*Squib*

# Nasalization in Enggano Historical Phonology

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Enggano, spoken on an island of the same name off the southern coast of Sumatra, Indonesia, has long puzzled historical linguists. Its high rate of lexical replacement and sometimes-obscure reflexes of reconstructed Proto-Malayo-Polynesian vocabulary have led many to question its status as an Austronesian language. Recent work on Enggano historical phonology and subgrouping has formed a strong argument for its inclusion in Malayo-Polynesian, but certain aspects of its historical phonology remain a mystery. This paper is concerned with word-level nasality, an innovation in Enggano that remains unexplained and has been described as an unconditioned split. The paper begins with the hypothesis that word-level nasality in Enggano spread from sonorant codas that first merged as nasals, then deleted. The only major condition on this change is that sonorant codas in syllables with a schwa nucleus did not trigger nasalization. Finally, the paper investigates several cases where, because of the large number of mergers in Enggano, the modern Enggano words cannot be unambiguously assigned to only one of multiple possible reconstructed words. The result is a hypothesis that can accurately explain the majority of cases of word-level nasality in Enggano, but with four exceptions where nasality is present with no apparent historical trigger. These four exceptions prevent a confident defense of the present hypothesis but may hold clues to Enggano's turbulent recent history and irregular intergenerational transmission due to a dramatic loss in the Enggano population.

**1. INTRODUCTION.** Enggano is an Austronesian language spoken on Enggano Island, a Sumatra-Barrier Island located roughly 100 miles south of Bengkulu. Enggano is known for having a rather low-lexical retention rate, a phonological history that has extensively altered Proto-Malayo-Polynesian (PMP) etyma, ambiguity regarding its status as an Austronesian language, and a system of contrastive word-level nasality where entire words are either [+NAS] or [−NAS].

This paper is principally concerned with the issue of nasality, how it was innovated, the conditions on nasal innovation, if any, and how it affects our diachronic analysis of Enggano. The study is based primarily on data from Edwards (2015), who provides an analysis of Enggano as an Austronesian

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language with a much-appreciated description of its historical phonology, morphology, and position within the Austronesian family. Edwards considers Enggano an isolate within Malayo-Polynesian (MP), descended from PMP but not closely related to any other MP language, although Nothofer (1986) and Smith (2017b) consider it part of a smaller group consisting of the Northwest Sumatra–Barrier Island languages and Batak (Smith further includes Nasal in this group, dubbed the Sumatran subgroup). Both hypotheses, however, agree that Enggano is an Austronesian language of the MP subgroup.

Edwards (2015) provides multiple data appendices, including an appendix dedicated to comparing PMP reconstructions with modern Enggano words that Edwards deemed as unproblematic reflexes. These appendices will be the primary source of Enggano linguistic data, although other resources will be cited where necessary. The data will be used to test a hypothesis that nasality in Enggano words was conditioned by nasal-consonant triggers in pre-Enggano codas, which have since been deleted. This hypothesis differs from Edward's treatment of word-level nasality, which he considers to be an unconditioned split. The hypothesis is able to explain the majority of Enggano nasal words, but exceptions remain, discussed more at the end of the paper.

We will begin with a simple overview of basic Enggano phonology before discussing Enggano's historical phonology and previous hypotheses on the innovation of nasality in Enggano words. In section 3 I test the hypothesis that Enggano nasalization arose through nasal spread from historical nasal codas, as well as nonnasal sonorants that merged with the nasals in coda position. In section 4 I discuss cases where Enggano nasal words could reflect multiple reconstructions as a consequence of mergers in Enggano historical phonology and how this affects the current hypothesis. I end with a discussion on remaining exceptional nasal words with no historical nasal trigger and what it means for the present hypothesis.

## 2. OVERVIEW OF ENGGANO.

Edwards provides the following analysis of Enggano phonology, based on the work of Kähler (1940). It is important to remember that the language has changed since Kähler's description, and Yoder (2014) provides a more current description, discussed in detail at the end of this section. For the purpose of historical analysis, however, the older variety is still useful. While comparing the Enggano described by Kähler and Yoder, it will be useful to refer to the former as old Enggano and the latter as present-day Enggano. Old Enggano had a relatively small consonant inventory, and an average vowel inventory, although the presence of nasal vowels may double the vowel count, depending on one's analysis. The consonant and vowel inventories of old Enggao are shown in tables 1 and 2, respectively.

Yoder (2014) includes a voiceless velar fricative /x/ in his analysis of present-day Enggano, which surfaces as [s], [ç], and [x] depending on its environment. Edwards lists [ç] as an allophone of /h/ that appears after /i/ but does

**TABLE 1. OLD ENGGANO CONSONANTS (EDWARDS 2015).**

| | Bilabial | Alveolar | Palatal | Velar | Glottal |
|---|---|---|---|---|---|
| Stop [−voi] | p | t | (c [ʧ) | k | ʔ |
| Stop [+voi]† | b | d | ñ [ɲ] | | |
| Continuant | | (l) | y [j] | | h |

†The voiced consonants /b/ and /d/ have the nasal allophones /m/ and /n/ in words that are [+NAS].

**TABLE 2. OLD ENGGANO VOWELS (EDWARDS 2015).**

| | Front | Central | Back |
|---|---|---|---|
| High | i / ĩ | ɨ / ɨ̃ | u / ũ |
| Mid | e [ɛ] / ẽ [ɛ̃] | | o [ɔ] / õ [ɔ̃] |
| Low | | a / ã | |

not include /s/. Since PMP *s merged with *t as *k* in Enggano, *s* in present-day Enggano is most likely the product of borrowing.

Old Enggano had a six-vowel system that expands to twelve with the recognition of phonemic nasality. Yoder recorded a seventh vowel in present-day Enggano, /ɔ/, which occurred after a split in the vowel /o/ (described in Edwards 2015).

**2.1. MORE ON OLD AND PRESENT-DAY ENGGANO.** Besides the possible addition of a phoneme /x/ and a split in /o/, data from Yoder (2014) also reveal that present-day Enggano has undergone a process of word-final vowel deletion, as part of a historical process of "erosion from the right." Present-day Enggano as described in Yoder (2014) is, therefore, quite different from the older variety described by Kähler (1940) and Edwards (2015). Some comparisons are given below.

(1)

| | Old Enggano | Present-day Enggano |
|---|---|---|
| blood | e-kiaki | kiak |
| thick | e-ʔãpã | ʔẽãp |
| cheek | e-papa | pap |

This change has created coda consonants in word-final position where there were historically no codas, as Enggano deleted all codas from PMP. Yoder also describes codas in word-medial position in present-day Enggano. Examples are not common, but it is clear that these too are the result of vowel deletion or, in some cases, of vowel reduction to a glide.[1]

1. Yoder lists /kõʔĩã/ > [kõʔ.j̃ã] 'tree species,' for example, where vowel reduction creates a word-internal coda. Another apparent group of internal codas appears to be simply the result of Yoder's analysis. He syllabifies /baʔau/ 'guava' as [baʔ.au̯], an unexpected syllabification that favors codas over onsets.

(2)

| | Old Enggano | P-D Enggano | Source of internal coda |
|---|---|---|---|
| hulled rice | e-ada u-kiho | ʔarkix | (deletion of -a; loss of prefix) |
| knee | e-pũʔũ | iurpuʔ | (compounding) |

For the sake of historical analysis, I will refer to the older variety of Enggano simply because the preservation of word-final vowels makes comparison with PMP more straightforward. However, anyone interested in the phonology of present-day Enggano should refer to Yoder's description, not to the forms in this or any study based on Kähler's older description.

In summary, present-day Enggano has innovated word-final codas through a process of erosion from the right. Vowel deletion, compounding, and vowel reduction to glides have also created word-internal codas. Blust (2013) had earlier pointed out that Enggano and Nias were "the only AN languages anywhere in western Indonesia or the Philippines which allow no word-final consonants." With the publication of Yoder (2014), we can be certain that this is no longer the case. These changes highlight how quickly phonological change can completely alter the basic word-shape of a language, as Enggano has gone from a maximal CV syllable to CVC syllable.

**2.2. HISTORICAL PHONOLOGY OVERVIEW.** The historical sound changes described in this section are from PMP to old Enggano (henceforth simply Enggano). They are taken mostly as is from Edwards (2015) with a few adjustments that are noted where appropriate.

1. PMP *p and *b merged as Enggano *p*
2. PMP *m and *w merged as Enggano *b*
3. PMP *t and *s merged as Enggano *k*
4. PMP *d, *n, and *l merged as Enggano *d*[2]
5. PMP *ŋ and *j merged as Enggano *h*
6. PMP *q, *R, *h, and *y were lost
7. PMP *k shifted to *ʔ*
8. PMP codas were deleted[3]

The historical phonology of other consonants from PMP is poorly understood due to a lack of attestation. It is likely, however, that *g became *h* through an earlier merger with *ŋ (and later with *j, thus providing a three-way merger *ŋ, *j, *g > *g > *h*). There are few examples of PMP *g in Enggano, but later in section 4, I discuss one possible case of *g > *h*.

The vowels remain relatively stable. PMP *a and *i did not change. Schwa is reflected as *o* in most cases, but merged with *u as *u* where it appears in the environment _Cu#. PMP *u did not change, except where it preceded *-R, in

2. This change happened in the recent past. Older resources on Enggano still list *d* (from *d and n) and *l* as separate, and Edwards thus lists the change *d, *n > d and *l > d as two separate changes. I list them together here.
3. Edwards lists this as *C# > Ø, but it appears that all codas, not only those in word-final position, were deleted.

which case it is reflected as *o*. The diphthongs underwent monophthongization as mid vowels, *-ay > *e* and *-aw > *o*.

The underlying current in Enggano historical phonology thus seems to be one of simplification, through both merger and through deletion. As a result Enggano has a relatively small phoneme inventory and is, with the exception of its linguistically rare system of word-level nasality, phonologically unremarkable.

**2.3. NASALITY.** Enggano's system of word-level nasality is rare cross-linguistically, appearing elsewhere only in Tucanoan languages of the Amazon (Kaye 1971; Barnes 1996, 1999:211–2). Part of the mystery of word-level nasality in Enggano is the historical mechanism responsible for nasalization. A historical explanation will be attempted here, after first reviewing the position of Edwards (2015) and extracting a list of nasal words from his first data appendix. The first data appendix contains seventy-seven total words from which Edwards (2015:68) states that twenty are nasal and an additional six were recorded with both oral and nasal articulations (apparently as free variation, not conditioned by morphology). I was able to locate all twenty nasal words in the appendix, but only five words with variable nasality were located. I reprint them here, with the listed PMP reconstructions.

Edwards (2015:68) proposes two hypothetical analyses that may explain how word-level nasality was innovated and goes on to argue that neither is supported by data. First, he suggests that "nasalization has arisen through the loss of nasal consonants, as has happened in modern French." He identifies the following counter evidence, where some PMP reconstructions with a word-final nasal are reflected with nasal words in Enggano, but other PMP reconstructions correspond to oral words.

(3) *hasaŋ 'gills' > ẽ-ãkã but *bətəŋ 'belly' > e-poko 'interior; navel'
*taŋan 'finger' > ẽ-ãkãhã but *tələn 'swallow' > ki-kodo 'swallow'

Edwards also proposes that "nasalization is associated with the change *ŋ > /h/." This analysis is contradicted by cases where the change *ŋ > *h* does not result in a nasal word in Enggano:

(4) *bubuŋ-an 'roof ridge' > *ẽ-pũhã* 'gable; ridge' but *taliŋa > e-kadiha 'ear'

Because neither word-final nasal deletion nor the change *ŋ > *h* results in nasal words across the board, they are considered irrelevant for nasalization. Edwards also points to the presence of variable nasalization as counter-evidence. He concludes that the innovation of word-level nasalization is an unconditioned split, and a very interesting one at that, since word-level nasalization is so rare cross-linguistically. Although not discussed by Edwards, the unconditioned split hypothesis is further supported by nasal words that do not appear to have any historical nasal trigger. For example, PMP *kawil

'fishhook' is reflected as Enggano *ẽ-ʔãmĩ*, where *k regularly became ʔ and *w became *b*, which has the nasal allophone *m*. In this word there appears to be no historical trigger for word-level nasality.

Unconditioned splits run counter to the neogrammarian dictum that sound change is regular and exceptionless. The neogrammarian hypothesis on the regularity of sound change is, for the most part, accurate, but language is not always so clear-cut and unconditioned splits, though rare, do occur. Word-level nasalization in Enggano appears at first to be one such case, but I will argue against this interpretation later on. What I attempt to do with this paper is (1) form a hypothesis that the innovation of word-level nasalization was conditioned and (2) test that hypothesis on the available data.[4]

Hypotheses:

1. The nonnasal liquids *l and *r (but not *R, which was deleted) became *n* in coda position early in the history of Enggano.
2. Nasality spread across the word from nasal codas (henceforth *N), including those from *l and *r. The nasals were later deleted along with all coda consonants. Note that this condition refers to nasal codas in any position, including medial nasals, so long as they are in a coda.
3. Nasal spreading was blocked if *N closed a syllable with a schwa nucleus. This specific condition has a parallel in Merap, a language of Borneo, so it appears to be phonetically motivated.

In the remainder of this study, I test the above hypothesis with words from Edwards (2015).

**3. CODA-DRIVEN NASALITY IN ENGGANO.** The first task in testing the main hypothesis that nasal words follow from coda-triggered nasalization is to identify the PMP nasal-final etyma from the list in table 3 with nasal reflexes in modern Enggano. Next, I test the hypothesis that *l and *r became *n* in coda position, also triggering nasalization. I then compare the phenomenon of nasal-blocking from schwa with an already-attested parallel change in Merap, a language of Borneo, and show that schwa also blocked nasal spread in Enggano. This does not, however, account for all nasal words in Enggano, and additional issues regarding doublets and nasal morphology are discussed further in section 4.

4. A possible pathway toward nasalization, not discussed at length in this paper, is rhinoglottophillia, a phenomenon whereby consonants with a glottal articulation sometimes act as triggers for otherwise-unexplicable vowel nasalization (Matisoff 1975). The issue with rhinoglottophillia as a pathway to nasalization in Enggano is that it leaves even more unexplained forms than the nasal-coda deletion hypothesis presented here. Also, a history where both Rhinoglottophillia and nasal-coda deletion lead to word nasality still leaves unexplained forms. Rhinoglottophillia may indeed offer insights into the history of nasalization, but in this study the idea is not fully investigated. However, it may be a worthwhile topic for future investigations.

**TABLE 3. NASAL WORDS IN ENGGANO AND THEIR PROPOSED PMP RECONSTRUCTIONS FROM EDWARDS (2015).**

| **Nasal:** | | |
|---|---|---|
| 1. | ãmã ‘father’ | *ama ‘father’ |
| 2. | ẽ-pãã ‘molar’ | *baRəqaŋ ‘molar’ |
| 3. | ẽ-ãpãkũ ‘anchor, heavy stone used as anchor’ | *batu ‘stone’ |
| 4. | kĩ-pãũ ‘to pound’ | *bayu ‘pound rice’ |
| 5. | ẽ-pũhã ‘gable; peak’ | *bubuŋ-an ‘roof; ridge of the roof’ |
| 6. | ẽ-pũʔũ ‘knot; joint’ | *buku ‘node; joint; knuckle’ |
| 7. | ẽ-pũkã ‘k.o. tree’ | *butaq ‘tree with poisonous sap’ |
| 8. | ẽ-nãpã ‘flat land’ | *dapaR ‘flat; level’ |
| 9. | ẽ-ãkã ‘gills’ | *hasaŋ ‘gills’ |
| 10. | ẽ-ʔãmĩ ‘fishhook’ | *kawil ‘fishhook’ |
| 11. | kĩ-ʔẽʔẽpã ‘to fly’ | *ki/epak ‘flap the wings’ |
| 12. | kã-ʔãpã ‘thick’ | *ma-kapal ‘thick’ |
| 13. | ẽ-mãnĩ ‘man; male’ | *maRuqanay ‘male’ |
| 14. | kã-pãĩ ‘sour’ | *paqit ‘bitter’ |
| 15. | ẽ-ĩpõ ‘smoke’ | *qəbəl ‘smoke’ |
| 16. | ẽ-ũkũ ‘fart’ | *qətut ‘fart’ |
| 17. | ẽ-ãkãhã ‘stalk; stem’ | *taŋan ‘finger’ |
| 18. | ĩkĩmõ ‘previously unknown lands’ | *timuR ‘south or east wind’ |
| 19. | kã-nĩkĩ ‘shiver; tremble’ | *tirtir ‘shiver’ |
| 20. | (ʔ)ũpũ ‘grandparent; crocodile’ | *umpu ‘ancestor’ |
| [±nas] | | |
| 1. | e-pau ‘stench; odor’<br>ẽ-pãũ ‘stench; odor’ | *bahuq ‘smell; odor’ |
| 2. | e-pudu ‘leaf’<br>ẽ-pũnũ ‘leaf’ | *buluŋ ‘medicinal herbs’ |
| 3. | e-oki ‘low tide; dry’<br>ẽ-õkĩ ‘low tide; ‘dry’ | *kəti ‘dry up; low tide’ |
| 4. | ki-dapu ‘fall (of lightning)’<br>kĩ-nãpũ ‘fall (of lightning)’ | *napuq ‘drop; fall’ |
| 5. | e-(ʔ)oki ‘low tide’<br>ẽ-(ʔ)õkĩ | *qəti ‘ebb tide; dry up’ |

The voiced consonants /b/ and /d/ have the nasal allophones /m/ and /n/ in words that are [+NAS].

**3.1. SUPPORTIVE EVIDENCE.** There are indeed several cases where a nasal word in Enggano corresponds to a PMP reconstruction with a nasal consonant in coda position. These are numbers 2, 5, 9, and 17 from the list in table 3:

(5) 2. *ẽ-pãã* ‘molar’ < PMP *baRəqaŋ ‘molar’
5. *ẽ-pũhã* ‘gable; peak’ < PMP *bubuŋ-an ‘roof; ridge of the roof’
9. *ẽ-ãkã* ‘gills’ < PMP *hasaŋ ‘gills’
17. *ẽ-ãkãhã* ‘stalk; stem’ < PMP *taŋan ‘finger’

**3.2. PMP *l/*r AND NASAL WORDS.** Part of the current hypothesis is recognizing the sound change *l/*r > *n* where *l or *r appeared in coda position. The nasalization of nonnasal sonorants in coda position is common throughout

the Austronesian family. For example, the change occurs synchronically in some languages with loan word adaptation, where word-final nonnasal sonorants are nasalized (6a) and in other languages it is observable through diachronic analysis, as in (6b).

(6) a. Loan adaptation:

| | | |
|---|---|---|
| Lebo' Vo' Kenyah: | *bon* | English *ball* |
| | *belajan* | Malay *belajar* 'study' |
| Taman: | *arapan* | Malay *lapar* 'hungry' |
| | *ataban* | Malay *tebal* 'thick' |

b. Historical change:

| | | |
|---|---|---|
| Kadorih: | *ka$^{h}$pan* | PMP *kapal 'thick' |
| | *ka$^{h}$tin* | PMP *gatəl 'itchy' |
| Merap: | *kapãð* | PMP *kapal 'thick' |
| | *kacan* | PMP *kazəl 'dull; blunt' |
| Kanowit: | *kapan* | PMP *kapal 'thick' |
| | *gatən* | PMP *gatəl 'itchy' |

Given how common this change is, it is unsurprising that it also took place in pre-Enggano. All entries in Edwards's data appendix that reflect a PMP word with a nonnasal sonorant coda are nasal in Enggano. Here are the examples:

(7)

| | | | |
|---|---|---|---|
| *ẽ-ʔãmĩ* 'fishhook' | | < | PMP *kawil 'fishhook' |
| *kã-ʔãpã* 'thick' | | < | PMP *ma-kapal 'thick' |
| *ẽ-ĩpõ* 'smoke' | | < | PMP *qəbəl 'smoke' |
| *kãnĩkĩ*[5] 'shiver' | < *ki-a-kinkin | < | PMP*tirtir |

**3.3. SCHWA-SYLLABLES AND NASAL WORDS.** The hypothesis that all nasals, both those from [–NAS] and [+NAS] sonorants, caused nasal words runs into a roadblock, however, with the following etyma:

(8)

| | | |
|---|---|---|
| *e-poko* 'interior; base; navel' | < | PMP *bətəŋ 'belly' |
| *ki-kodo* 'swallow' | < | PMP *tələn 'swallow' |
| *e-kiho* 'ant' | < | PMP *sijəm 'ant' |

These data differ in one respect from the nasalized words; they all have a nasal that closed a syllable with a schwa nucleus (*bətə**ŋ**, *tələ**n**, *sijə**m**). Might it be that a schwa-nucleus blocked nasalization? Evidence from Merap, a language of Borneo, suggests that coda-triggered nasalization may be blocked where the syllable nucleus is schwa.

Merap, like Enggano, has undergone extensive sound change from PMP when compared to more conservative MP languages. Part of Merap historical phonology includes the innovation of nasal vowels that follow from historical nasal codas that were deleted after transferring their nasality onto the preceding vowel. Some examples from Smith (2017a) are printed below.

5. The apparent irregular reflex of *t as *n* in *kãnĩkĩ* 'shiver' is actually part of regular allophony associated with the affix *-aha-*, which triggers /k/ > [d] allomorphy, with the surface form further altered to [n], which is the nasal allomorph of /d/, thus, /k/ > /d/ > [n] (see table 19 in Edwards 2015 for more examples).

(9) *marãʔ̃* ‘rotten’ < Proto-Kayanic *maram ‘rotten’
*ñalãʔ̃* ‘road’ < PMP *jalan ‘road’
*kapãʔ̃* ‘thick’ < PMP *kapal ‘thick’

Nasalization was blocked in Merap wherever the nasal closed a syllable with a schwa nucleus. In these cases, nasality was not transferred to schwa, and the nasal was retained. Schwa has since shifted to /a/, but nasality still has not spread to the vowel, which indicates that this is a purely historical process and that nasal spreading is no longer part of Merap synchronic phonology (examples are from the appendix in Smith 2017c):

(10) *pəŋanan* ‘python’ < Proto-Kayanic *pəŋanən /pəŋ-kan-ən/
*lanam* ‘burry’ < PMP *mananəm /maŋ-tanəm/
*kanan* ‘cooked rice’ < PMP *kanən /kan-ən/

Schwa’s inability to host [±NAS] features should come as no surprise. As far back as PAN, schwa was suprasegmentally deficient. It did not contribute to lexical mora count and caused related word-minimum phenomena. It was also unable to bear stress and could not appear in the final syllable except where it has a coda (Smith 2018). In Merap, schwa’s inability to host suprasegmental features prevented [±NAS] from spreading leftward. It also protected the coda from deletion. This analysis can be extended to Enggano, which appears to show a similar phenomenon. Where a nasal closed a schwa syllable, nasality could not spread leftward. Nasals were denasalized (as they did elsewhere in Enggano) and were eventually deleted. In (11), we see the hypothetical intermediate stages of three words, two with a schwa nucleus that blocks nasalization, and a third, *hasaŋ, with a full-vowel nucleus that allows nasalization.

(11) *sijəm > *kigəb > *kiho* ‘ant’
*tələn > *kələd > *kodo* ‘swallow’
*hasaŋ > *ãkãg > *ãkã* ‘gills’

The keen observer will note that the Enggano word *ẽ-ĩpõ* ‘smoke’ poses a problem for this analysis, as it is nasal even though Edwards lists it as reflecting a PMP word with a schwa nucleus, *qəbəl. Note, however, that this word contains an irregular reflex of *ə in the penultimate vowel, where *ə corresponds to *i* but is typically reflected with *o*, calling into question the validity of the comparison. A closer inspection of the comparative evidence, including evidence from nearby Barrier Island and Batak languages, suggests that *ẽ-ĩpõ* does not, in fact, reflect *qəbəl. Examples include Sigule *imbōʔ tutuŋ* ‘smoke,’ Nias *simbō* ‘smoke,’ Karo *cimbər* ‘smoke.’ The correspondences between Enggano *ẽ-ĩpõ* and these other words are regular, save for the initial *s- that appears in Nias and Karo Batak. We may therefore conclude that *ẽ-ĩpõ* reflects a Proto-Sumatran word, *(s)imbər, not *qəbəl, and nasality spread from the reconstructed word-internal coda, not from *l as follows: *(s)imbər > *imbo > ĩpõ.

This underscores a persistent issue in Enggano historical phonology: because of Enggano’s history of merger and deletion, a single Enggano word may regularly reflect a number of reconstructed lexemes. It is oftentimes

impossible to choose one protoform over another, especially when they have similar or identical semantics, as being reflected by a specific Enggano word. The following section delves into this issue and demonstrates how words that are otherwise ambiguous regarding which protoform they reflect may contain clues in the form of word-level nasality.

**4. REMAINING ISSUES: DOUBLETS, MERGERS, AND MORPHOLOGY.** Enggano historical phonology makes comparison between PMP and Enggano difficult because of the large number of mergers and deletions that have taken place. This includes coda deletion, a sound change with far-reaching consequences in Enggano. Any comparison with a PMP reconstruction that has a coda will require an assumption that Ø in Enggano corresponds to a specific consonant in PMP. Mergers also make a direct comparison between Enggano and PMP difficult and include the mergers of *s and *t as *k,* deletion of *R, *y, and *q, the merger of *j and *ŋ as *h*, the merger of *m and *w as *b*, and the merger of *l, *d, and *n as *d.*

Because of these mergers, a hypothetical word, *daha*, could regularly reflect *da(C)ŋa(C), *la(C)ja(C), *na(C)ja(C), or any number of other possible reconstructions with sometimes-substantial formal differences. Where PMP is reconstructed with words that share both formal and semantic similarities, like *buŋkul 'buldge' and *buku 'node; joint,' determining the proper historical path may be impossible.[6] Under the hypothesis that nasalization in Enggano arose through a split, either *buku or *buŋkul could have regularly become Enggano *ẽ-pũʔũ* 'joint.' The decision between *buku and *buŋkul in this case is, as Blust and Trussel (ongoing) put it in the entry for *buŋkul in the Austronesian comparative dictionary (ACD), "largely arbitrary."

Mergers and coda deletion also make distinguishing between doublets nearly impossible in Enggano. Doublets are a frustrating but unavoidable feature of historical work in any language family, but have special prominence in Austronesian (see Blust 2011). Doublets in Austronesian occur where a single semantic reconstruction has two or more supported protoforms. An example with widespread attestation is the *tiduR/*tuduR 'sleep' doublet (Malay *tidur*, Ngaju Dayak *tiroh*, but Tagalog *tulog*, and Javanese *turu*). This becomes relevant for Enggano where doublets are differentiated by the quality of a coda, or by a distinction between *n and *l, for example, which make it impossible to determine which reconstructed doublet is reflected in Enggano. An example of such a case is Enggano *ẽ-nãnĩ* 'fibrous root,' which could reflect either *dalij 'buttress root,' a reconstruction with widespread attestation, or *daliŋ 'buttress root,' a less robustly attested but nevertheless reconstructable doublet. Again, all else being equal, there is no way to tell which of the two doublets is reflected in Enggano.

6. Many languages reflect *buŋkul as 'joint' through semantic extension: Cebuano Bisaya *buŋkúl* 'bones in the knuckles, ankles, etc.,' Sundanese *buŋkul* 'joint; knuckle (along with many other semantically similar meanings),' Kavalan *bukud* 'ankle.'

Finally, there is the issue of word-final nasal morphology. PMP was morphologically rich and had several suffixes with nasal codas. Most of these, like the *-an locative suffix, were vowel+coda suffixes that formed full syllables. If they were part of a pre-Enggano root, then the vowel would still be present in old Enggano, as in *ẽ-pũhã* 'peak; gable,' which reflects PMP *bubuŋ-an with the vowel *a from *-an still intact. Consonant-only suffixes are unquestionably less common but include the vocative suffix *-ŋ, which appears on many kinship terms, and the suffix *-n, which appears fossilized on many roots where it marked some degree of inalienable possession. In a system where final nasal codas triggered nasality and were deleted, nasality itself will be the only clue that these morphemes were ever present.

In the sections that follow I show that most nasal words that do not at first appear to reflect a reconstruction with a nasal coda belong to a doublet pairing where one of the members does have a nasal coda, or are words that are known to take nasal suffixes. This section includes comparisons from Edwards's appendix 1, which contains the "unproblematic" comparisons and three from appendix 2, which contains "problematic" comparisons (*hũkũ* 'louse,' *ẽ-ãhĩ* 'younger sibling,' and *ẽ-nãnĩ* 'fibrous root'). After accounting for doubleting and nasal morphology, I show that these three words are no longer problematic.

A criticism of the following analysis is that I am picking and choosing which words should reflect a doublet only to further the original hypothesis. Every attempt has been made to avoid this, however. I only appeal to morphology as an explanation for nasality in words that are known to take nasal morphology in a diversity of languages. This leaves out some comparisons that do not meet this criterion. With doublets, I also make every effort to ensure that I am comparing well-supported reconstructions with Enggano words. I avoid appealing to doublets with only two or three witnesses. In most cases, the nasal doublets are reflected in other Barrier-Island languages, which strengthens the comparisons that I am proposing.

## 4.1. "PROBLEMATIC" COMPARISONS THAT MAY REFLECT A DOUBLET.

**4.1.1. *kutu/*gutu.** Edwards lists Enggano *hũkũ* as a problematic reflex of PMP *kutu 'louse.' PMP *k regularly became *ʔ*, so it is unlikely that *hũkũ* follows directly from *kutu, as Edwards already pointed out. There is, however, a fairly widespread variant, *gutu, that appears in Keninjal *gutu*, Benyadu *gutuʔ*, Ribun *gutuh*, Kejaman *gutəw*, Punan Ba *gutu*, Penan Mubui *gutəwʔ*, Rejang gutaw, and many others. This observation is important, since it shows that PMP *g and *ŋ probably merged as *g, through the same denasalization process that caused *b and *m, and *d and *n to merge. PMP *ŋ is unambiguously reflected as *h*, so *g > *h* fits the overall pattern of Enggano. *hũkũ* therefore reflects *gutu, not *kutu. The question of nasality in this word is discussed more in section 4.3.

**4.1.2. *dalij/*daliŋ.** Edwards lists Enggano *ẽ-nãnĩ* 'fibrous root' as a possible, but problematic reflex of PMP *dalij 'buttress root.' The problematic aspect of this reflex, according to Edwards, is the change of *l > *n*. This should not pose a problem, however, since *l merged with *d, and *n* is the nasal allophone of *d.* The real problem comes from the nasality of the Enggano word, which otherwise has no source. However, there is a nasal-final doublet that we can point to as a potential source: PMP *daliŋ 'buttress root.' The doublet *daliŋ is not common, but importantly, it is found in other Sumatran languages, Toba and Karo Batak *daliŋ* 'fibrous root.' The doublet is thus able to explain nasality in this word through the same process of coda-triggered nasalization in word-final syllables with a full vowel.

**4.1.3. *huaji/*huaji-n/*huaji-ŋ.** The word 'younger sibling' is listed as a "problematic" comparison because of the irregular loss of the antepenultimate vowel *u in Enggano *ẽ-ãhĩ*. It should be noted, however, that the antepenultimate syllable in this word is quite commonly deleted in languages of western Island Southeast Asia, including other Barrier Island and Sumatran languages: Mentawi *bagi*, Nias *axi*, Seumular *agiŋ*, Toba Batak *aŋgi*, Karo Batak *agi*. It is not surprising, then, that Enggano would show the same antepenultimate syllable deletion. Also, it is important to note that Seumular has a word-final nasal in *agiŋ* (possibly from the vocative suffix *-ŋ), and Toba Batak displays an excrescent nasal before *g* in *aŋgi*. Other languages also close this word with a nasal, often with *-n, which marks obligatory possession: Hliboi Bidayuh *ditn*, Benuaq *tarin*, Merap *harayñ*, Kayan *harin*, Punan Bah *arin*, and Kenyah *sarin*. Less common, but not unattested, are languages that have an excrescent nasal like that found in Toba Batak: Mori Atas *andi* and Wolio *andi*. Word nasality in this word therefore appears to have followed from either the suffix or an excrescent nasal.

## 4.2. OTHER DOUBLETS.

**4.2.1. *buku/*buŋkul.** Under the hypothesis that coda nasal deletion conditions word nasalization, Enggano *ẽ-pũʔũ* stands as an exception, with word-level nasality but no historical nasal trigger. If word-level nasality is itself evidence for a historical nasal trigger, not merely the product of an unconditioned split, then it provides evidence that the Enggano word *ẽ-pũʔũ* reflects *buŋkul, not *buku. While *buku provides no nasal trigger, *buŋkul has two possible conditioners, *ŋ, which is reconstructed in coda position, and *-l, which first became *-n, before deleting. Either way, *buŋkul provides a viable path to nasalization where *buku does not.

## 4.3. COMPARISONS THAT MAY REFLECT WORD-FINAL NASAL MORPHOLOGY.

**4.3.1. *gutu/gutu-n.** The comparison of *gutu with Enggano *hũkũ* brings up another issue: the possibility that word-final nasal affixes might have triggered nasalization before deleting along with the other word-final consonants. *kutu

is often reflected with an obligatory suffix -n fused to the root. The affix is sometimes only present as a linker, as in Simular *utu-n asu* 'flea' and other times as a fused consonant on the root, as in Beketan *kutun* and Hliboi Bidayuh *ddutn* (through the intermediate steps: *gutu-n > gtun > gdun > ddun > ddutn). Nasality in Enggano *hũkũ* may very well have originated with the attachment of the nasal suffix *-n.

**4.3.2. *bahu(q)/*bahu(q)-n.** Cases where the word 'louse' surfaces with the inalienable possessive suffix *-n demonstrate a certain property of the morpheme, that although it is usually found on body-part terminology it also appears on words that are strongly associated with humans. Another apparent case of this phenomena is found in reflexes of *bahuq/*bahu 'smell; odor,' which is reflected with a final nasal, -n, in a number of languages where it means either 'its smell,' 'it stinks' or simply 'smell; odor' with no semantic change. Here are several examples:

(12)

| | | |
|---|---|---|
| Palauan | *bul* | 'its smell' |
| Dalat Melanau | *bun* | 'its smell' |
| Mukah Melanau | *bun* | 'smell; odor' |
| Kelabit | *buən* | 'smell; odor' |
| Seimat | *poun* | 'its smell' |
| Asilulu | *haun* | 'it stinks' |
| Sika | *wauŋ* | 'odor; give out an odor' |

The Kelabit word is probably from *bahu-ən, with the locative suffix, not the possessive suffix. Other examples, however, reflect *bahuq with a sometimes-optional, sometimes-fused-to-the-root suffix *-n*. Under the hypothesis that nasality spread over the word from a now-deleted nasal coda, we may propose that Enggano *ẽ-pãũ/e-pau* 'stench; odor' also reflects this final-nasal.

Other comparisons that have otherwise unexplained word-level nasality are words that are known to take vocative nasal suffixes. Importantly, there are the kinship terms, *ãmã* 'father' and *(ʔ)ũpũ* 'grandparent,' both of which historically took a vocative suffix *-ŋ that may be the source of nasality in Enggano. For comparison, *-ŋ is reflected in the following languages (and in many others, not listed) Tagalog *amá-ŋ* (in some localities) elder person, Bidayuh (Bukar-Sadong) *amaŋ* 'father,' Toba Batak *amáŋ* 'vocative: oh, father!,' and Totoli *amaŋ* 'father.' Note that with *(ʔ)ũpũ*, we do not need to appeal to the presence of the vocative suffix, since the reconstructed word *əmpu already has a nasal in coda position word-internally.

**4.4. COMPARISONS THAT MAY REFLECT EXCRESCENT NASALS.** Excrescent nasals appear sporadically throughout MP languages. They appear immediately preceding word-medial obstruents forming irregular homorganic Nasal-Obstruent clusters. Malay contains several examples; *empat* 'four' from PMP *əpat, *ampin* 'swaddling-band for infant' from PMP *hapin, and *məntah* 'raw; uncooked' from PMP *ma-qətaq. In many cases the Malay excrescent nasal closed a penultimate schwa syllable, but the presence of schwa alone does

not explain all instances of excrescent nasals. In Enggano, at least two comparisons follow from a PMP reconstruction with excrescent nasal phenomenon in a diversity of MP languages; these are PMP *qətut/*qutut 'to fart' and *dapaR/*da(m)paD/*lapad 'flat.'

**4.4.1. *qətut/*qutut 'to fart.'** Edwards lists *ẽ-ũkũ* 'to fart' as a reflex of PMP *qətut, but this word could also regularly reflect the doublet, *qutut. Regardless, the issue of nasality arises as the word does not appear to have a historical nasal-coda trigger. A quick glance at entries for 'to fart' in the ACD reveals a widespread tendency for both reflexes of *qətut and *qutut to develop an excrescent nasal: *qəntut and *quntut. Examples of each are given below:

(13) a. *qəntut Javanese *əntut*
Tontemboan *əntut*
Palauan *ʔolð*
Malay *kəntut*
b. *quntut Toba *untut*
Simalungun *untut*

Interestingly, the reflexes of *qutut with an excrescent nasal are both Batak languages, part of the putative Sumatran (or Batak-Barrier Island) subgroup to which Enggano may belong. From *quntut, the path to *ẽ-ũkũ* is straightforward.

**4.4.2. *dapaR/*da(m)paD/*lapad 'flat.'** Edwards compares Enggano *ẽ-nãpã* to PMP *dapaR 'flat,' with no apparent nasal source. *dapaR does not have many witnesses, but both the Ngaju reflex, *dampah*, and the Malay reflex, *dampar*, have an excrescent nasal. There are two additional words of similar form and semantics that may also have acted as a source, *da(m)paD and *lapad, the former with an excrescent nasal in some reflexes and the latter without. There are also the Seumular and Nasal (both part of Smith 2017b's Sumatran subgroup) reflexes, *lambah* and *ramah,* that both reflect an excrescent nasal. This nasal is the obvious source of nasality in Enggano.

**4.5. THE LEFTOVERS: TRULY PROBLEMATIC COMPARISONS.** Edwards (2015) was careful to point out any irregularities that appeared in his comparisons, which makes evaluating those comparisons much easier. He accepts two comparisons with irregularities that may be questionable, numbers 11 and 13, which I discuss here. First, comparison 11, *kĩ-ʔẽʔẽpã* 'to fly,' does not appear to correspond to any single PMP reconstruction. Edwards compares it to 'flap the wings,' a semantic category with several reconstructions that often refer to the sound of flapping wings. Edwards lists *ki/epak as the reconstruction from which *kĩ-ʔẽʔẽpã* descends, but this word is not listed in the ACD. Some of the reconstructed vocabulary that fits into the category 'flap the wings' is listed below, with their expected Enggano reflexes:

(14) *kapak > **ʔapa
*kepek > **ʔopo
*kipak > **ʔipa
*pakpak > **papa
*epap > **opa

The closest reconstructions are *kapak and *kipak, which would have become *ʔapa and *ʔipa, respectively. Both require an irregular reflex of the penultimate vowel and fossilized CV- reduplication, as well as a semantic shift from 'sound of wings flapping' to 'to fly.' The difficulty with this word is similar to some of the other words that could ultimately reflect any of a number of reconstructions, but differs in that while an Enggano word like *ẽpũʔũ* could *regularly* reflect either *buku or *buŋkul (ignoring the issue of nasalization), *kĩ-ʔẽʔẽpã* requires multiple irregular sound changes no matter which protoform from which we might claim it descends.

Comparison 13, *ma-Ruqanay > *ẽ-mãnĩ* 'male,' would have gone through the following regular sound changes: *maRuqanay > *e-bauade, via *m > b, *R > Ø, *q > Ø, *n > d, *-ay > e. If we change the voiced stops to their nasal allophones, we get the following, ẽ-mãũãnẽ. The question then is, how does one get from mãũãnẽ to *mãnĩ*? Edwards proposes a simplification of *aua to *a,* and an irregular raising of *e to *i*. He points to pre-Kähler sources that recorded /e/ in this word: (Helfrich 1916:488), <émané> (Oudemans 1879:487), <emane> (Francis 1870 in Oudemans 1889:131). However, the Holle list has an *i* in this word: èmanī, which may indicate variation in the word. An irregular change of -e to -i is not entirely unforgivable, and could otherwise be brushed aside as an isolated irregularity, but the simplification of *aua to *a* is less palatable as this is not a disallowed vowel sequence and there are several Enggano words that have *aua* and *ãũã* as vowel sequences, highlighted in bold font in the examples below:

(15) know *kĩpã-kãʔ**ãũã**ʔã*
boat *e-bodoh**aua***
above *yap**aua***

Edwards points to *baReqaŋ > ẽ-pãã as a parallel change in support of his analysis, but the intermediate stage here is *aoa, not *aua, and the output of the simplification is *aa*, not *a*, so it does not really provide support for the proposed *aua > *a* change.

**4.5.1. *bulu/*buluŋ.** The nasal variant of 'leaf,' Enggano *ẽ-pũnũ*, regularly reflects *buluŋ, with a nasal coda that triggered nasalization on the word. The nonnasal variant, *e-pudu*, is also homophonous with Enggano *e-pudu* 'pubic hair; bristle; leaf; feather; hair.' It is possible that the semantic overlap between these two words ('leaf' is a possible interpretation of *e-pudu*) is responsible for this apparent variation.

(16) *ẽ-pũnũ/e-pudu* 'leaf'
*bulu > *pudu*
*buluŋ > *pũnũ*

**4.5.2. *timuR.** Edwards (2015:97) notes that *ĩkĩmõ* 'previously unknown lands,' an apparent reflex of PMP *timuR 'east monsoon' "could be an early borrowing from Malay *timur*." Since Enggano *R was deleted, it would not regularly provide a condition for nasalization. If, however, *ĩkĩmõ* was borrowed from Malay (a hypothesis that is strengthened by the odd semantic shift from 'east monsoon' to 'previously unknown lands' since Sumatra is due east from Enggano), then Malay *-r* would have been borrowed into Enggano as *r*, which would then become a nasal, *n*, through regular processes. The word would then go through the same nasalization process as any other word with a sonorant coda.

**4.5.3. *nabuq/*dabuq/*labuq 'to fall.'** It is impossible to identify which of the three possible reconstructions is reflected with Enggano *ki-dapu/kĩ-nãpũ* 'to fall, of lightning,' but this is not the most important issue. The problem with this comparison is the semantic jump from PMP 'to fall' to Enggano 'to fall, of lightning.' Enggano is the only Austronesian language to reflect such a semantic shift, a situation that seems unlikely. However, an anonymous reviewer notes the semantics Old Javanese *ḍawuh* 'falling; coming down (order, curse, anger, love); to fall, come down.' Since lightning is associated with curses and the supernatural in many Austronesian-speaking societies, the Old Javanese example may provide evidence that the semantic shift is not so problematic.

**4.5.4. *butaq 'tree with poisonous sap.'** Only two Austronesian languages provide witnesses to this reconstruction, Wolio *bunta* 'kind of plant with poisonous sap' and Rembong *wutaʔ* 'kind of poisonous tree.' It should be noted that one of those words, Wolio *bunta*, contains an excrescent nasal. If Enggano *ẽ-pũkã* truly reflects *butaq, then the excrescent nasal provides a path to nasalization in Enggano. However, with only two witnesses, it is difficult to analyze the validity of this comparison. Additionally, the reconstructed form refers specifically to a poisonous tree, whereas the Enggano form does not. This may simply be a product of Kähler's description, but for now it is impossible to know.

**4.6. REMAINING, UNEXPLAINED NASAL-WORD REFLEXES.** After attempting to explain word-level nasality in Enggano as the product of nasal-coda deletion, a handful of high-quality comparisons remain unexplained. This is on one hand a positive development, as nasality has been hitherto an unexplained phenomenon, and on the other hand a frustrating roadblock, as regular sound change should not result in unexplainable exceptions and if it does, we hope that the number of exceptions is as low as possible. We cannot appeal to doublets or nasal morphology to explain these words without completely abandoning method, so I will list the remaining unexplained reflexes here.

| | |
|---|---|
| (17) *ẽ-ãpãkũ* 'anchor, heavy stone used as anchor' | PMP *batu 'stone' |
| *kĩ-pãũ* 'to pound' | PMP *bayu 'pound rice' |
| *kã-pãĩ* 'sour' | PMP *paqit 'bitter' |
| *e-(ʔ)oki/ ẽ-(ʔ)õkĩ* 'low tide' | PMP *qəti/*kəti 'ebb; low tide' |

**5. CONCLUSION: AN IMPERFECT HYPOTHESIS.** The history of Enggano Island and its inhabitants may partially explain why these exceptions persist. Edwards notes that although multiple dialects were reported on the island in the earliest reports, by the time that Kähler began his work on the language that Enggano was spoken by only about 200 speakers concentrated on the northern coast. Any past dialectical diversity had been leveled by an influx of migrants from Sumatra and Java as well as disease that caused a sharp decline in the Enggano population. Although the population has recovered and the language continues to be spoken, it is nearly impossible to determine to what extent dialect mixing or a collapse in normal intergenerational transmission might be responsible for historical irregularities in the current language. I will refrain from using this as a deus-ex-machina explanation for where the current hypothesis fails, but it is worth pointing out that because of the recent turbulence in Enggano, that a perfect explanation may never be found for word-level nasality.

That said, it is not appropriate to call the innovation of word-level nasality an "unconditioned" split, since there is certainly a historical nasal-coda trigger for most of the etyma. It is hoped that further historical research on Enggano will identify more reflexes of PMP reconstructions that can be used to further test the current hypothesis. If more exceptions to nasal-coda-triggered nasalization are found, it may be more economical to abandon the hypothesis. However, if additional nasal words are shown to follow from PMP reconstructions with a nasal coda (or a nasal coda derived from a nonnasal sonorant), then it would lend additional strength to the current hypothesis.

The hypothesis that nasal codas triggered nasalization in Enggano is therefore supported by much of the data, but is unable to explain a handful of remaining nasal words with no historic nasal trigger. I end the discussion with a list of words from Edwards (2015) analyzed with the current hypothesis in hopes that it may prove useful in further work on Enggano historical phonology.

## APPENDIX 1: SUPPORTIVE COMPARISONS:

| | **Reconstruction** | **Enggano:** | |
|---|---|---|---|
| original *-N | *baRəqaŋ | *ẽ-pãã* | molar |
| | *daliŋ | *ẽ-nãnĩ* | fibrous root |
| | *hasaŋ | *ẽ-ãkã* | scale |
| | *taŋan | *ẽ-ãkãhã* | stalk |
| original *-l/*-r | *buŋkul | *ẽ-pũʔũ* | joint |
| | *kawil | *ẽ-ʔãmĩ* | fishhook |
| | *kapal | *kã-ʔãpã* | thick |
| | *tirtir | *kã-nĩkĩ* | shiver |
| nasal morphology | *gutu-n | *ẽ-hũkũ* | louse |
| | *bubuŋ-an | *ẽ-pũhã* | gable; peak |
| | *bahu(-n) | *e-pau/ẽ-pãũ* | smell |
| | *ama-ŋ | *ãmã* | father |

| | | | |
|---|---|---|---|
| word-internal *N | *(s)imbər | *ẽ-ĩpõ* | smoke |
| | *quntut | *ẽ-ũkũ* | fart |
| | *umpu | *ũpũ* | ancestor |
| | *lambah | *ẽ-nãpã* | flat land |
| ambiguous | *bulu(ŋ) | *e-pudu/ẽ-pũnũ* | leaf |
| | *timuR | *ĩkĩmõ* | previously unknown lands |
| | (Malay?) | | |

**Comparisons with unexplained nasality:**

| | | | |
|---|---|---|---|
| *qəti/*kəti | ebb; low tide | *e-(ʔ)oki/ ẽ-(ʔ)õkĩ* | low tide |
| *batu | stone | *ẽ-ãpãkũ* | anchor, heavy stone used as anchor |
| *bayu | to pound rice | *kĩ-pãũ* | to pound |
| *paqit 'bitter' | bitter | *kã-pãĩ* | sour |

**Questionable comparisons:**

Dubious semantics:

| | | | |
|---|---|---|---|
| *napuq | drop; fall | *ki-dapu/kĩ-nãpũ* | fall, of lightning |

**Weak attestation:**

| | | | |
|---|---|---|---|
| *butaq | tree with poisonous sap | *ẽ-pũkã* | k.o. tree |

**Multiple formal irregularities:**

| | | | |
|---|---|---|---|
| *ki/epak | flap the wings | *kĩ-ʔẽʔẽpã* | to fly |
| *maRuqanay | male | *ẽ-mãnĩ* | man; male |

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# QUERIES

AQ1: Should this be ‘flap the wings’ as on the previous page? (I see the ACD gives the gloss of *kapak as ‘beat the wings, flap the wings; sound of flapping’ *kipak as ‘flap the wings’)