between slashes where it differs from IPA. Loan phonemes are in brackets.

Consonants

<table>
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<tr>
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<th>Velar</th>
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23 The dictionary lists five entries for lai and four entries for nai.
24 Stress is, apart from heard, to some extent also visible even in the ELAN media player. Click and pull the lower ruler downwards to extend the sound waves.
25 All consonants and vowels are represented in the wordlist.
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<th>Nasals</th>
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| Lateral             | l    |

| Trill              | r    |

The sounds from /p/ to /b/ and from /t/ to /d/, passing the implosives /ɓ̑, ɗ̑/, are the most problematic, not least because the sounds are common. For practical reasons it seems easier to not mark the implosive and aspirated phonemes, /ɓh, ph, dh, th, kh/, and conflate them with non-implosive and non-aspirated into /b, p, d, t, k/. But differences are also phonemic. /b, d/ cannot always be exchanged with /p, t/ without changing the meaning of a word (separate phonemes). Neither can /ɓ̑, ɗ̑/ be exchanged with /b, d/, especially mid-word (as a rule the first letter of the second syllable) without sounding alien (allophones). /t/-sounds often sound like alveolar tap /t̬/, and can be difficult to distinguish from /ɗ̑/, with which it is in free variation, although each variant primarily uses either. The Kéli variant, where the author was based and therefore more influenced from, clearly favours /ɗ̑/ before /t/ mid-word, and so do the neighbouring domain Ndéo, all the way to the coast. Mid-word /t/ is most clearly pronounced to the east in the Edo domain. The word Edo itself is pronounced [heto] by its inhabitants. The personal name Pitu is [pido] in Kéli and [pitu] in Edo.

In previous transcriptions, /ph, th/ signified the step on the scale from unvoiced to voiced stop before /ɓ̑, ɗ̑/. Educated Palu‘e often write phonological transcriptions of the sound this way. Aspiration [pʰ, tʰ] is often marked that way, and because it is not really the phenomenon depicted with /ph, th/, these were phased out in later transcriptions. Donohue (2005a:431) expressed the above-mentioned problem in his historical analysis of Nitung Palu‘e from PMP: ‘[...] not all the reflexes of *p are voiced; all intervocalic instances of *p are reflected as ’ɓ̑, but the root-initial reflexes are a mix of p and ’ɓ̑. There are no medial ps in Palu‘e.’ Medial /p, pʰ/ is however common in the Ko’a and Cawalo variants, and root-initial reflexes can go further toward /ɓ/ in other dialects.

For both mentioned and practical reasons are all additional /ɓ-s obsolete in the current orthography, including kh for /kʰ/, except for the marking of the implosives (bh, dh). Only k, t, p are used.
In the dictionary corpus, the bulk of entries for B, D begins with ɓh, ɗh because the great majority of /b, d/ sounds are implored, especially mid-word. It begs the question if not /ɓ, ɗ/ are actually the standard phonemes, and /b, d/ only more unusual allophones of the first, perhaps even conditioned by the clearer stops in Indonesian?\(^{26}\) Implosion is conditioned by the following vowel, and there is generally less implosion before first syllable /a/ than before /ɔ/. Native speakers often recognize unvoiced and implored stops as exchangeable (free variation). Furthermore, in popular writing, Palu’e people often write \(p\) of words they utter with [ɓ, ɗ], which conflates contrastive sounds as in the minimal pair [pʰata] \(pata\) ‘float’; [ɓata] \(bata\) ‘piece (of cloth).

\(/v/\) is a Palu’e phoneme, seldom heard in Indonesian. The approximants \(/j, w/\) appear only in diphthongs.\(^{27}\) The faint sounds can be represented with \(/ɣ, ɣ/\), or \(/u^w, 냄/\). \(/w/\) appears in fast speech when -\(au\) is realized as [aw], but \(/w/\) is not a phoneme. The Palu’e therefore utter the \(/w/\) in Indonesian words as \(/v/\). The letter \(v\) is pronounced [f], like in Indonesian. \(V\) is only used for foreign words, like the name ‘Vendelinus’.

In isolation or slow speech -\(au\) is better described as \(/au^w/\) or \(/au/. \(/au/\) is, for the author, often first perceived when the recording is played at lower speed. All variations occur in the three recordings.\(^{28}\)

\(/dʒ/\) does not occur in initial position (more below), and \(/ʒ/\) is not a phoneme. \(/z/\) can, to the author’s knowledge, only be described as a phoneme in the Cawalo dialect, where it replaces \(/dʒ/\), as in the following pair of the same word: \(koko\), \(kojo\) [koko, kodʒo] ‘dig’.

\(/g/\) is a phoneme and appears only mid-word. \(/ɡ/\) exists, but as a sound replacing /k/ in particular words of some variants.\(^{29}\) Conversely, \(/ɡ/\) corresponds to [kʰ] in the Ko’a variant, which generally uses the unvoiced stops /p, t/ before the voiced and implosive /b, ɓ, d, d/. This contrasts with Nitung/Cu’a where the opposite phenomenon is dominant, for example: \(lape\) (Ko’a), \(labhe\) (Nitung/Cu’a) \([lape, laɓe]\) ‘layer’.

Initial /s/ is used instead of /tʃ/ in the coastal dialects, the Cawalo villages of the interior, and in Tomu and Téo, interior domains with villages at lower altitudes than the other domains of the interior. Ndéo borders to Tomu, Téo, Kéli (high interior) and Maluriwu (coastal), and also use /s/, but not as consistent as in Tomu and Téo. The Cawalo \([savalo]\) are especially known to have difficulties with uttering /tʃ/, which is otherwise the rule at higher altitudes of the interior. There are words in the hillside /tʃ/ variants that must begin with /s/, but far more words begin with /tʃ/, whereas several coastal dialects and Cawalo do not use /tʃ/ at all. This means that the Palu’e variants of the interior have kept the PMP *c, whereas the others exhibit the Central-Eastern Malayo-Polynesian *s, which Blust (1993:246) describes as a merger of PMP *c, *s. /tʃ/ does not form any minimal pairs with /dʒ/. The Nitung/Cu’a variants sometimes use /dʒ/ instead of [tʃ], but /tʃ/ is more often retained. In the orthography \(c\) is chosen instead of \(s\) for words known to be normally uttered with /tʃ/ in the variants of the higher interior. Examples of the

\(^{26}\) It must be asked for Rongga and other Flores languages too. Wayan Arka’s Rongga-Indonesian dictionary (2012) contains over a hundred entries for B and D each, which are implored (marked as ɓh, ɗh in the orthography). Only four native words begin with d, and 11 with b (bui ‘jail’ must be a loan from the Indonesian colloquial ‘bui”), including homophones.

\(^{27}\) The diphthongs can be broadly described, especially from fast speech, as monophthongs followed by an approximant, as Clynes (1997) argued about Proto-Austronesian. Cf. Donohue’s (2009: 54-55) argumentation for disyllabic long vowels.

\(^{28}\) [aw] appears in SD1-299, but not in SD1-298.

\(^{29}\) See list item 201, [muغاو /ɓi]. Note the implosive b. Cf. SD1-299–300.
just mentioned domain variants: coka, soka [tʃoka, soka] ‘dance’; kokoco, kokojo [koko.tʃo, koko.dʒo] ‘if’.\(^{30}\) /c/ and /s/ can be said to be in free variation from a multi-
dialectal perspective. We can utter either coka or soka and be understood anywhere.

Palu’e pre-nasalized consonants occur also in initial position, like in PMP, unlike the
Indonesian pre-nasalized consonants, which occur only mid-word. Pre-nasalized
consonants are rarely uttered as clusters as they are in Indonesian. Example: (Palu’e)
ku.mbú ‘round’; (Ind.) lom.ba ‘compete’. /ŋ/ occurs primarily mid-word, but is applied
before loanwords to make them indigenous. Example: nggula [ŋgula] ‘sugar’ (from the
Malay/Indonesian ‘gula’).

Breathy vowels and word-initial /h/ can be described as being in free variation. The vast
majority of words beginning with vocals can be uttered with initial /h/ in the variants of
the higher interior. An exception is é /e/ ‘yes’, which is never uttered [he:]. The
phonological environment matters, /o, u/ attracts more /h/ than /a/ for instance, but no
clear rules have been identified. There are also words that must use initial /h/ in every
variant. In Ndéo village, just below the allied domain of Kéli, the initial /h/ is often
difficult to hear. This must be the breathiness described by both Fernandez (1989b) and
Donohue (2009). The higher the altitude of a settlement, the initial /h/ intensifies. The
orthography uses initial h but not categorically, because then there would be very few
entries beginning with vocals.

Glottal onset /ˀ/ is frequent, especially before initial /k, b/ and similar phones, and before
initial vocals, often pronounced with a slight keeping of breath. Native speakers do not
recognize any phoneme in the glottal onset, whether vowel- or consonant initial. There
are no word-final glottal stops because Palu’e does not allow closed syllables, and there
are no final /h/ for the same reason.

2.4 Segmental e and vocal sequences

Phonological chart vocals (monophthongs)

<table>
<thead>
<tr>
<th></th>
<th>Front</th>
<th>Mid</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>High, Close</td>
<td>i</td>
<td></td>
<td>u</td>
</tr>
<tr>
<td>Mid, Close</td>
<td>e</td>
<td>ə /e/</td>
<td>o</td>
</tr>
<tr>
<td>Low, Open</td>
<td>a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

/e/ rarely occurs. /ə/ and /e/, particularly /œ/, are by far the most common e-phones. /œ/
appears as a rule in penultimate position. The distinction with the close-mid-front vowel
/e/, especially /œ/, is important. /œ/ cannot form a disyllable with another vocal. /œ/ is
marked ə in the orthography, but /e/ is only marked if there is a particular need to mark
the contrast between /œ/ and /e/ in a word, as in rule-reversal. Word-final e is as a rule
/e/ or /œ/, but /e/ occurs also in first syllable VCV, including with initial /h/. The

\(^{30}\) Kokoco is actually two words: koko co, but can be pronounced as a two-morphemic word.
following example shows words with two e-phones in different distributions, the first two form a minimal pair: hene [hane] ‘six’; héne [hene] place/condition’; mere [mare:] ‘night’.

Palu’e has the following vowel sequences, or diphthongs, that may be broadly transcribed with the approximants /j/ and /w/: /ai/ [aj], /ei/ [ej], /oi/ [oj], /au/ [aw], /ou/ [ow], /oe/ [oej], /ae/ [aej]. For a novice, disyllables such as /ae, oe/ can be difficult to distinguish from /ai, oi/ (see also wordlist items 63, 67, 116), and disyllables can be difficult to distinguish from the same syllables interrupted by glottal stop. All vowel sequences, particularly in slow speech, are realized as disyllables, as in the following examples of minimal pairs: /ai/ [lai, laiʲ] ‘fly’. /ae/ [lae, laeʲ] ‘down’; mböe [mboe, mboe] ‘personal name’. Mboi [mboi, mboiʲ] ‘personal name’. In addition to the above there are the following, apparent, disyllables /eu (eːu), ia, io, iu, ua, ui, uo/. In /ia, iu/ the faint sound /ʲ/ of the approximant /j/ may appear after /i/. All are represented in the transcripts of the appendix, except /iu/ and the more unusual /uo/ (four dictionary entries). Examples: hiu [hiu] ‘shark’; ngguo [ᵑɡʊo].

Because of the mentioned phonological and orthographic reasons, the dictionary corpus, sampled in the examples and appendix, contains no entries beginning with the Latin letters f, g (phoneme), j (phoneme), q, v (phoneme), x, y, z, or glottal stop (phoneme).

3. Summary and conclusions

The Palu’e variants have a shared lexical inventory of over 99%, an estimate based on the documentation research and the compiling of the Palu’e-Indonesian dictionary. The recordings of the wordlist support this high estimate. The three speakers recognized all the items as correct except one or two. One was misspelled (scratch) but uttered correctly by two speakers due to the Indonesian gloss, another (green) has two glosses and the more correct one is uttered in SD1-300 and shown in brackets (t’a’a). See the footnotes to the appendix about these issues.

The sound of Palu’e is never so varied that speakers of different variants have difficulties in understanding each other. Mutual intelligibility is ensured by frequent exposure to other variants on the small island. Contact between domains is more intense in modern times, and there is peace between the domains since at least three decades ago. Tribal domain identity is a source of difference and variation, but the phonological environment and sentence context also play roles in phonological variation. Variation, more than free variation of sounds, occurs also intra-speaker because there is no standardised version of the language and the just mentioned facts; whether consciously mimicking or not. The mountainous and difficult geography is one of the reasons there are surprisingly many variants for the island’s small size. Another reason is origins, although unclear, the Palu’e originate from several different groups and clans that arrived on the island in several migration waves hundreds of years ago. The related Ende and Lio languages exhibit much greater variation, manifesting itself also in the lexicon. It can be explained by the fact that they are spoken over much larger areas by over 100 000 speakers each, with communities separated from each other by the mountainous topography, and linked through the Central Flores ‘dialect chain’.

In Palu’e there are several phonemes in free variation with each other, particularly from a multi-variant perspective, because variants influence intra-speaker variation. The word-initial /tʃ/ of the interior variants is from this perspective in free variation with /s/
in the coastal variants and Cawalo. Variation is of course less free within a given dialect. Further, there are no mid-word /tʃ/ in Palu’e, instead there is the phonetically similar but distinct phoneme /dʒ/, which occurs only mid-word. These two phonemes are therefore in complementary distribution in the interior dialects on which the orthography at entry level is based.

The transcribed speaker (SD1-298) exhibits the following speech and dialect patterns: 1. She uses the pre-vowel initial /h/ with few exceptions; 2. She never uses /tʃ/ instead of /s/; 3. She utters the voiced stops /b, d/ without, or with insignificant, implosion, which is unusual and contrasts with the two other speakers; 4. She utters both the unvoiced stop /p/ and the voiced /b/. 5. /g/-phones, in free variation (within dialects) with the similar /kʰ/, appears thrice; 6. She utters the alveolar tap [t̬] where the others utter [t, tʰ, d].

The speaker’s pronunciations can be explained from the view of the neighbouring variants. She is a speaker of the village Bako of the Téo domain, which borders with Tomu to the east, Ndéo to the west, and Kéli to the north.

Téo, Tomu and Ndéo are interior variants at lower altitude than Kéli (high interior), all reach the sea and have settlements near the coast. Their populations are in more contact with the coastal communities than the Kéli. The main difference with the Kéli speaker is the consistent use of word-initial /s/ instead of /tʃ/, an absence which leads to an increase in homonyms.

The main characteristics of the Kéli and Cawalo variants are described in section 2.3. The recordings confirm: 1) The Kéli use of word-initial /tʃ/, and the Cawalo use of word-initial /s/ (both consistent); 2) The Cawalo speaker uses /z/ mid-word where the others use /dʒ/; 3) Both speakers use word-initial /h/, like the Bako-Téo speaker, which is typical of high altitude settlements; 4) The Cawalo speaker make frequent use of /p, pʰ/ where the Kéli speaker utters /ɓ/; 5) In addition, the Cawalo speaker uttered [ˈq] twice, similar to the Téo speaker [ɠ], variations of /k, kʰ/, which are more common in the other variants of the interior.

The sounds /p, pʰ, ɓ, t, ť, tʰ, d, d'/ are often difficult to determine because they are located on a scale from unvoiced to voiced, un-aspirated to aspirated, and from not imploded to imploded. None of them are the exclusive property of any variant, and form few patterns within variants. The uttering of mid-word /ɓ/ and /t, d/, as opposed to /b, p/ and /d/, is the rule in most variants. The stops /b, d/ are exceptions to the rule of /ɓ, d'/, particularly mid-word. Voiced and unvoiced stops, primarily /p, ɓ/ and /t, d'/ are in free variation from a multi-variant perspective, exchanges are not only understood but also uttered by individual speakers, although outside the rule of the speaker’s variant. The sounds are contrastive, and in free variation between variants. Existing patterns are the Kéli preference for /d'/ before /t/, Ko’a’s preference for /p, pʰ/ before /ɓ/ mid-word, which is, to a lesser extent, also evidenced in the recorded Bako (Téo) and Cawalo speakers. The Ko’a variant generally uses the unvoiced stops /p, t/ before the voiced and implosive /b, ɓ, d, d'/, in contrast to Nitung/Cu’a where the latter sounds are used. Deepening the orthography with the elimination of the implosives bh, dh looks practical, but because /ɓ, d'/ are more in variation with /p, t/ than /b, d/, it will cause much conflation. Conversely, eliminating b, d leads to conflating of contrastive sounds into /ɓ, d'/.

Simplification can also be achieved by creating new graphemes for /ɓ, d'/ instead of bh, dh, for instance, borrowing the IPA symbols as they are.
The status of the phoneme /d/ particularly, but also /b/, needs attention, also in the related Flores languages. If /d/ is almost always imploded, like in Rongga and Palu’e, then the status of /d/ as a phoneme is questionable, akin to an unusual phonetic realization of the phoneme /d/, in free variation.

The Bako-Téo speaker, however, makes a different impression, exhibiting less implosion than most Palu’e speakers. Apart from this, her speech is consistent with her neighbour in Bako, who was recorded in another context (SD1-021). Perhaps the implosions disappeared while pursuing higher education in another province?

More research is needed to determine the status of sounds within each variant. So far it seems that phonological environments do not impose exclusive limits to the mentioned variations. Word-initial /h/, for instance, is only more frequent before /o/ than /a/, which the author determined not only from observation but also from scanning transcripts of narratives. It is also more frequent inside a sentence. What is clear from this preliminary dialectal variation is that variants are important to consider also for small, relatively isolated, linguistic groups.

What is a language and what is not is determined primarily by politics, not linguistics, and it may be similar with ‘dialects’ or variants spoken in traditional domains with political-ceremonial leadership (Palu’e: lakimosa). Of the three variants examined particularly for this paper, the Cawalo and Kéli variants exhibit sufficient specific features to be referred to as dialects; particular forms of Palu’e, peculiar to the specific groups inhabiting the respective domains. The same can be said of Nitung, that can be included with Cu’a and perhaps also with Awa in a cluster. Hona, mentioned in Fernandez’ preliminary phonology, is most probably a variant of Cawalo. Edo is also a dialect, perhaps also the neighbouring Woto. The other variants exhibit more shared characteristics, like Téo, Tomu and Ndéo, and might represent a cluster or even one dialect, like what is referred to as the ‘Uwa dialect’.

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OLAC: Open Language Archives Community.

SOMMARIO

In questo articolo viene presentata una descrizione fonologica di alcune varietà della lingua palu, prendendo anche in esame le problematiche della rappresentazione scritta di questa lingua. Vengono resi disponibili dati lessicali e fonologici verificabili, e proposta una ortografia. I dati e le analisi sono basati su una ampià documentazione, e sulle registrazioni di tre parlanti di altrettante varietà che leggono una stessa lista lessicale, allegate in file audio. La trascrizione fonetica di un parlante viene confrontata con le altre due, e con la descrizione fonologica basata sul corpus, ed è riportata in un’appendice annotata. Queste registrazioni annotate confermano la stima che vi sia una congruenza lessicale >99% e reciproca comprensibilità fra le tre varianti. In una prospettiva di multivarianza, vi sono diversi fonemi in variazione libera tra loro. Ad esempio, /tʃ/ non compare all’interno di parola o in seconda sillaba nelle varietà dell’interno che usano *c del PMP invece della /s/ delle varietà della costa, ma è in distribuzione complementare con /dʒ/, mentre /s/ nelle varietà costiere non è in distribuzione complementare né con /tʃ/ né con /dʒ/. Diverse varietà di palu presentano un numero sufficiente di tratti specifici per essere considerate dialetti, comprese due di quelle degli esempi registrati, e le caratteristiche del parlato dell’informatore della trascrizione fonetica non sono in contrasto con il quadro che emerge delle varietà circostanti.
**Appendix: Annotated Palu’e Wordlist**

Supplemental material for the article ‘Phonological variation in Palu’e (eastern Indonesia) and the devising of a corpus orthography’ by Stefan Danerek. The recordings with interlinear annotations (items) are archived online at Kaipuleohone, the digital language archive of the University of Hawai’i: https://scholarspace.manoa.hawaii.edu/handle/10125/38830. Refer to article.

The wordlist features the phonetic transcriptions of a speaker (Longge) from kampong Bako, Téo domain, Palu’e Island. Item SD1-298. Note that the Palu’e glosses do not mimic the phonetic transcripts of this particular speaker. They are written as the entries of the dictionary corpus following the orthography presented in the main paper.

<table>
<thead>
<tr>
<th>English</th>
<th>Indonesian</th>
<th>[Palu’e]</th>
<th>Palu’e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal pronouns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. I</td>
<td>saya/aku</td>
<td>[aku]</td>
<td>aku</td>
</tr>
<tr>
<td>2. you (SG)</td>
<td>kamu/kau</td>
<td>[kau]</td>
<td>kau(^{31})</td>
</tr>
<tr>
<td>3. (s)he/it</td>
<td>dia/-nya</td>
<td>[hi^a]</td>
<td>ia(^{32})</td>
</tr>
<tr>
<td>4. we (EX)</td>
<td>kami</td>
<td>[kami]</td>
<td>kami</td>
</tr>
<tr>
<td>5. we (IN)</td>
<td>kita</td>
<td>[ʔi^ita]</td>
<td>kita(^{33})</td>
</tr>
<tr>
<td>6. you (PL)</td>
<td>kalian</td>
<td>[miu]</td>
<td>miu</td>
</tr>
<tr>
<td>7. they</td>
<td>mereka</td>
<td>[konene]</td>
<td>konene</td>
</tr>
<tr>
<td>Interrogatives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. who</td>
<td>siapa</td>
<td>[hia^i]</td>
<td>ai</td>
</tr>
<tr>
<td>9. what</td>
<td>apa</td>
<td>[hap^h^a]</td>
<td>abha(^{34})</td>
</tr>
<tr>
<td>10. where</td>
<td>di mana</td>
<td>[saba]</td>
<td>seba(^{35})</td>
</tr>
<tr>
<td>11. when</td>
<td>kapan</td>
<td>[vai^i bira]</td>
<td>wai bira(^{36})</td>
</tr>
<tr>
<td>12. how</td>
<td>bagaimana</td>
<td>[here p^h^a]</td>
<td>ére pa(^{37})</td>
</tr>
<tr>
<td>13. why</td>
<td>mengapa</td>
<td>[buʔu ap^h^a]</td>
<td>bu’u abha</td>
</tr>
<tr>
<td>14. which</td>
<td>yang</td>
<td>[vo]</td>
<td>wo</td>
</tr>
<tr>
<td>Adjectives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. small</td>
<td>kecil</td>
<td>[loʔo]</td>
<td>lo’o</td>
</tr>
<tr>
<td>16. big</td>
<td>besar</td>
<td>[sa]</td>
<td>ca(^{38})</td>
</tr>
</tbody>
</table>

---

31 [kau], because /w/ is clearly pronounced and there is no approximant.  
32 Note that she pronounces the word with [h] here, and without [h] in the introductory sentence at 00:10 min.  
33 Usually this word is less glottalized and nearer [k], as in SD1-299 and SD1-300.  
34 Note the difference with list item 1: the optional initial [h] before the otherwise initial [a].  
35 This word is always uttered with [s], also in the hillside [ʧ]-uttering dialects.  
36 *Wai* is used both to express past and future time, as in *wai cewi* ‘yesterday’, or *wai rua* ‘day after tomorrow’. *Bira* is the equivalent of the Indonesian ‘berapa’ ‘how much’.  
37 *Ére pa*? is enough to form the question: ‘How is it?’  
38 Not contrastive with list item 18, although this utterance can be interpreted as [sa].
17. long  panjang  [lava]  lawa
18. wide  lebar  [sa]  ca
19. thick  tebal  [kaɓa]  kabha\(^{39}\)
20. heavy  berat  [pəɗa]  peja
21. light  ringan  [lea]  léa
22. small  kecil  [loʔa]  lo’o\(^{40}\)
23. short  pendek  [boʔo]  bo’o
24. narrow  sempit  [moɗeː]  mejé
25. thin  tipis  [niɓi]  nibhi
26. sweet  manis  [mi]  mi
27. salty  asin  [mai]\(^{1}\)  mai
28. sour  asam  [miɬu]  milu
29. spicy  pedas  [kala]  kela
30. same  sama  [hama]  ama
31. other  lain  [iwa]  iwa
32. afraid  takut  [təŋa]  tenga
33. brave  berani  [sani]  cani
34. dead  mati  [maɗa]  mata
35. cold  dingin  [piji]  pingi
36. hot  panas  [ʔbəke]  bheke
37. ill  sakit  [pətu]  putu
38. full  penuh  [bɑnu]  penu\(^{41}\)
39. new  baru  [muri]  muri
40. old  tua  [duʔa]  du’a
41. old (things)  lama  [hola]  holo
42. good  baik  [mbo]a  mbola
43. bad  buruk  [ɗdoa]  ndoa
44. clean  bersih  [mila]  mila
45. dirty  kotor  [rakɪ]  raki
46. straight  tegak  [dʒ⁹de]  dhende\(^{42}\)
47. round  bulat  [ʔkʰu⁹bu]  kumbu
48. twisted  bengkok  [ŋgeːo]  nggéo
49. sharp  tajam  [leʔa]  lé’e

\(^{39}\) Not very imploded.
\(^{40}\) This gloss appears twice. Both are kept because the numbering in the related files was already done before the late discovery, and I did not want to cut the recording. Lo’o can also be glossed as ‘narrow’, like a narrow (small) opening of something, which I think was the initial intention.
\(^{41}\) More often uttered [pʰənu, ɓənu]. See SD1-299-300. It is probably not a Malay loanword. PMP is ‘penuq’.
\(^{42}\) The word bete, a synonym, actually has a wider usage.
50. dull puntul [dubu] dubu\(^{43}\)
51. slippery licin [sali] sali\(^{44}\)
52. wet basah [pa:] pa
53. dry kering [mara] mara
54. near dekat [təni] teni
55. far jauh [teːu] téu

### Colours
56. red merah [rəɖe] rete\(^{45}\)
57. yellow kuning [rerə] réré
58. blue biru [kila] kila
59. green hijau [kila] kila (ta’a)\(^{46}\)
60. brown coklat [meɖʒa] méja
61. black hitam [miɖe] mite
62. white putih [pʰura] pura

### Human
63. woman wanita [haʈa vai] ata wai
64. man lelaki [haʈa laki] ata laki
65. human manusia [haʈa piʔi] ata pi’i\(^{47}\)
66. child anak [hana] hana
67. wife istri [vai] wai\(^{48}\)
68. husband suami [laki] laki
69. grandparent kakek/nenek [pʰu] pu
70. ancestor leluhur [pʰu mori] pu mori\(^{49}\)
71. mother ibu [hina] hina
72. father ayah [hama] hama
73. elder sibling kakak [kaʔe] ka’e\(^{50}\)
74. younger sibling adik [hari] ari

\(^{43}\) The word was written *tubu* in the handout, like I had acquired it previously. Actually, none of the three speakers (SD1-298–SD1-300) clearly implode the /d/ in this word. Neither is the /b/ imploded, especially in this Téo speaker. *Dou* is an alternative gloss.

\(^{44}\) Another example of an initial /s/-word that is never uttered with [ʃ] in the hillside dialects.

\(^{45}\) Repeated after end of word list with list item 65.

\(^{46}\) Meti correctly utters *ta’a* for the same list item in SD1-300 at 02:21 minutes. Previous informants had provided *kila* for both ‘green’ and ‘blue’, which seems to be a common phenomenon in the region. Nature is green, which is why *ta’a* ‘unripe’ is also a word for green, and the most appropriate.

\(^{47}\) *Ata pi’i* is uttered at the end of the recording.

\(^{48}\) This word is also a verb, similar to the Indonesian *kawin* ‘to marry, have intercourse’.

\(^{49}\) *Mori*, binary pair with *pu*, means ‘grandparents parents’.

\(^{50}\) The words for siblings are not gendered in Palu’e and Indonesian.
## Nouns

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<td>hera</td>
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</tbody>
</table>

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51 Cf. list item 199, where the schwa is shorter (epenthetic), and the stress stronger on the final syllable.
52 Cf. SD1-299 [kʰutu], and SD1-300 [daʔu], which primarily signifies ‘body louse’. The word given by Longge and Langga is possibly a Malay loanword, which primarily signifies ‘head louse’. Usages are not consistent.
53 The speakers could also have chosen to utter either huta, possibly a Malay loan word, or dhu′e ‘jungle’ ‘hutan belukar’. Bu, the ground form, is not used.
54 Wuane is the generic form for any fruit of a certain species (x wuane). Wua is ‘areca nut’, which is chewed together with mutu ‘piper betle’. The combination (‘sirih pinang’ in Indonesian) is glossed as ‘betel’ in item 137.
55 Cf. list item 92. The clitic -ne seems to pull the e in loke toward /ə/.
56 The initial [k] is almost not there. It is near [ʔ]. Cf. list items 85, 118, 147, and the other recordings.
57 This word is often mixed up with [daʔi] ‘intestines’: Meti in SD1-300 utters [taʔi], whereas [daʔi] is the more common pronunciation for ‘intestines’ in the Keli dialect. [tai] is the chosen dictionary form, with the note that these words are not used consistently. I do not claim that the speakers are wrong.
105. moon  bulan   [vula]  wula
106. star   bintang  [ki'a/tala] kia/tala\(^{58}\)
107. night  malam   [mɔːʁɛ]  meré
108. stone  batu    [vatu]  watu
109. soil/land tanah  [dana]  dhana\(^{59}\)
110. sand   pasir    [ˈgʰɔri] keri\(^{60}\)
111. sea    laut     [daɪ]  dhai
112. lake   danau   [rano]  rano
113. river  sungai  [naŋa]  nanga
114. salt   garam   [bara laʔi] bara la’i
115. dust   debu    [havu]  awu
116. water  air      [vae]  wae
117. rain   hujan   [hura]  hura
118. cloud  awan    [ˈkoro] koro\(^{61}\)
119. wind   angin   [haŋi]  angi
120. lightning kilat  [ŋile] ngile
121. sky    langit  [ˈkʰəle] kele
122. fog    kabut   [ˈkʰəbe] kebe
123. fire   api      [haɓi] abhi
124. smoke  asap    [nu:]  nu
125. ash    abu     [havu]  awu
126. road   jalan   [lala]  lala
127. hole   lubang  [liː]a lia
128. volcano gunung api [muɖu] mutu
129. hill   bukit   [voło]  wolo
130. name   nama    [ŋara] ngara
131. wing   sayap   [labə] lebha
132. left   kiri     [hiri] hiri
133. right  kanan   [pana]  pana
134. banana  pisang  [muku] muku
135. bow    busur   [vu:]  wu
136. arrow  panah   [hʊə]e hube
137. betel  sirih pinang [vua mutʰu] wua mutu\(^{62}\)

\(^{58}\) The words were optional, but the speaker uttered both. In the dialects of the interior, tala refers only to the largest stars.

\(^{59}\) Not really imploded, like list item 111. Longge is often nearer to [d]. The stress is on the first syllable, which in some dialects is realized with /t/.

\(^{60}\) [ˈgʰ] is more common in the coastal variants of Palu’e.

\(^{61}\) Minimal /k/.

\(^{62}\) Here referring to the fruits of the areca palm and the piper betle plant, which are chewed together.
Phonologic variation in Palu’e, a language from Eastern Indonesia, and the devising of an orthographic system

138. tuber        ubi jalar    [uvi]     uwi
139. rice         nasi         [lama]    lama
140. rope         tali          [dali]    dali
141. field        kebun        [huma]    huma
142. canoe        sampan       [soɓe]    sobhe
143. knife        pisau        [‘kə̃ti]   keti
144. pot          periuq       [ləge]    lege
145. rattan       rotan         [hua]     hua
146. oil          minyak       [ləŋi]    lengi
147. wood         kayu          [‘kədʒu]  kaju
148. north        lau           [lauʷ]    lau
149. south        selatan      [raɗə]    raja
150. east         timur         [lə]     lé
151. west         barat         [va]      wa

Bodyparts

152. forehead     kening       [va]      wa
153. hair         rambut       [lolo]    lolo
154. ear          telinga      [diluː]    dhilu
155. eye          mata          [mata]    mata
156. nose         hidung       [ŋiru]    ngiru
157. mouth        mulut         [vəva]    wewa
158. tongue       lidah         [ləma]    lema
159. tooth        gigi          [ŋiʔi]    ngi’i
160. foot         kaki          [vaʔi]    wa’i
161. leg           kaki          [vaʔi]    wa’i
162. knee          lutut         [djuː]    dhu
163. nail          kuku          [‘kə̃kə́u]  kuku
164. hand          tangan        [lima]    lima
165. arm           lengan        [ɗaʔba]  dhebha
166. belly         perut         [kabu]    kabu

63 Langga and Meti chose to utter ndora, a species of vine tuber, because of the Indonesian gloss ‘ubi jalar’ ‘vine tuber’. ‘Ubi’ would have been a better Indonesian gloss because it is more generic, like the Palu’e uwi.
64 Alt. [‘kə̃ti]. Cf. list item 200, also in SD1-299–300.
65 Cf. list items 85, 92.
66 In Palu’e, both location and direction are expressed with this and the following three words, and reta ‘up’ and lae ‘down’
67 This word is perceived by the Palu’e as a homonym with the previous word, like the other instances of identic phonetic transcripts.
68 The stop in ‘eye’ is nearer to [t] than in ‘dead’, which is nearer to alveolar tap [t̬] or [ɗ]. Cf. list item 191 and SD1-299–300.
69 Cf. SD1-299.
167. guts usus [daʔi] da‘i
168. neck leher [dəɲu] dhengu
169. back punggung [ dolalo‘da] dhola londa
170. shoulder bahu [badʒu] baju
171. breast susu dada [dusu] dusu
172. heart-lungs jantung-paru2 [bulai] bu lai
173. heart (mind) hati [ha-te] ate
174. liver hati [ha-te] ate

Verbs
175. be ada [noʔo] no‘o
176. do buat [pʰuna] puna
177. drink minum [ninu] ninu
178. bite gigit [ŋaʔo] nga‘o
179. eat (tubers) makan [ka:] ka‘
180. spit ludah [ŋiru] ngiru
181. vomit muntah [sàdo] cedho
182. see lihat [lìe:] lié
183. hear dengar [te:] té
184. know tahu [suʔu] cu‘u
185. think pikir [nara] nera
186. blow tiup [pʰu:] pu
187. breathe nafas [nai pʰur] nai pu
188. laugh tawa [tava] tawa
189. weep menangis [taŋi] tangi
190. smell cium [ŋuru] nguru
191. sleep tidur [tuba/tuba mata] tuba/tuba mata
192. live hidup [more] more
193. kill bunuh [pʰuna mada] puna mata
194. shoot (arrow) panah [sube] cube

71 Little or no implosion. Implosion is insignificant in several list items, including the following. Also, this speaker does not utter ‘feces’ and ‘intestines’ differently, which the speaker of SD1-300 does.
72 Note [dolala‘da] are two words. In separation, the words denote the upper back below the shoulders, and the middle back. The speaker of SD1-299 utters only dhola.
73 The unvoiced usus means ‘milk’ or ‘breastfeed’. No free variation between the different stops.
74 The two organs are conceived of as being joined. The two words are also separate nouns.
75 Ka applies to rice, tubers, and most vegetables. The word pesa [posa] is used for moistly fruits like mango, fish and meats.
76 Muta, the Palu’e rendering of the Indonesian muntah is more common and more specific.
77 Tuba, short for tuba mata, is an alternative.
78 Note the different pronunciation with 191.
Phonologic variation in Palu’e, a language from Eastern Indonesia, and the devising of an orthographic system

195. fight  berkelahi  [sədʒu rebene]  ceju rebene
196. dance  menari  [soka]  coka
197. hunt  buru  [nusi]  nusi
198. hit  pukul  [balu:]  balu
199. split  belah  [kəla]  kela
200. cut  potong  [ˈkətʃi]  keti
201. cook  masak  [muʃu haɓi]  mugu abhi
202. scratch  garuk  [kadʒe]  kaje
203. swim  menari  [soka]  coka
204. walk  jalan  [pana]  pana
205. come  datang  [mai]  mai
206. lie  baring  [tuli]  tuli
207. sit  duduk  [nɔdɔ]  noto
208. stand  berdiri  [karə]  kerê
209. fall  jatuh  [molu]  molu
210. fly  terbang  [lai]  lai
211. give  beri  [ɓəli]  peli
212. hold  pegang  [kave]  kewe
213. rub  gosok  [pono]  pono
214. wash  cuci  [popo]  popo
215. pull  tarik  [(ə)rədu]  rendu
216. throw  lempar  [təbə]  tebha
217. push  dorong  [tʰu:]  tu
218. tie  ikat  [tike]  tike
219. talk  bicara  [nato]  nato
220. count  hitung  [ˈkira]  kira
221. write  tulis  [tudʒi]  tuiji
222. sing  nyanyi  [tio baːta]  tio bata
223. float  apung  [paɗa]  pata

79 Ceju ‘pull’; rebene ‘each other’. The schwa in [sədʒu] is approaching /e/. The Indonesian ‘kelahi’ is only a noun and must be affixed with ber- to become a verb. Balu rebene (lit. ‘hit each other’) is an alternative.
80 Another word where the stop cannot be in free variation. The unvoiced palu always mean ‘return’ or ‘again’.
81 Cf. list item 143.
82 Or [mułu]? This word is often uttered with /ɠ/, if not /kʰ/. Abhi ‘fire’ implies that firewood is used for cooking.
83 Wrongly written keje in the handout, but correctly understood and pronounced by both Meti (SD1-300) and Longge, due to the Indonesian gloss. A homonym of keje means ‘to peel’ (tubers) or ‘suffer a tiny wound’, clearly related to kaje.
84 Usually uttered [kore].
85 About humans. Animals and things boga.
86 [pʰli] is the more common pronunciation.
87 This word should be uttered [rendu]. The letter /t/ in the Palu’e/Ind. alphabet is uttered [ʃr]. The word ceju, see list item 195, is used for heavier pulls.
88 The stress is on the ultimate syllable, preceded by glottalization, as is the rule for [ɓ] preceded by schwa.
89 Homophone with kira ‘read’.
224. play main [ⁿdeːro] ndéro
225. swell bengkak [padʒa] paja
226. burn bakar [səwi] cewi

Cardinal numbers
227. one satu [sa] sa
228. two dua [ʰrua] rua
229. three tiga [dəlu] dhelu
230. four empat [ba] ba
231. five lima [lima] lima
232. six enam [hane] hene
233. seven tujuh [ɓɪtu] bitu
234. eight delapan [valu] walu
235. nine sembilan [hiva] hiwa
236. ten sepuluh [ha pulu] ha pulu

Other
237. every semua [daːte diʔone] dete ti’one
238. many banyak [rivuː] riwu
239. much banyak [soː] so
240. few/a little sedikit [a loʔo] ha lo’o
241. and dan [noʔo] no’o
242. this ini [ʔnde] endé
243. that itu [vaʔa] wa’a
244. here sini [haʔe] a’e
245. yes ya [eː] é
246. no/not tidak/bukan [kaʔa] ka’a
247. correct betul [molo] molo
248. above atas [retə] réta
249. under bawah [laej] lae

90 Burn something that has been prepared for burning. There are several other words for ‘burn’. Meti in SD1-300 chose to utter colo (burning weeds for example) instead of cewi.
91 Longge pre-aspirates on the initial /r/, perhaps because she is reading the words in isolation. No phonemic meaning is assigned because the sound is not part of the word.
92 This conjunct word consisting of the classifier dete and ti’one ‘all’ is often shortened and ti’one can be pronounced with [t, d, d], as in SD1-299–300 and at the end of SD1-299: [dɛtiʔone].
93 The schwa is more often epenthetic in this word.