# The Alor-Pantar languages

## History and typology

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This volume is dedicated to the memory of Mr. Anderias Malaikosa (1964-2011), whose love for the peoples and languages of his native Alor was an inspiration to linguists both within Alor and abroad.

# Contents

# Chapter 1

# The relatedness of Timor-Kisar and Alor-Pantar languages: A preliminary demonstration

Antoinette Schapper, Juliette Huber & Aone van Engelenhoven

The Papuan languages of Timor, Alor, Pantar and Kisar have long been thought to be members of a single family. However, their relatedness has not yet been established through the rigorous application of the comparative method. Recent historical work has shown the relatedness of the languages of Alor and Pantar on the one hand (Holton et al. 2012), and those of Timor and Kisar on the other (**SchapperEtAl2012**). In this chapter, we present a preliminary demonstration of the relatedness of the Timor-Alor-Pantar family based on a comparison of these two reconstructions. We identify a number of regular consonant correspondences across cognate vocabulary between the two groups and reconstruct a list of 89 proto-TAP roots.

## 1 Introduction

This chapter looks at the historical relationship between the Papuan languages of Alor-Pantar (AP) and those of Timor-Kisar (TK). The TK group of Papuan languages consists of Bunaq, spoken in central Timor, Makasae, Makalero and Fataluku, three languages spoken in a contiguous region of far eastern Timor, and Oirata, spoken on the southern side of Kisar Island to the north of Timor. Due to their geographical proximity, AP and TK languages have typically been assumed to be related to one another (e.g., Stokhof 1975; Capell 1975). Together they have been referred to as the Timor-Alor-Pantar (TAP) family. However, there has been no substantive data-driven investigation of the claim.

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In this chapter, we test the hypothesis that AP and TK languages are related to one another through the application of the comparative method. Specifically, we compare the results of two recent reconstructions, the one of AP (Holton et al. 2012) and the other of TK (**SchapperEtAl2012**). The sources of the lexical data used are listed in the Appendix. We establish that the AP and TK languages are indeed related by demonstrating that there are regular sound correspondences across cognate vocabulary between the two groups.

In comparing Holton et al. (2012) and **SchapperEtAl2012** in this chapter, we assume the existence of two nodes in the TAP tree, namely Proto-AP (pAP) and Proto-TIM (pTIM). Whilst pAP appears to be a robust node, the existence of pTIM is less secure. As **SchapperEtAl2012** point out, it is possible that Bunaq and the Eastern Timor languages (reconstructed as Proto-ET in **SchapperEtAl2012**) both form their own separate primary subgroups within TAP. Our aim here is not to make claims about the high-level subgrouping of the AP and TK languages, and we do not presume to definitively determine the constituency of the TK-AP tree at this stage, but merely seek to show that TK and AP languages are related. Conclusive evidence of innovations shared by Bunaq and ET languages to the exclusion of AP languages is the subject of ongoing research.

§ 2 presents the sound correspondences we find in cognate vocabulary between pAP and pTIM. § 3 summarises our preliminary findings and discusses issues arising out of them. Appendices are included with supporting language data for any reconstructions that do not appear in Holton et al. (2012) or **SchapperEtAl2012** as well as a list of pTAP forms that can be reconstructed on the basis of the sound correspondences identified in this chapter. New, additional reconstructions have in some cases been necessary since the two articles each reconstruct only a small number of lexemes with only partial overlap between them. We also throw out several cognate sets from the AP reconstruction as they reflect borrowing from Austronesian languages.

## 2 Sound correspondences

In this section, we describe the consonant correspondences that we have identified between AP and TK languages. We do draw on vowel correspondences where they condition particular sound changes in consonants, but otherwise do not deal with vowels in this preliminary demonstration of relatedness. We chiefly draw attention to the correspondences in cognate vocabulary between pAP and pTIM. However, we provide the reader also with the forms of the lexemes in the TK languages as they are not available elsewhere in this volume. The argumenta-

tion and underpinning data for pAP is given in Holton & Robinson (this volume) and is based on Holton et al. (2012).

In the subsections that follow, transcription of language data adheres to IPA conventions. Long vowels are indicated with a length mark ‘ː’. Bracketed segments ‘( )’ are those deemed to be non-etymological, that is, typically reflecting some morpheme which has fossilised on a root. In the correspondence tables, square brackets ‘[]’ are used where an item is cognate but doesn’t reflect the segment in question. The inverted question mark ‘¿’ is used where a cognate shows an unexpected reflex of the segment in question. Grammatical items are glossed in small caps. Reconstructions marked with ‘‼’ are new reconstructions not found in Holton et al. (2012) or **SchapperEtAl2012** or are revised from Holton et al. (2012). The symbol ‘‼’ signals that the full data set on which the reconstruction in question is based is given in the Appendices. AP data supporting the additional pAP reconstructions is given in Appendix A.1 and TK data in Appendix A.2. In the text of the chapter itself, for reasons of compactness, we only give simple one-word glosses which reflect the presumed meaning of the protolexeme. Should the reader need more information on semantics, he can refer to the Appendix. We also do not provide information on irregular changes, such as metathesis or apocope, in the correspondence tables, except where directly relevant to the reconstruction of the segment in question. The Appendix provides the reader with fuller information on any irregularities in form or meaning in individual languages.

## 2.1 Reconstruction of bilabial stops

We identify two robust correspondent sets for bilabial plosives, reconstructing to pTAP *p and *b. Note that in **SchapperEtAl2012** we reconstruct a three-way distinction (*p, *b, and *f) for bilabial obstruents in pTIM, despite the fact that it is not maintained in any of the modern TK languages: Bunaq, Makasae and Makalero have merged reflexes of pTIM *p and *f, whereas in Fataluku and Oirata, *p and *b are merged. We find no evidence to support a three-way split in pTAP; instead, it looks like pTIM underwent a conditioned phoneme split, with distinct reflexes of pTAP *b in initial and non-initial positions, respectively.

Table 1 and Table 2 present the forms for these two correspondence sets respectively. In the first, pAP *p corresponds to pTIM *f in all positions. In the second, pTAP *b was retained as *b in pAP, but split to pTIM *b initially and pTIM *p non-initially. In these sets, there are three notable irregularities: (i) pAP *tiara ‘expel’ lost the medial bilabial that is retained in pTIM *tifar ‘run’; (ii) pAP *siba(r) ‘new’ and pTIM *(t,s)ifa(r) ‘new’ show an irregular correspondence of

pAP *b with pTIM *f; and (iii) pAP *karab 'scratch' and pTIM *gabar 'scratch', which show an irregular correspondence of pAP *b with pTIM *b in medial position.

## 2.2 Reconstruction of coronal stops

There are two coronal stops, *t and *d, reconstructed to pAP, and four, *t, *d, *T and *D to pTIM. **SchapperEtAl2012** note the uncertainty of pTIM *d, which is supported by three cognate sets only, all of which are in initial position. This is played out also when comparing coronals between AP and TK languages. We can reconstruct the pTAP coronal stops *t with relative certainty, and *d, albeit with less security. The latter segment split in pTIM to *T and *D. At present, we cannot reconstruct pTIM *d to pTAP. There are, however, a substantial number of coronal correspondences which remain unexplained.

Our most consistent correspondence is pTIM *t to pAP *t and *s (Table 3). Initially, we find a steady and unchanging correspondence of pAP *t and pTIM *t, supported by a sizeable number of cognates. Only Bunaq shows a change of *t to /tʃ/ before a high front vowel. Non-initially, we find fewer cognates, but nevertheless a steady and unchanging correspondence. In two cognate sets ('sit' and 'mat'), pAP final *s preceded by *i corresponds to pTIM *t.

The reconstruction of pTAP *d is supported by only a small number of cognate sets (Table 4) and therefore still needs confirmation. In these sets, initial pAP *d corresponds to pTIM *D, while non-initial pAP *d corresponds with pTIM *T. This is consistent with what we observed with the bilabial stops, where a medial voiced stop in pAP corresponds to a voiceless stop in pTIM. Note that the cognate set for 'bird' is listed under the heading of initial *d, even though its pTIM and (arguably) pAP reflexes are in medial position. We place it there due to the fact that the sound correspondence is parallel to that for 'rat'. However, more sets supporting this reconstruction are clearly needed before we can be certain of it.

Furthermore, there are a range of cognate sets which show as yet unexplained correspondences (Table 5). In these, we find coronal correspondences between pAP and pTIM and between TK languages (especially in Bunaq and Fataluku) that don't fit well in the above given sets. More work is needed to clarify the history of the coronals in TAP.

## 2.3 Reconstruction of velar stops

We reconstruct two velar stops for pTAP, *k and *g. We find insufficient evidence, however, for the uvular stop reconstructed for pAP in Holton et al. (2012) and

Table 1: Correspondence sets for pTAP *p

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| **initial *p** | ***p** | ***f** | **p, w** | **f** | **f** | **f** | **p** |
| spit | *purVn ‼ | *fulu(k, n) ‼ | *puluk* | – | *fulun* | *fulu* | – |
| taboo | *palol ‼ | *falu(n) | *por* | *falun* | *falun* | *falu* | – |
| 1PI | *pi- | *fi | – | *fi* | *fi* | *afa* | *ap-* |
| LOW[1] | *po ‼ | *ufe ‼ | – | *he- ¿* | *ufe-* | [*ua]* | [*ua]* |
| girl | *pon ‼ | *fana[2] | *pana* | *fana(rae)* | *fana(r)* | *fana(r)* | *pana(rai)* |
| scorpion | *pVr | *fe(r, R)e ‼ | *wele* | – | – | – | – |
| **medial *p** | ***p** | ***f** | **w, Ø** | **f** | **f** | **f** | **p** |
| face | *-pona ‼ | *-fanu ‼ | *-ewen* | *fanu* | *fanu* | *fanu* | *panu* |
| dream | *hipar | *ufar(ana) ‼ | *waen* | *ufarena* | *ofarana* | *ufarana* | *upar(a)* |
| run | [*tiara] | *tifar | *tʃiwal* | [*ditar]* | [*titar]* | *tifar(e)* | *tipar(e)* |
| pound | *tapai | *tafa | *tao*[3] | – | *tafa* | *tafa* | *tapa* |

[1] This item is a deictic marker indicating lower elevation than the deictic center. See **SchapperTVelevation** for more information on this deictic distinction.

[2] The bracketed *rae/r/rai* element appears to be an innovation in the Eastern Timor languages, presumably a lexical doublet or a derivational morpheme related to the nominalizing *-r* formative found in Makalero. We have no evidence for reconstructing this element higher than Proto-Eastern Timor.

[3] This would have originally been *tawo in pre-Bunaq, but in the modern language medial /w/ is not preserved before back vowels.

Table 2: Correspondence sets for pTAP *b

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| **inital *b** | ***b** | ***b** | **b** | **b** | **p** | **p** | **h** |
| pig | *baj | *baj | – | *baj* | *paj* | *paj* | *haj* |
| price | *bol ‼ | *bura | *bol* | *bura* | *pura* | *pura* | *hura* |
| mat | *bis | *biti ‼ | – | – | *piti* | *pet(u)* | *het(e)* |
| leg | *-bat ‼ | *-buta ‼ | *-but* | – | – | – | – |
| mountain | *buku ‼ | *bugu ‼ | – | *bu?u* | *pu?u* | – | – |
| **non-initial *b** | ***b** | ***p** | **p, w** | **f** | **f** | **p** | **h** |
| fish | *habi ‼ | *hapi ‼ | – | *afi* | *afi* | *api* | *ahi* |
| star | *jibV[1] | *ipi(-bere) | [*bi*][2] | *ifi-bere* | *ifi* | *ipi(naka)* | *ihi* |
| shark | *sib(a, i)r ‼[3] | *supor ‼ | – | – | [*su*][4] | *hopor(u)* | – |
| sugarcane | *hu:ba ‼ | *upa | *up* | *ufa* | *ufa* | *upa* | *uha* |
| tongue | *-lebur ‼ | *-ipul | *-up* | *ifi* | *ifil* | *epul(u)* | *uhul(u)* |
| dog | *jibar ‼[5] | *Depar | *zap* | *defa* | *sefar* | *ipar(u)* | *ihar(a)* |
| other | *aben(VC) ‼ | *epi ‼ | *ewi* | – | – | – | – |
| scratch | *karab ‼ | *gabar ¿ ‼[6] | – | – | *kapar* | *kafur(e)* | – |
| new | *siba(r) ‼ | *(t, s)ipa(r) ¿ ‼ | *tip* | *sufa* | *hofar* | – | – |

[1] Several AP languages have a compound for ‘star’, although the second element does not appear to be cognate to that reconstructed for pTIM. Note also that Holton et al. (2012) gave this item as *jibC.

[2] The Bunaq form reflects the second half of the pTIM doublet that is not found in AP languages.

[3] The cognate set for this item is given in Holton et al. (2012), but no pAP reconstruction is given.

[4] The reflex of the relevant bilabial has been lost in Makalero due to apocope.

[5] The cognate set for this item is given in Holton et al. (2012), but no pAP reconstruction is given.

[6] This form shows liquid-stop metathesis. There is no evidence of *b occurring word-finally in pTIM.

Table 3: Correspondence sets for pTAP *t

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| **initial *t** | ***t** | ***t** | **t, tʃ** | **t** | **t** | **t** | **t** |
| hand | *-tan | *-tana | *-ton* | *tana* | *tana* | *tana* | *tana* |
| sea | *tam | *mata | [*mo*] | – | – | *mata* | *mata* |
| six | *talam | *tamal ‼[1] | *tomol* | – | – | – | – |
| pound | *tapai | *tafa | *tao* | – | *tafa* | *tafa* | *tapa* |
| run | *tiara | *tifar | *tʃiwal* | *ditar* ¿ | *titar* | *tifar(e)* | *tipar(e)* |
| sleep | *tia | *tia(r) | *tʃier* | *ta?e* | *tia* | *taia* | *taja* |
| **non-initial *t** | ***t, *s** | ***t** | **t** | **t** | **t** | **t** | **t** |
| tree | *tei | *hate ‼ | *hotel* | *ate* | *ate* | *ete* | *ete* |
| stand | *nate(r) ‼ | *nat | *net* | [*na*] ¿ | *nat* | *(a)nat(e)* | *nat(e)* |
| clew | *maita ‼ | *matar | *mot* | – | – | *matar(u)* | *matar(a)* |
| flat | *tatok ‼ | *tetok ‼ | *toi?* | – | *tetu?* | – | – |
| leg | *-bat ‼ | *-buta ‼ | *but* | – | – | – | – |
| sit | *mis | *mit | *mit* | *mit~[mi]* | *mit* | [*(i)mir(e)*] ¿ | [*mir(e)*] ¿ |
| mat | *bis | *biti ‼ | – | – | *piti* | *pet(u)* | *het(e)* |

[1] Bunaq /o/ is a regular reflex of pTIM *a, as seen, for instance, from the ‘hand’, ‘sea’, ‘wake’, ‘tree’ and ‘clew’ sets.

Table 4: Correspondence sets for pTAP *d

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| **initial *d** | ***d** | ***D** | **z, s** | **d, s** | **s** | **c** | **ʈ, s** |
| rat | *dur | *Dura | *zul* | *dura* | *sura* | *cura* | *ʈura* |
| dog | *jibar ¿ ‼[1] | *Depar | *zap* | *defa* | *sefar* | [*ipar(u)*] ¿ | [*ihar(a)*] ¿ |
| bird | *(a)dVl ‼ | *haDa | *hos* | *asa* | *asa* | *aca* | *asa* |
| **non-initial *d** | ***d** | ***T** | **t** | **t** | **t** | **c** | **ʈ** |
| bat | *madel | *maTa ‼[2] | – | – | – | *maca* | *maʈa* |
| fire | *hada ‼ | *haTa | *hoto* | *ata* | *ata* | *aca* | *aʈa* |
| sun | *wadi ‼ | *waTu | *hot* | *watu* | *watu* | *wacu* | *waʈu* |
| garden | *magad(a) | [*(u, a)mar][3] | [*mar*] | [*ama*] | [*ama*] | – | [*uma*] |

[1] We note the irregularity of pAP *jibar 'dog' where we would expect pAP *dipar 'dog'. This is likely the result of a change pre-pAP *d > *j

[2] The cognate set for this item is given in **SchapperEtAl2012** but no pTIM reconstruction is given.

[3] This form shows metathesis with associated loss of the syllable with pTAP *g, thus: pTAP *magad > *madag > *amar.

Table 5: Problematic coronal cognate sets

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| grandparent[1] | *tam(a, u) ‼ | *moTo | *mata(s)* | *mata* | *mata* | *moco* | *moʈo* |
| far | *lete ‼ | *eTar ‼ | *ate* | – | – | *icar* | – |
| wake | *-ten | *Tani | *otin* | *tane* | *tane* | *tani~cani* | – |
| coconut | *wata ‼ | *wa(t, D)a | *hoza* | *wata* | *wata* | *βata* | *wata* |
| *P. indicus* | *matar ‼ | *ma(t, D)ar | *mazo?* | *mater* | *mater* | *matar(ia)* | – |
| excrement | *has | *a(t, D)u ‼ | *ozo* | *atu(-gu?u)* | *atu* | *atu* | *atu* |

[1] This is a reciprocal kinship term, denoting either ‘grandparent’ or ‘grandchild’. PTIM *moTo means ‘child’.

Holton & Robinson (this volume).

PTAP *k and *g are retained as *k and *g in pAP, but merged to *g in pTIM. Note that, based on the comparative TAP evidence and the additional pTAP reconstructions in this chapter, we have to substantially revise Schapper et al.'s (2012) pTIM reconstructions with regard to velar stops. Concretely, we can trace only one pTIM velar back to pTAP. We find no pAP reflexes for any of the small sets of roots reconstructed for pTIM with initial *k and medial *g; those for pTIM medial *g, in particular, are rather tenuous, as noted in **SchapperEtAl2012** The cognate sets that we can trace back to pTAP involve Schapper et al.'s initial *g and medial *k, and the comparative evidence is consistent with these being differential realisations of a single pTIM segment *g: initially, pTIM *g is reflected as /g/ in Bunaq and Makasae, and as /k/ in Makalero and Fataluku. We currently have no evidence for Oirata. In non-initial position, *g is reflected in Bunaq as /g/ medially and as /k/ finally, consistent with Bunaq phonotactic rules, which prohibit voiced stops from codas; in Makasae, Makalero and Fataluku, *g is reflected in non-initial position as /ʔ/, and variably as /ʔ/ and Ø in Oirata.

The cognate sets that support the reconstruction of pTAP *k are given in Table 6. As in both pTIM (**SchapperEtAl2012**) and pAP (Holton et al. 2012:98), the reconstruction of initial *g in pTAP hinges on third person markers. Two forms are reconstructable (Table 7): a prefix *ga occurring on verbs and inalienably possessed nouns, and a free form *gie '3POSS' encoding 3rd person alienable possessors. Number marking was lost in TK languages, so the correspondence we observe is between pAP third person singular forms and pTIM third person forms which are unmarked for number (i.e., can be used in singular and plural contexts). The zero correspondence that we observe in Fataluku and Oirata is the result of the stripping off of the *g marking 3rd person (as set out in **SchapperEtAl2012**). In the case of the alienable possessive marker, this means we are left with reflexes of the pTIM possessive root *-ie 'POSS' alone.

In non-initial positions, we find numerous cognates reflecting pTAP *g, corresponding to pAP *g and pTIM *g as set out in Table 8.

Finally, there is as yet an insufficient number of reconstructions of pAP *q with cognates in TK languages to allow for a higher-level pTAP reconstruction. Currently, we have only Bunaq *-ol* 'child' (presumably reflecting pTIM *-al) as cognate with pAP *-uaqal 'child'. We await further reconstructions with TK cognates for the determination of the pTAP form.

Table 6: Correspondence sets for pTAP *k

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku[1] | Oirata[1] |
|---|---|---|---|---|---|---|---|
| | ***k** | ***g** | **g (k)** | **(g) ʔ** | **k, ʔ** | **k, ʔ** | **(ʔ) Ø** |
| scratch | *karab ‼ | *gabar ‼[2] | – | – | *kapar* | *kafur(e)* | – |
| bite | *(ta)ki ‼[3] | *(ga)gel ‼[3] | *gagil* | *gaʔel* | *kaʔel* | *(ki)kiʔ(e)*[4] | – |
| dirty | *karok ‼ | *gari ‼ | *gar* | *raʔi* | *raʔi* | *raʔe(ne)* | – |
| walk 1 | *laka ‼ | *lagar ‼ | *lagor* | *laʔa* | *laʔa* | *laʔa* | [*lare*] ¿ |
| itchy | *(i)ruk ‼ [5] | *ilag ‼ | – | *ilaʔ* | *ileʔ* | – | – |
| mountain | *buku ‼ | *bugu ‼ | – | *buʔu* | *puʔu* | – | – |

[1] See **SchapperEtAl2012** for more Fataluku and Oirata correspondences.

[2] This form shows liquid-stop metathesis.

[3] The bracketed initial segments in these forms reflect different inflectional prefixes which have fossilized on these verbs.

[4] The initial bracketed syllable is a fossilized reduplicated CV. This item also has the variant pronunciation *cikiʔe*.

[5] This form represents a different root from the 'itchy' root given in Holton & Robinson (this volume). See Appendix A.1 for supporting AP forms.

Table 7: Correspondence sets for pTAP 3rd person prefixes

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | *g | *g | g | g | k | Ø | Ø |
| 3INLN | *ga- | *g- | *g-* | *g-* | *k-* | – | – |
| 3POSS | *ge[1] | *gie | *gie* | *gi* | *ki* | *i* | *ue* |

[1] We reconstruct this as a free form on account of the existence of free reflexes in at least two AP languages (Blagar and Adang); morphologisation must thus post-date the break-up of pAP.

Table 8: Correspondence sets for pTAP *g

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***g** | ***g** | **g, k** | **g, ʔ** | **(k) ʔ** | **(k) ʔ** | **ʔ, Ø** |
| yellow | *bagori ‼[1] | *gabar ‼[2] | – | *gabar* | – | – | – |
| green | *(wa)logar ‼ | *ugar | *ugar* | *(h)uʔur* | *(h)uʔur* | *uʔur(eke)* | *uʔul(e)* |
| laugh | *jagir ‼ | *jiger ‼ | *higal* | *hiʔa* | *hiʔe* | *heʔe* | – |
| path | *jega ‼ | *jiga ‼ | *hik* | *hiʔa* | *hiʔa* | *iʔa* | *ia(ra)* |
| banana | *mogol | *mugu ‼ | *mok* | *muʔu* | *muʔu* | *muʔu* | *mu:* |
| hear | *magi ‼[3] | *mage(n) ‼ | *mak* | *maʔen* | *maʔen* | – | – |
| garden | *magad(a) | [*(u, a)mar] ‼[4] | [*mar*] | [*ama*] | [*ama*] | – | [*uma*] |

[1] The cognate set for this item is given in Holton et al. (2012), but no pAP reconstruction is given.

[2] This form is apparently metathesized from pTAP *bagur(V) 'yellow'.

[3] The cognate set for this item is given in Holton et al. (2012), but no pAP reconstruction is given.

[4] This form shows metathesis with associated loss of the syllable with pTAP *g, thus: pTAP *magad > *madag > *amar. Loss of *g is found occasionally in AP languages (e.g. 'laugh', see Appendix A.1), suggesting a certain degree of instability for this segment.

## 2.4 Reconstruction of fricatives

Two fricatives *s and *h can be reconstructed to pTAP. The number of cognates is still small for both phonemes, but the correspondences are relatively well-behaved.

Table 9 sets out the cognate sets for pTAP *s. Initial pTAP *s is supported by several cognate sets and has been maintained without change in pAP and pTIM. Non-initial cognates of pAP *s are difficult to find in TK languages, as many instances of reconstructed word-final *s in pAP correspond to pTIM *t (e.g., pAP *mis 'sit', *bis 'mat' and *has 'excrement'.

PTAP *h can be reconstructed as a word-initial segment, but not in other positions. The segment corresponds to pTIM *h and pAP *h except before back vowels (Table 10). Based on the cognate sets available, pAP *h did not occur before back vowels. In this environment, pTAP *h changed either to *w (as in pAP *wur 'moon') or was lost (as in pAP *tei 'tree') in pAP (cf. Table 11 for the items and vocalic environments in which pAP *w is attested). The reconstruction of pTIM *h hinges on Bunaq, which retains it as /h/, while the eastern Timor languages have all lost pTIM *h (which, in turn, reflects pTAP *h). This means that where we have no Bunaq reflex (as in the 'fish', 'breast' and 'dream' sets) we have no modern language attesting pTIM *h, and the presence of the phoneme can only be inferred from the fact that *h is reconstructed for the pAP cognate.

## 2.5 Reconstruction of glides

Two glides can be reconstructed to pTAP, *w and *j. Both appear to have only occurred in initial position. It is unclear whether the reconstructed glides could occur before all vowel qualities. Nevertheless, the cognate sets supporting these proto-phonemes are robust and show little irregularity.

The pTAP glide *w shows a stable and unchanging correspondence of *w in pAP and pTIM for the most part (Table 11). The major change is that pTAP *w is vocalised in pAP to *u root-initially on inalienably possessed nouns. In TK languages, Bunaq shows conditioned reflexes of pTAP *w, maintaining it as /w/ before front vowels, but changing it to /h/ before non-front vowels. Fataluku shows a change of *w to /β/, though we note that this is an allophone of /w/ in many languages.

Table 12 gives the four clear cognate sets that we have across TAP languages for pTAP *j. We see that pTAP *j is maintained as *j in pAP, but is variably lost or maintained as *j in pTIM. It may be that differing vocalic environments in pTAP conditioned the different reflexes in pTIM, but we don't have enough

Table 9: Correspondence sets for pTAP *s

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata [1] |
|---|---|---|---|---|---|---|---|
| **initial *s** | ***s** | ***s** | **s** | **s** | **h, s**[2] | **h** | **s** |
| bone | *ser ‼ | *(se)sa(r, R) ‼ | *sesal* | – | – | – | – |
| shark | * sib(a, i)r ‼ | *supor ‼ | – | – | *su-* | *hopor(u)* | – |
| spoon | *surV ‼ | *sula | *sulu* | *sulu* | *hulu* | *hula* | *sulu* |
| weave | *sine(n) ‼ | *sina | *sien* | *sina* | *hina* | *hina* | *hina(na)* ¿ |
| new | *siba(r) ‼[3] | *(t, s)ipa(r) ‼[3] | *tip* ¿ | *sufa* | *hofar* | – | – |
| **medial *s** | ***s** | ***s** | **s** | **s** | **s** | **h** | **Ø** |
| meat | *iser ‼[4] | *seor | *sael* | *seu* | *seur* | [*leura*] ¿ | [*leura*] ¿ |
| tooth | *-uasin ‼ | *-wasin ‼ | [-(*e*)*we*] ¿ | *wasi* | *wasi* | *βahin(u)* | *wain*(*i*) |

[1] See **SchapperEtAl2012** for more instances of Oirata cognates.

[2] Makalero seems to be part-way through a sound change s > h. See **SchapperEtAl2012** for more cognates showing the variable s~h reflexes in Makalero.

[3] Cognates for these reconstructions show a relatively high degree of irregularity in both AP and TK indicating that there may have been variable realisations in not only pAP and pTIM, but also pTAP.

[4] Denotes ‘meat’ or ‘game’

Table 10: Correspondence sets for *h

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***h (*w/Ø)** | ***h** | **h** | **Ø** | **Ø** | **Ø** | **Ø** |
| fire | *hada ‼ | *haTa | *hoto* | *ata* | *ata* | *aca* | *aṭa* |
| fish | *habi ‼ | *hapi ‼ | – | *afi* | *afi* | *api* | *ahi* |
| breast | *hami | *hami ‼ | – | *ami* | – | *ami(-tapunu)* | – |
| moon | *wur | *huru | *hul* | *uru* | *uru* | *uru* | *uru* |
| tree | *tei[1] | *hate ‼ | *hotel* | *ate* | *ate* | *ete* | *ete* |

[1] The loss of initial syllable may have to do with the fact that stress was apparently based on syllable weight. See also ‘dog’ in Appendix A.1 and Holton & Robinson (this volume).

Table 11: Correspondence sets for pTAP *w

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***w**, ***u** | ***w** | **h**, **w** | **w** | **w** | **β** | **w** |
| blood | *wai | *waj | *ho* | *waj* | *wej* | *βehe* | *we* |
| coconut | *wata ‼ | *wa(t, D)a | *hoza* | *wata* | *wata* | *βaca* | *wata* |
| stone | *war | *war | *hol* | – | *war* | – | *war(aha)* |
| sun | *wadi ‼ | *waTu | *hot* | *watu* | *watu* | *βacu* | *waʈu* |
| bathe | *weli | *weru | *wer* | *waru?* | *waro?* | *βahu* | *wau* |
| ear | *-uari ‼ | *-wali | – | *wala(ku:)* | *wali* | *βali* | *wali* |
| tooth | *-uasin ‼ | *-wasin ‼ | *-(e)we* | *wasi* | *wasi* | *βahin(u)* | *wain(i)* |

understanding of the history of vowels yet to determine this. There is no direct evidence for pTIM *j, that is, no TK language still reflects the proto-phoneme as /j/, but the sound correspondences between TK languages make it differentiable form sets reflecting pTIM *h (see Table 10).

## 2.6 Reconstruction of liquids

We identify three robust liquid correspondence sets between pAP and pTIM and as such reconstruct three pTAP liquids: *r, *R, and *l.

The most robust set is that for pTAP *r, which is reflected as *r in both pAP and pTIM (Table 13). PTAP *r is only found in non-initial positions, as are its reflexes in the daughter languages pAP and pTK. Word-finally in polysyllabic words pTAP *r is particularly susceptible to sporadic loss, as is attested by the various irregular forms in Table 13. In one instance (pTAP *sibar 'new'), the occurrence of a reflex of final *r is so erratic in both primary subgroups that we perhaps must consider it already partly lost in pTAP's daughter languages.

PTAP *R is reflected in pAP as *r and in pTIM as *l. Like pTAP *r, *R does not appear in word-initial positions and is sporadically lost word-finally in polysyllabic words. The sets supporting the reconstruction of *R (Table 14) are also fewer and less robust than for pTAP *r.

The three pTIM cognates listed in Table 15 are based on Bunaq only, in which pTIM *r and *R are merged. We have thus no means of determining whether these forms are to be reconstructed to pTAP with *r or with *R.

Cognate sets for pTAP *l are relatively infrequent in both pAP and pTIM (Table 16).[1] Cognates reflecting initial pTAP *l with pAP *l and pTIM *l (i.e., 'bark', 'new place' and 'crouch') have only a low degree of certainty. Based on the data available, there also appears to be a tendency to lose pTAP initial *l in pTIM, as in 'far', 'tongue' and 'green', but a clear conditioning environment for this is not yet obvious. Word-finally in polysyllabic words, pTAP *l is regularly lost in pTIM, as in 'banana', 'bat', 'bird' and 'taboo', However, it is retained in 'walk 2' and 'six', apparently due to nasal-liquid metathesis, and in 'child' due to the loss of the item's medial syllable with *q prior to the application of the final polysyllabic deletion rule in pAP.

[1] Holton & Robinson (this volume) remark that, even though correspondences appear relatively regular for initial and medial *l in pAP, they can identify only a few cognates that are widely distributed across the AP subgroup. Similarly, **SchapperEtAl2012** caution that their reconstruction for pTIM *l cannot yet be called secure due to the small number of cognate sets identified.

Table 12: Correspondence sets for pTAP *j

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***j** | **j, Ø** | **h, Ø** | **h, Ø** | **h, Ø** | **Ø** | **Ø** |
| star | *jibV | *ipi(-bere) | *[bi]* | *ifi(-bere)* | *ifi* | *ipi(-naka)* | *ihi* |
| water | *jira | *ira | *il* | *ira* | *ira* | *ira* | *ira* |
| laugh | *jagir ‼ | *jiger ‼ | *higal* | *hi?a* | *hi?e* | *he?e ¿* | – |
| path | *jega ‼ | *jiga ‼ | *hik* | *hi?a* | *hi?a* | *i?a* | *ia(ra)* |

Table 13: Correspondence sets for pTAP *r

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***r** | ***r** | l | r | r | r | r |
| run | *tiara | *tifar | *tʃiwal* | *ditar* | *titar* | *tifar(e)* | *tipar(e)* |
| moon | *wur | *huru | *hul* | *uru* | *uru* | *uru* | *uru* |
| rat | *dur | *Dura | *zul* | *dura* | *sura* | *cura* | *ʈura* |
| stone | *war | *war | *hol* | – | *war* | – | *war(aha)* |
| vagina | *-ar | *-aru | – | *aru* | *aru* | *aru* | *aru* |
| water | *jira | *ira | *il* | *ira* | *ira* | *ira* | *ira* |
| crawl | *er ‼ | *er ‼ | *el* | – | – | *er(eke)* | – |
| dream | *hipar | *ufar(ana) ‼ | [*waen*] ¿ | *ufarena* | *ofarana* | *ufar(e)* | *upar(a)* |
| meat | *iser ‼ *seor | *sael* | [*seu*] ¿ | | *seur* | *leura* | *leura* |
| dog | *jibar ‼ | *Depar | [*zap*] ¿ | [*defa*] ¿ | sefar | ipar(u) | ihar(a) |
| bamboo | *mari | *mari | [*ma*] ¿ | *maeri* | *mar* | – | – |
| *P. indicus* | *matar ‼ | *ma(t, D)er | [*mazoʔ*] ¿ | *mater* | *mater* | *matar(ia)* | – |
| shark | *sib(a, i)r ‼ | *supor ‼ | – | – | [su] ¿ | *hopor(u)* | – |
| new | *siba(r) ‼ | *(t, s)ipa(r) ‼ | [*tip*] ¿ | [*sufa*] ¿ | *hofar* | – | – |

Table 14: Correspondence sets for pTAP *R

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***r** | ***l** | **l** | **l** | **l** | **l** | **l** |
| spoon | *surV ‼ | *sula | *sulu* | *sulu* | *hulu* | *hula* | – |
| tail | *-ora ‼ | *-ula(ʔ) | *-ulo(ʔ)* | *ula* | *ula* | *ula(fuka)* | *ula(pua)* |
| tongue | *-lebur ‼ | *-ipul | [*-up*] ¿ | [*ifi*] ¿ | *ifil* | *epul(u)* | *uhul(u)* |
| laugh | *jagir ‼ | *jiger | *higal* | [*hiʔa*] ¿ | [*hiʔa*] ¿ | [*heʔe*] ¿ | – |
| spit | *purVn ‼ | *fulu(k, n) ‼ | *puluk* | – | *fulun* | *fulun* | – |
| ear | *-uari ‼ | *-wali | – | *wala(ku:)* | *wali* | *βali* | *wali* |

Table 15: Cognate sets reconstructable to either pTAP *r or *R

| | pAP | PTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | ***r** | ***(r, R)** | **l** | – | – | – | – |
| bone | *ser ‼ | *(se)sa(r, R) ‼ | *sesal* | – | – | – | – |
| scorpion | *pVr | *fe(r, R)e ‼ | *wele* | – | – | – | – |
| rain | *anur ‼ | *ine(r, R) ‼ | *inel* | – | – | – | – |

Table 16: Correspondence sets for pTAP *l

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| | *l | *l, Ø | l (Ø) | l (Ø) | l (Ø) | l (Ø) | l (Ø) |
| bark | *lVu | *le(k)u(l) ‼ | – | *leu* | *leu* | *le?ul(e)* | *leul(e)* |
| new place | *lan ‼ | *lan ‼ | *lon* | – | – | – | – |
| crouch | *luk(V) | *luk ‼ | *lu?(-lu?)* | – | – | – | – |
| far | *lete ‼ | [*eTar] ‼ | ate | – | – | *icar* | – |
| tongue | *-lebur ‼ | [*-ipul] | -up | *ifi* | *ifil* | *epul(u)* | *uhul(u)* |
| green | *(wa)logar ‼ | [*ugar] | *ugar* | *hu?ur* | *(h)u?ur* | *u?ur(eke)* | *u?ul(e)* |
| banana | *mogol | [*mugu] ‼ | *mok* | *mu?u* | *mu?u* | *mu?u* | *mu:* |
| bat | *madel | [*maTa] ‼ | – | – | – | *maca* | *maʈa* |
| bird | *(a)dVl ‼ | [*haDa] | *hos* | *asa* | *asa* | *aca* | *asa* |
| taboo | *palol ‼ | [*falu(n)] | *por* | *falun* | *falun* | *falu* | – |
| walk 2 | *lam(ar) ‼ | *male ‼ | *mele* | – | – | – | – |
| six | *talam | *tamal ‼ | *tomol* | – | – | – | – |
| child | *-uaqal | *-al ‼ | *-ol* | – | – | – | – |

Finally, there are several cases in which the appearance of liquids in AP and TK languages can be reconciled with none of the three sets we have identified here. Table 17 lists these problematic instances (the relevant segments are bolded). These sets pointedly express that we are still a long way away from a complete understanding of liquids in pTAP.

### 2.7 Reconstruction of nasals

Two nasals can be reconstructed to pTAP, *m and *n. For the most part, they are relatively stable and unchanging in both pAP and pTIM.

Table 18 presents a selection of the many cognate sets for pTAP *m. In word-initial position, pTAP *m corresponds unproblematically to pAP *m and pTIM *m. Identifying non-initial instances of pTAP *m is somewhat more difficult, with *hami 'breast' being the only straightforward case. Word-final *m in pAP has only non-final reflexes in pTIM, apparently because, as in the modern TK languages, word-final *m was not permitted. This issue is resolved in pTIM through metathesis of the nasal out of the final position, as in 'sea' and 'six'. Other instances of medial pTIM *m correspond to root-initial *m in pAP (as in 'garden' and 'die').

Table 19 presents the many cognate sets for pTAP *n. Initial and medial correspondences are abundant, but final correspondences are difficult to identify. pTIM *n did not appear to occur in final position; all instances of pAP final *n are either followed by a vowel or are lost in pTIM.

## 3 Summary of correspondences and reconstructed phonemes

For the first time since the start of TAP studies some sixty years ago (see Schapper and Huber forthcoming for a historical perspective on TAP studies), we have rigorously shown in this chapter that the TAP languages form a family: the regularity of sound correspondences in cognate vocabulary demonstrates that the AP and TK Papuan languages are indeed genetically related to one another.

In Table 20, we provide an overview of the consonant correspondences we observed in cognate vocabulary between pAP and pTIM and their reconstruction in their ancestral language pTAP. In this table, we indicate whether the correspondence applies in initial (#_ ), medial (V_V), or final ( _#) position. An empty slot means that there is no particular conditioning environment for the correspondence. The symbol 'Ø' in a column indicates that a pTAP sound is lost in the

Table 17: Problematic liquid cognate sets

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| price | *bol ‼ | *bura | ***bol*** | ***bura*** | ***pura*** | ***pura*** | ***hura*** |
| bathe | *weli | *weru | ***wer*** | ***waru****?* | ***waro****?* | *vahu ¿* | *wau ¿* |
| garden | *magad(a) | *(u, a)mar | ***mar*** | *[ama]* | *[ama]* | – | *[uma]* |
| green | *(wa)log**ar** ‼ | *ugar | ***ugar*** | ***(h)u?ur*** | ***(h)u?ur*** | ***u?ur****(eke)* | ***u?ul****(e) ¿* |
| Taboo | *palol ‼ | *falu(n) | ***por*** | ***falun*** | ***falun*** | ***falu*** | – |

Table 18: Correspondence sets for pTAP *m

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| **initial *m** | ***m** | ***m** | **m** | **m** | **m** | **m** | **m** |
| bamboo | *mari | *mari | *ma* | *maeri* | *mar* | – | – |
| banana | *mogol | *mugu ‼ | *mok* | *muʔu* | *muʔu* | *muʔu* | *mu:* |
| sit | *mis | *mit | *mit* | *mit~mi* | *mit* | *(i)mir(e)* | *mir(e)* |
| bat | *madel | *maTa ‼ | – | – | – | *maca* | *maṭa* |
| inside | *mi | *mi | mi(l) | mu(tu) | mu(tu-) | mu(cu) | mu(ʈu) |
| hear | *magi ‼ | *mage(n) ‼ | mak | maʔen | maʔen | – | – |
| **non-initial *m** | ***m** | ***m** | m | m | m | m | m |
| breast | *hami | *hami ‼ | – | *ami* | – | *ami(-tapunu)* | – |
| sea | *tam | *mata | *mo* | – | – | *mata* | *mata* |
| six | *talam | *tamal ‼ | *tomol* | – | – | – | – |
| garden | *magad(a) | *(u, a)mar ‼ | *mar* | *ama* | *ama* | – | *uma* |
| die | *min(a) | *-umV | *-ume* | *umu* | *(k)umu* | *umu* | *umu* |
| nose | *-mim | *-muni ‼ | [*-inup*] ¿ | *muni(kai)* | *mini* | *mini(ku)* | – |

Table 19: Correspondence sets for *n

| | pAP | pTIM | Bunaq | Makasae | Makalero | Fataluku | Oirata |
|---|---|---|---|---|---|---|---|
| **initial *n** | ***n** | ***n** | **n** | **n** | **n** | **n** | **n** |
| stand | *nate(r) ‼ | *nat | *net* | *nat~na* | *nat* | *(a)nat(e)* | *nat(e)* |
| 1SG | *na- | *n- ‼ | *n-* | – | – | – | – |
| eat | *nai | *nua ‼ | *[a~-ia]* | *nawa* | *nua* | *una, naβa* | *una, nawa* |
| one | *nuk | *uneki ‼ | *uen, en* | *[u]* | *[u]~un* | *ukani* | *aʔuni* |
| **non-initial *n** | ***n** | ***n** | **n** | **n** | **n** | **n** | **n** |
| face | *-pona ‼ | *-fanu ‼ | *-(e)wen* | *fanu* | *fanu* | *fanu* | *panu* |
| ripe | *tena ‼ | *tena ‼ | *ten* | *tina* | *tina* | – | – |
| name | *-en(i, u) ‼ | *-nej | *-ini(l)* | *naj* | *nej* | *ne* | *ne:(ne)* |
| give | *-ena | *-inV | *-ini* | *(g)ini* | *(k-)ini* | *ina* | *ina* |
| wake | *-ten | *Tani | *otin* | *tane* | *tane* | *tani~cani* | – |
| girl | *pon ‼ | *fana | *pana* | *fana(rae)* | *fana(r)* | *fana(r)* | *pana(rai)* |
| person | *anin ‼ | *anu ‼ | *en* | *anu* | *anu* | – | – |
| other | *aben(VC) ‼ | *epi ‼ | *[ewi]* | – | – | – | – |

Table 20: no caption

| pTAP | environment | pAP | pTIM |
|---|---|---|---|
| *p | | *p | *f |
| *b | #_ | *b | *b |
| | V_V | *b | *p |
| *t | #_ | *t | *t |
| | V_V, _# | *t, *s | *t |
| *d | #_ | *d | *D |
| | V_V | *d | *T |
| *k | | *k | *k |
| *g | | *g | *g |
| *s | | *s | *s |
| *h | | *h (*w/Ø) | *h |
| *w | | *w, *u | *w |
| *j | | *j | *j, Ø |
| *r | | *r | *r |
| *R | | *r | *l |
| *l | | *l | *l, Ø |
| *m | | *m | *m |
| *n | | *n | *n |

daughter language in question.

## 4 Discussion

Whilst we have been able to show clearly that AP and TK languages are related to one another, the comparative data presented here draws into question a number of aspects of the existing reconstructions of pAP and pTIM and necessitates revisions to these. In this final section, we will draw attention to the issues, provide a general discussion of them and suggest some possible solutions to them.

A major issue for the current pAP reconstruction is the apparent invalidity of many word- final consonant reconstructions. It is argued in Holton et al. (2012: 95) that the gemination of medial stops in modern Western Pantar can be used as a diagnostic for determining whether a given pAP root was consonant-final or

vowel-final. Specifically, the authors claim that geminate medial stops in modern Western Pantar reflect pAP medial stops, whereas non-geminate medial stops in Western Pantar reflect an original consonant-final form, or perhaps a borrowing from another AP language. However, this argument cannot be sustained on closer inspection of the comparative evidence. Consider the items in Table 21 that are reconstructed as basically consonant final in pAP, because of the lack of stop gemination in WP. In each case, we have between three and nine reflexes in modern AP languages with a V(C) following the supposed historically final consonant. We must ask ourselves where so many additional final segments came from in so many of these languages. Holton et al. (2012) seek to explain these appearances with vowel epenthesis. Yet, under this scenario, we would expect to be able to predict the type of the epenthetic vowel from the shape of the root, but this is not the case; instead, the epenthetic vowels are of all different values from one item to the next and bear no apparent relationship to the vowel of the root (as defined by Holton et al. 2012). What is more, the final V(C) elements we observe in AP languages are not erratic, rather they in general adhere to correspondences observed elsewhere. This suggests that these final V(C) elements were not epenthetic to the items after the break-up of pAP, but have been inherited from pAP. This is further supported by the fact that we find clearly corresponding V(C) segments on cognate vocabulary in TK languages, meaning that the segments reconstruct to pTAP and that they were inherited into pAP. The alternative leaves us without explanation for the cognacy of the final segments in these (and other items) across the family.

The problem then is how to explain medial geminate and non-geminate stops in WP. One answer would to be maintain that the difference in stop gemination was still due to a final- non-final distinction. For example, it could be said that the loss of the final vowel occurred after the breakup of pAP but prior to the application of the gemination rule. This cannot, however, be fully sustained as WP has in some cases final vowels which clearly reflect pTAP and pAP (e.g., 'tongue'). A more attractive explanation is presented by stress-induced gemination. Although little is known about the historical prosody of TAP, it seems a good possibility that WP gemination may have been a result of final stress. That is, we suggest roots of the shape /(C)V'CV(C)/ surfaced as [(C)V'C:V(C)], while roots of the shape /'(C)VCV(C)/ surfaced as ['(C)VCV(C)]. While this scenario remains to be confirmed by a more detailed study, discarding the final/non-final explanation for geminates in WP allows for a more satisfactory account of final segments in TAP.

A second issue for the pAP reconstruction is the presence of many unexplained

Table 21: Dubious consonant-final reconstructions in AP and beyond

| | ‘fish’ | ‘sun’ | ‘fire’ | ‘coconut’ | ‘tongue’ | ‘ripe’ |
|---|---|---|---|---|---|---|
| pTAP | ***habi** | ***wad(u, i)** | ***hadi** | ***wata** | ***(l)ebur** | ***tena** |
| pTIM | *hapi | *waTu | *haTa | *wa(t, D)a | *-ipul | *tena |
| pAP original | *hab(i) | *wad(i) | *had(a) | *wat(a) | *-leb(ur) | *ten |
| Teiwa | *ħaɸ* | *war* | *ħar* | *wat* | *-livi* | *tanan* |
| Nedebang | *a:fi* | *(get)* | *ar* | *wata* | *-lefu* | – |
| Kaera | *ab* | *wer* | *ad* | *wat* | *-leb* | *ten* |
| WPantar | *hap* | *wer* | *a:d* | *wata* | *-lebu* | *taŋ* |
| Blagar | *a:b* | *war* | – | *vet* | *-lebul* | *tena* |
| Adang | *a:b* | *ved* | | *fa?* | *-lib(uŋ)* | *tene* |
| Klon | *əbi* | *fɛd* | *əda* | – | *-lɛb* | *ətɛn* |
| Kui | *eb* | – | *ar* | *bat* | *-liber* | *tain* |
| Abui | *afu* | *wari* | *ara* | *wata* | *-lifi* | – |
| Kamang | *api* | *wati* | *ati* | *wate* | *-opui*[1] | *iten~iton* |
| Sawila | *api* | *wadi* | *ada* | *wata* | *-li(m)puru* | *iti:na* |
| Wersing | *api* | *widi* | *ada* | *wata* | *-jebur* | – |

[1] Holton et al. (2012) state that these and other Kamang forms missing pAP *l medially are irregular. However, pAP *l is regularly lost in Kamang between non-front vowels, e.g., pAP *talam ‘six’ > Kamang *ta:m*, pAP *palol ‘taboo’> Kamang *fo:i* etc. The vowel of the inalienable possessive prefix is /a/, thus providing the right environment for the loss in *-opui* ‘tongue’ of the root-initial /l/.

Table 22: Velar and post-velar phonemes in TAP languages

| | Teiwa | | | |
|---|---|---|---|---|
| | velar | uvular | pharyngeal | glottal |
| plosive | k g | q | | ʔ |
| fricative | | | ħ | h |

| | Kamang | | Bunaq | |
|---|---|---|---|---|
| | velar | glottal | velar | glottal |
| plosive | k g | (ʔ) | k g | ʔ |
| fricative | | (h) | | h |

phonemes in a range of environments in different languages. Velars, post-velar and laryngeal consonants are a case in point. Most of the complexity in this domain is found in the languages of Pantar and the Pantar Straits, whose phoneme inventories generally include not only velar and glottal stops, but also uvular ones, as well as a velar or pharyngeal fricative next to the glottal fricative /h/. This contrasts with the situation as found in most of Alor and the TK languages, which tend to be rather simpler. Table 22 exemplifies the velar and post-velar plosives and fricatives in a language of Pantar (Teiwa), Alor (Kamang), and Timor (Bunaq).

The existing pAP reconstruction leaves a significant part of the complexity in the (post-)velar domain in the Pantar languages unexplained; for instance, it does not account for /g/ in Blagar and the relation between the various (post-)velar phonemes such as /q/ and /x/ found in different dialects of Blagar.[2] It also does not explain the origin of /ʔ/ in languages other than Blagar and Adang, and does not give reflexes for pAP medial *k in Teiwa and pAP final *k in Sawila, leaving the field in question blank in the table summarising the correspondences (Holton & Robinson this volume). Finally, note a variety of irregularities in the reconstructions involving velars in Appendix 1, especially in the Pantar languages. In short, the frequency of irregularities and unexplained occurrences of (post-)velar phonemes shows how limited our understanding of this domain in AP still is, and serves as a reminder that much more extensive reconstruction work needs to be

[2] See **Steinhauer1995**

undertaken.

A similar issue is presented by the phonemic velar nasal /ŋ/ in many AP languages. This phoneme is not reconstructed for pAP, and is also absent in all of the TK languages. According to Holton & Robinson (this volume), pAP *n became /ŋ/ in word-final position in all AP languages except Teiwa, where it was retained as /n/. This historical scenario does work well for some languages, for instance, Wersing, where [ŋ] is synchronically a word-final allophone of /n/. However, in other languages, questions remain. For instance, Kamang has an unexplained contrast between /ŋ/ and /n/ in codas (e.g., *eeŋ* '2SG.POSS' versus *een* '2SG.FOC'). Similarly, the existence of /ŋ/ in coda and medial position in Teiwa is unexplained, as well as the occurrence of /ŋ/ in other positions than the final one in various languages (e.g. Sar *laŋja* 'digging stick' and Kula *ŋapa* 'father').

Vowels also present a major challenge to the reconstruction of the ancestral TAP language. The various vowel systems as illustrated in Table 23 are yet to be historically reconciled with one another. Most AP languages have a length distinction in their vowels: the most common system is 5 short and 5 long cardinal vowels (Kaera, Blagar, Abui and Kamang), though matching long vowels may be missing in the mid-vowel range (Teiwa and Klon). Blagar has a marginal length distinction with only a small number of items occurring with long vowels (Steinhauer forthcoming), while it is Klon's short mid-vowels that are marginal. A length distinction is entirely absent from WP's and Wersing's five vowel system and Adang's seven vowel system. A relationship, if any, between the mid-vowels in Adang and length distinctions in other languages remains to be established. Non-cardinal vowels are found in Sawila /y, y:/ and in Klon /ə/. TK languages all have simple five cardinal vowels and there is a marginal length distinction in only one language, Makalero. Stress in conjunction with length appears to have played an important role in vowel histories. For instance, Klon /ə/ seems to originate in a short, unstressed pAP *a (e.g., Klon *əbi* appears to go back to pAP *ha'bi 'fish'). In Wersing, historically short unstressed vowels are lost in words with long vowels, which in turn become short stressed vowels (e.g., Wersing *tlam* appears to go back to pAP *tala:m 'six', cf. Abui *tala:ma*). In short, much careful bottom-up reconstructive work needs to be done in order to reconcile these different systems to a single ancestral system.

In sum, with the positive establishment of the relatedness of the Papuan languages scattered across the islands of Timor, Kisar, Alor, Pantar and the Pantar Straits, a start has been made towards a history of the TAP languages. However, we are still a long way off a complete and nuanced understanding of the family and its development (cf. Schapper and Huber's (forthcoming) statement

Table 23: TAP vowel systems

| Western Pantar | Teiwa |
|---|---|
| i u | i i: u u: |
| e o | e o |
| a | a a: |
| **Kaera** | **Blagar** |
| i i: u u: | i i: u u: |
| e e: o o: | e e: o o: |
| a a: | a a: |
| **Adang** | **Klon** |
| i u | i i: u u: |
| e o | e o o: |
| ɛ ɔ | ɛ ɛ: ə ɔ |
| a | a a: |
| **Abui** | **Kamang** |
| i i: u u: | i i: u u: |
| e e: o o: | e e: o o: |
| a a: | a a: |
| **Sawila** | **Wersing** |
| i i: y y: u u: | i u |
| e e: o o: | e o |
| a a: | a |
| **Bunaq** | **Makalero** |
| i u | i u |
| e o | e o |
| a | a |

The data in these tables are from **Holtontawesternpantar** for Western Pantar, Klamer (2010) for Teiwa, **Klamertakaera** for Kaera, **Steinhauerta** for Blagar, **Haan2001** for Adang, Baird (2008) for Klon, Kratochvíl (2007) for Abui, **Schapperndb** for Kamang, **Kratochvilta** for Sawila, **SchapperEtAltawersing** for Wersing, Schapper (2010) for Bunaq, and **Huber2011** for Makalero.

of prospective research questions). It will be the task of future reconstructive historical work to definitively solve remaining issues in the comparative data.

## Sources

| | |
|---|---|
| Abui (Abu) | Kratochvíl 2007, Kratochvíl and Delpada 2008, Schapper fieldnotes 2010 |
| Adang (Adg) | Robinson fieldnotes 2010 |
| Blagar (Blg) | Robinson fieldnotes 2010 |
| Bunaq (Lamaknen) | Schapper n.d. a, Schapper 2010 |
| Deing (Dei) | Robinson fieldnotes 2010 |
| Fataluku | Fataluku online dictionary[3], van Engelenhoven fieldnotes |
| Hamap (Hmp) | Robinson fieldnotes 2010 |
| Kamang (Kmg) | Schapper n.d. b, Schapper and Manimau 2011 |
| Kabola (Kab) | Robinson fieldnotes 2010 |
| Kaera (Kae) | Klamer Kaera corpus 2005-2007 |
| Kafoa (Kaf) | Baird fieldnotes 2003 |
| Klon (Kln) | Baird fieldnotes 2003 |
| Kui (Kui) | Holton fieldnotes 2010 |
| Kula (Kul) | Holton fieldnotes 2010, Nicholas Williams p.c. 2011 |
| Makalero | Huber 2011, Huber fieldnotes 2007-2013 |
| Makasae | Brotherson 2003, Carr 2004, Huber 2008, Huber fieldnotes 2005, 2012-2013, Language Documentation Training Center of the University of Hawaii[4] |
| Nedebang (Ned) | Robinson fieldnotes 2010 |
| Oirata | Josselin de Jong 1937, van Engelenhoven fieldnotes |
| Reta (Ret) | Robinson fieldnotes 2010 |
| Sar (Sar) | Robinson fieldnotes 2010 |
| Sawila (Swl) | Kratochvíl n.d. |
| Teiwa (Tew) | Klamer Teiwa corpus, Klamer and Sir 2011, Robinson fieldnotes 2010 |
| Wersing (Wer) | Schapper and Hendery fieldnotes 2012, Holton fieldnotes 2010 |
| Western Pantar (WP) | Holton and Lamma Koly 2008, Holton fieldnotes 2010 |

[3] Online at www.fataluku.com

[4] Online at http://www.ling.hawaii.edu/ldtc/languages/makasae_fatum/ and

The orthographic conventions used in the Appendices are the following: '~' joins morphological variants of the same lexeme. In Appendix I and Appendix II, material given in round brackets '( )' represents fossilized morphology or other unetymological material. In Appendix III, round brackets indicate that a given phoneme cannot be reconstructed with abosolute certainty. Furthermore, 'N' is used to represent an unspecified nasal; 'L' an unspecified liquid, and 'Q' a putative postvelar stop for which we have only very weak evidence. An empty slot in the pTAP column means that the reconstructed pAP and pTIM forms, although clearly cognate, are too different to allow for a secure pTAP reconstruction.

## Abbreviations

| | |
|---|---|
| 1 | 1st person |
| 2 | 2nd person |
| 3 | 3rd person |
| ALIEN | alienable |
| AP | Alor-Pantar |
| FOC | focus |
| INAL | inalienable |
| LOW | refers to any location down(ward of) the deictic centre |
| PAP | proto-Alor-Pantar |
| PL | plural |
| POSS | possessive |
| PTAP | proto-Timor Alor Pantar |
| PTIM | proto-Timor |
| PTK | proto-Timor Kisar |
| SG | singular |
| TAP | Timor Alor Pantar |
| TK | Timor Kisar |
| WP | Western Pantar |

http://www.ling.hawaii.edu/ldtc/languages/makasae_osor/.

# A Appendix

## A.1 Data supporting the additional pAP reconstructions

| **gloss** | bark | bird | bite | bone | clew, stone circle[3] | coconut |
|---|---|---|---|---|---|---|
| **pAP original** | – | *dVl | – | – | – | *wat(a) |
| **pAP new** | *lVu | *(a)dVl | *(ta)ki | *ser | *maita | *wata |
| Sar | – | *dal* | – | – | – | *wat* |
| Dei | – | *dal* | – | – | – | *wat* |
| Tew | – | *dai* | – | – | – | *wat* |
| Ned | – | *daya* | – | – | – | *wata* |
| Kae | – | – | – | – | – | *wat* |
| WP | *lau* | – | – | – | – | *hatua* |
| Blg | *olovi* | – | *(ga)ki* | – | – | *vet* |
| Ret | *lu* | – | *ki(-ki)* | – | – | *vat* |
| Adg | *lowo?* | – | – | – | – | *fa?* |
| Hmp | – | – | – | – | – | – |
| Kab | *olowo* | – | – | – | – | *wa?* |
| Kui | – | *adol* | – | – | – | *bat* |
| Kaf | – | – | – | – | – | – |
| Kln | – | – | – | – | – | – |
| Abu | *lou* | – | *(ta)kai* | – | *masaŋ ¿*[4] | *wata* |
| Kmg | – | *atul* | *ka(te)*[1] | *sɛl ¿*[2] | *maita* | – |
| Kul | *leloja* | – | – | *(gi)saja* | – | *g$^{w}$ata* |
| Swl | – | *adala* | – | *sara* | – | *wata* |
| Wer | *aloi* | *adol* | *(mi)kik* | *(ge)seri* | – | *wata* |

[1] Metathesised form; denotes ‘eat’. [2] Kamang normally reflects pAP *r as as i in final position. [3] See **Rodemeier1992** on clews in Alor. [4] Abui normally reflects pAP *t as t. [5] This reconstruction must be viewed as tentative, since Kabola does not make part of the existing pAP reconstruction. [6] Note the loss of the initial syllable in several of the daughter languages. According to Holton et al. (2012) and Holton & Robinson (this volume), this has to do with stress being based on syllable weight. The heavy *bar syllable attracts stress, which leads to the loss of the initial syllable. A similar case is, possibly, pAP *tei ‘tree’.

| **gloss** | crawl | die | dirty | dog | ear |
|---|---|---|---|---|---|
| **pAP original** | – | *minV | – | – | *-uar(i) |
| **pAP new** | *er | *min(a) | *karok[5] | *jibar[6] | *-uari |
| Sar | – | *min* | – | *jifar* | – |
| Dei | – | *miŋ* | – | *jewar* | *-war* |
| Tew | – | *min* | – | *jifar* | *-uar* |
| Ned | – | *minːa* | – | *bar* | *-ow* |
| Kae | – | *min* | – | *ibar* | *-uar* |
| WP | – | – | – | *jabːe* | *-ue* |
| Blg | – | *(i)mina* | – | *jabar* | *-veli* |
| Ret | – | *(a)mina* | – | *jobal* | – |
| Adg | – | *miniʔ* | *karoʔo* | *bel* | – |
| Hmp | – | *min* | – | *bøl* | – |
| Kab | – | *mini* | *(na)karoʔo* | *bel* | – |
| Kui | – | *min* | – | – | *-uel* |
| Kaf | – | *(i)mon* | – | – | – |
| Kln | – | – | – | – | *-uɛr* |
| Abu | – | *moŋ* | – | – | *-uei* |
| Kmg | *eei~eel* | – | – | – | *-uai* |
| Kul | – | – | – | – | – |
| Swl | – | – | – | – | *uari* |
| Wer | *er* | – | – | – | *-ueri* |

[1] This is a reciprocal term. The reflexes in the modern languages denote either 'grandparent' or 'grandchild'. [2] Semantic shift to 'child'. [3] Denotes 'grandchild'. [4] Denotes 'grandparent'. [5] While clearly cognate, the forms in this set show a variety of unexpected or irregular sound changes: Teiwa, Nedebang and Kaera normally reflect pAP *l as l in initial and medial position, rather than j; Teiwa and Nedebang normally reflect pAP *g as ɦ and x, respectively, in medial position, rather than g; pAP *g is normally reflected as g in Klon and j in Sawila; and finally, initial h in Western Pantar is usually a reflex of pAP *h, rather than *w. The pAP reconstruction must thus be seen as somewhat tentative.

| **gloss** | face | far | fire | fish | flat |
|---|---|---|---|---|---|
| **pAP original** | – | – | *had(a) | *hab(i) | – |
| **pAP new** | *-pona | *lete | *hada | *habi | *tatok |
| Sar | – | – | – | – | – |
| Dei | – | – | – | – | – |
| Tew | – | – | *ħar* | *ħaf* | – |
| Ned | – | – | *ar* | *a:fi* | – |
| Kae | – | – | *ad* | *ab* | – |
| WP | – | – | – | *hap* | – |
| Blg | – | – | *a:d* | *a:b* | – |
| Ret | – | – | – | – | – |
| Adg | – | – | – | *a:b* | – |
| Hmp | – | – | – | – | – |
| Kab | – | – | – | – | – |
| Kui | – | – | *ar* | *eb* | – |
| Kaf | – | – | – | – | – |
| Kln | – | – | *əda* | *əbi* | – |
| Abu | *-poŋ* | – | *ara* | *afu* | – |
| Kmg | *-funa:* | *letei* | *ati* | *api* | *tatok* |
| Kul | – | – | – | – | – |
| Swl | – | – | *ada* | *api* | – |
| Wer | – | – | *ada* | *api* | – |

[1] Holton et al. (2012) reconstruct *jari for 'laugh'. We revise this form on the basis of the clear presence of a medial velar in the reflexes of many AP languages. Note, however, the irregular loss of reflexes of pAP *g in Western Pantar, Kui, Sawila and Wersing. [2] See **SchapperTVelevation** for details on this reconstruction. [3] The reflexes of this form denote 'game' or 'meat'. Note that there are several irregularities in this set: Adang normally reflects pAP *r as l, rather than r; and Sawila and Wersing normally reflect *s as t, rather than s. [4] Abui normally reflects pAP *b as f, rather than b, and pAP *b is usually reflected in Kamang as p, rather than b. [5] Denotes 'coast'. The relationship between the two senses is explained by the typical settlement patterns in the region: older settlements are located in high places, often on top of knolls or ridges, whilst newer settlements are downhill towards the coast.

| **gloss** | girl | grandparent<br>grandchild | green | hear | itchy |
|---|---|---|---|---|---|
| **pAP original** | – | – | – | – | – |
| **pAP new** | *pon | *tam(a, u)[1] | *(wa)logar[5] | *magi | *(i)ruk |
| Sar | – | – | *logar* | – | – |
| Dei | – | – | *alogur* | – | – |
| Tew | – | – | *ajogar ¿* | – | – |
| Ned | – | – | *aejaga ¿* | – | – |
| Kae | – | – | *ojogi ¿* | – | – |
| WP | – | – | *haluaga* | – | – |
| Blg | – | – | – | *mɛʔɛ* | – |
| Ret | – | – | – | – | – |
| Adg | – | – | – | *maʔeh* | – |
| Hmp | – | – | – | – | – |
| Kab | – | – | – | *meʔehe* | – |
| Kui | – | – | – | *magi* | *rok* |
| Kaf | – | – | – | – | – |
| Kln | – | – | *wəwɛlɛŋ ¿* | *məgih* | – |
| Abu | – | – | *walaŋaj* | *mahi* | *jokuŋ* |
| Kmg | *fon* | *dum*[2] | – | *-mai* | *jokuŋ* |
| Kul | – | *atamu*[3] | *walaŋka* | *magin* | *joka* |
| Swl | – | *(ga)ta:mu*[3] | *walaŋara ¿* | *maji:ŋ* | – |
| Wer | – | *(ne)tamu*[4] | *walar* | – | *iruk* |

| **gloss** | laugh | leg | LOW | meat | mountain | name |
|---|---|---|---|---|---|---|
| **pAP original** | *jari | – | – | – | – | *-ain(i, u) |
| **pAP new** | *jagir[1] | *-bat | *po[2] | *iser[3] | *buku | *-en(i, u) |
| Sar | *jehar* | *-fat* | – | – | – | – |
| Dei | *jaxar* | *-wat* | – | – | – | – |
| Tew | *jəħar* | *-fat* | – | – | – | – |
| Ned | *gela* | – | – | – | – | *-einu* |
| Kae | *agar* | *at* | – | – | *buku:* | *-en* |
| WP | *jali ¿* | – | – | – | – | *-in:u* |
| Blg | *iriga* | – | *po* | – | *buku* | *-ene* |
| Ret | *agala* | – | – | – | – | – |
| Adg | – | – | *pɔ* | *hiri ¿* | – | *-aniŋ* |
| Hmp | – | – | – | *(ma)hil* | – | *anɛ* |
| Kab | *ja:la* | – | – | – | – | – |
| Kui | *jeri ¿* | – | – | *Is* | – | *-enei* |
| Kaf | – | – | – | *(ma)he:l* | – | *-nɛi* |
| Kln | *əgar* | – | – | *(mə)hɛl* | – | *-ənɛʔ* |
| Abu | – | – | *pa* | *mahitiŋ* | *buku ¿*[4] | *-ane* |
| Kmg | – | – | *fe* | *isei* | *buk ¿*[4] | *-nei* |
| Kul | *geja* | – | – | – | – | – |
| Swl | *jara ¿* | – | – | *isi ¿* | – | *-ani* |
| Wer | *jer ¿* | – | – | *(ge)is ¿* | – | – |

| **gloss** | new | new place | other | path | person |
|---|---|---|---|---|---|
| **pAP original** | *siba | – | – | – | – |
| **pAP new** | *siba(r) | *lan | *abenVC | *jega[1] | *anin |
| Sar | – | – | – | – | – |
| Dei | *sib* | – | – | – | – |
| Tew | *sib* | – | – | – | – |
| Ned | *sava(ʔa)* | – | – | *ji:ja ¿* | – |
| Kae | *sib-* | – | *baniŋ* | – | – |
| WP | *sab:a* | – | – | *ja ¿* | – |
| Blg | *hiba* | – | *abeuŋ~ebeuŋ* | *iga ¿* | – |
| Ret | *haba* | – | – | *viag* | – |
| Adg | *habar* | – | – | *seʔ* | – |
| Hmp | *habar* | – | – | *seʔ* | – |
| Kab | – | – | – | *jeʔ* | – |
| Kui | *saba* | – | *abaŋan* | – | *anin(ou)* |
| Kaf | *hifa* | – | *afenaj* | *ʔijɛ* | – |
| Kln | *həba:* | – | *ebeŋ* | *ɛgɛʔ* | *anɪn(ok)* |
| Abu | *tɪfa* | – | – | – | – |
| Kmg | *supa(ka)* | *laŋ* | – | – | – |
| Kul | *tupa* | – | – | – | *aniŋ(na)* |
| Swl | *tipea* | *la:ŋ*[5] | – | – | *aniŋ(ka:)* |
| Wer | *təpa* | *laŋ*[5] | – | – | *aniŋ* |

| **gloss** | price | *P. indicus* [4] | rain | ripe | scratch |
|---|---|---|---|---|---|
| **pAP original** | – | – | – | *ten | – |
| **pAP new** | *bol[2] | *matar | *anur | *tena | *karab |
| Sar | – | – | – | – | *kəra:b* |
| Dei | – | – | – | *ten:aŋ* | *krab* |
| Tew | – | – | – | – | – |
| Ned | – | – | – | *tanan* | *(ki)kar ¿*[5] |
| Kae | – | – | – | *ten-* | *krabis ¿*[6] |
| WP | – | *mat:e* | – | *taŋ* | *karasi ¿*[7] |
| Blg | – | – | *onor* | *tena* | – |
| Ret | *(ta)ɓeli*[3] | – | – | – | – |
| Adg | – | – | *nui* | *tene* | – |
| Hmp | – | – | – | *tɛn* | – |
| Kab | *(ʔo)wol*[3] | – | *nui* | *tenaŋ* | – |
| Kui | – | – | *anor* | *tain* | *ukuberi* |
| Kaf | – | – | – | – | *ukafi* |
| Kln | – | *mtar* | – | *ətɛn* | *kərɔb* |
| Abu | *(he)bel*[3] | *mitai* | *anui* | – | *kafi* |
| Kmg | *bol*[3] | – | – | *iten~iton* | – |
| Kul | – | – | – | – | *kapi* |
| Swl | – | *mata:ri* | – | *iti:na* | *kapari* |
| Wer | – | – | – | – | *kəpir* |

[1] There are a number of irregularities in this set: Nedebang normally reflects medial *g as x, Western Pantar as g:, and Blagar as either Ø or ʔ. [2] This root is likely an Austronesian loan: PMP *bəli 'price', bride price'. [3] Denotes 'bride price'. [4] New Guinea rosewood (Petrocapus indicus), typically referred to in eastern Malay as *kayu merah.* [5] Note the irregular loss of the final syllable. [6] Semantic shift to 'claw'. Also, note the unetymological s, present in both Kaera and Western Pantar. [7] While this form is very likely related, it includes several irregularities: the expected reflex of pAP *r in medial position is l in Western Pantar; there is no reflex of pAP *b, which is normally reflected as b; and there is an unetymological s. [8] Blagar normally reflects pAP *s as h in word-initial position. [9] This set shows a variety of irregularities: Adang normally reflects pAP *r as l or I, rather than r; pAP *r is normally reflected as i in final position in both Abui and Kamang; and Wersing normally reflects pAP *s as t, rather than s.

| **gloss** | shark | spit | spoon | stand | sugarcane |
|---|---|---|---|---|---|
| **pAP original** | – | *purVN | – | – | *u:b |
| **pAP new** | *sib(a, i)r | *purVn | *surV[9] | *nate(r)[1] | *hu:ba |
| Sar | *sifir* | – | – | – | – |
| Dei | *sib:ir* | – | – | – | – |
| Tew | *sifar* | *puran* | – | – | – |
| Ned | – | – | – | – | *u:fa* |
| Kae | *sibar* | *puraŋ* | – | – | *u:b* |
| WP | *sib:u* | – | – | *natar ¿*[2] | – |
| Blg | *sibir*[8] | *puruŋ* | – | – | *ub* |
| Ret | *hibil* | *puruŋ* | – | – | *juwab* |
| Adg | – | – | *hur* | – | *so:b* |
| Hmp | – | – | – | – | – |
| Kab | – | *paraŋ* | – | – | *job* |
| Kui | *sobor* | *puriŋ* | – | – | *u:b* |
| Kaf | – | – | – | *natei* | – |
| Kln | – | *pərʊin* | – | – | – |
| Abu | – | *puina* | *tur* | *nate* | *fa* |
| Kmg | – | – | *su:t* | – | – |
| Kul | – | – | – | – | *pʷa* |
| Swl | – | – | – | – | – |
| Wer | – | – | *sire* | – | *upa* |

| **gloss** | sun | taboo | tail | tongue | tooth |
|---|---|---|---|---|---|
| **pAP original** | *wad(i) | – | *-or | *-leb(ur) | *-uas |
| **pAP new** | *wadi | *palol | *-ora | *-lebur | *-uasin |
| Sar | *war* | – | *-or* | – | – |
| Dei | – | – | *-or* | – | – |
| Tew | *war (get)* | – | *-or* | *-livi* | *-usan* |
| Ned | *weri* | – | *-ola* | *-lefu* | *-usiŋ* |
| Kae | *wer* | – | *-or* | *-leːb* | *-uasiŋ* |
| WP | *war* | – | – | *-lebu* | *-wasiŋ* |
| Blg | *ved* | – | *ora* | *-dʒebur* | *-veŋ* |
| Ret | *vid* | – | | *-lebul* | – |
| Adg | *fɛd* | – | *oloʔ* | *-lɛb* | *-wɛhɛŋ* |
| Hmp | *fød* | – | *ol* | – | *-fiʔiŋ* |
| Kab | *wer* | – | *ʔol* | *-leb* | – |
| Kui | *ber* | – | *-or* | *-liber* | *-wes* |
| Kaf | *uru* | – | – | *-lip* | *-wehеŋ* |
| Kln | – | – | *-or* | *-lɛb* | *-wɛh* |
| Abu | *wari* | *palol* | – | *-lifi* | *-weiti* |
| Kmg | *wati* | *foːi* | *-(w)ui* | *-opei* | *-weh* |
| Kul | *wad* | – | – | *ilɪp* | – |
| Swl | *wadi* | – | *-(w)oːra* | – | *-wa* |
| Wer | *widi* | – | *wori* | *-jebur* | *-wesi* |

[1] There is a competing and morphologically unrelated form *tas ‘stand’, which is more widely distributed across modern AP languages (see Holton & Robinson this volume). [2] Western Pantar normally reflects pAP *r as Ø in word-final position. [3] This root is possibly an Austronesian loan: PMP *lakaj ‘stride, take a step’. [4] Kamang normally reflects pAP *k as k. [5] Semantic shift to ‘follow’. [6] Kaera normally reflects pAP *l as l in word-initial position.

| **gloss** | walk 1 | walk 2 | weave | yellow |
|---|---|---|---|---|
| **pAP original** | – | – | – | – |
| **pAP new** | *laka[3] | *lam(ar) | *sine(N) | *bagori |
| Sar | – | – | – | *bahar* |
| Dei | – | – | – | *bug* |
| Tew | – | *lam*[5] | – | *baħari* |
| Ned | – | – | – | *baxori* |
| Kae | – | *amar ¿*[6] | – | *bagari* |
| WP | – | *lama* | *sinːaŋ* | *bugːa* |
| Blg | – | *lamar* | – | *bagori ¿* [1] |
| Ret | – | *lamal* | – | *bagori* |
| Adg | – | *lami* | – | *baʔoi* |
| Hmp | – | *lamɛ* | – | *baʔoil* |
| Kab | *laʔaw* | – | – | *baʔoil* |
| Kui | *lak* | – | – | *bagura* |
| Kaf | *laːka* | – | – | *fijʊi* |
| Kln | – | *(gɛpun)lam* | *hnan* | *bʊbʊgɔr* |
| Abu | *laːk* | – | *tinei* | – |
| Kmg | *loː ¿*[4] | – | *sine* | – |
| Kul | – | – | – | – |
| Swl | – | – | – | – |
| Wer | – | – | – | – |

[1] Blagar normally reflects pAP *g as Ø or ʔ in medial position.

## A.2 Data supporting the additional pTIM reconstructions

| **gloss** | banana | bark | bat | bite | bone |
|---|---|---|---|---|---|
| **pTIM original** | *muku | – | – | *gakel | – |
| **pTIM new** | *mugu | *le(k)u(l) | *maTa | *(ga)gel | *(se)sa(r, R) |
| Bunaq | *mok* | – | – | *gagil* | *sesal* |
| Makasae | *muʔu* | *leu*[1] | – | *gaʔel* | – |
| Makalero | *muʔu* | *leu*[1] | – | *kaʔel* | – |
| Fataluku | *muʔu* | *leʔul(e)*[2] | *maca* | *(ki)kiʔ(e)* | – |
| Oirata | *mu:* | *leule*[2] | *maʈa* | – | – |

| **gloss** | breast | child | crawl | crouch | dirty |
|---|---|---|---|---|---|
| **pTIM original** | – | – | *er(ek) | – | – |
| **pTIM new** | *hami | *-al | *er | *luk | *gari |
| Bunaq | – | *-ol* | *el* | *luʔ(-luʔ)*[4] | *gar* |
| Makasae | *ami* | – | – | – | *raʔi*[5] |
| Makalero | – | – | – | – | *raʔi*[5] |
| Fataluku | *ami(-tapunu)*[3] | – | *er(eke)* | – | *raʔe(ne)*[5, 6] |
| Oirata | – | – | – | – | – |

[1] Semantic shift to ‘call’. [2] Semantic shift to ‘sing’. [3] This lexeme is a lexical doublet, i.e. originally a compound or a lexicalized parallel expression (see **SchapperEtAl2012**). [4] Semantic shift to ‘bent over (as with age)’. [5] This form shows metathesis in Proto-Eastern Timor: *kari > *raki > raʔi / raʔe(ne). [6] Semantic shift to ‘littered with stones’.

| gloss | dream | eat | excrement | face | far |
|---|---|---|---|---|---|
| **pTIM original** | – | – | – | *fenu | – |
| **pTIM new** | *ufar(ana) | *nua | *a(t, D)u | *-fanu | *eTar |
| **Bunaq** | *waen*[1] | *a~-ia* | *ozo* | *-ewen* | *ate* |
| **Makasae** | *ufarena* | *nawa* | *atu[-gu?u]*[2] | *fanu* | – |
| **Makalero** | *ofarana* | *nua* | *atu* | *fanu* | – |
| **Fataluku** | *ufarana* | *una~naβa* | *atu*[3] | *fanu* | *icar* |
| **Oirata** | upar(a) | *una~nawa* | *atu*[3] | *panu* | – |

| gloss | fish | flat | garden | hear | itchy |
|---|---|---|---|---|---|
| **pTIM original** | *api | – | *(u)mar | *make(n) | – |
| **pTIM new** | *hapi | *tetok | *(u, a)mar | *mage(n) | *ilag |
| **Bunaq** | – | *toi?*[4] | *mar* | *mak* | – |
| **Makasae** | *afi* | – | *ama* | *ma?en* | *ila?* |
| **Makalero** | *afi* | *tetu?* | *ama* | *ma?en* | *ile?* |
| **Fataluku** | *api* | – | – | – | – |
| **Oirata** | *ahi* | – | *uma* | – | – |

[1] This item shows metathesis: waen < *awen following on fusion from the two halves of the reconstructed doublet.
[2] The Bunaq cognate for the second half of this lexical doublet is *g-io* '3AN-faeces', but it doesn't appear in a doublet with *ozo* 'faeces'.
[3] Semantic shift to 'belly'.
[4] The final glottal stop in Bunaq is likely a reflex of final *k in pTIM. However, more evidence is needed to substantiate this claim of relatedness.

| **gloss** | laugh | leg | LOW | mat | mountain |
|---|---|---|---|---|---|
| **pTIM original** | *hika | – | – | – | – |
| **pTIM new** | *jiger | *-buta | *ufe | *biti | *bugu |
| **Bunaq** | *higal* | *-but*[1] | – | – | – |
| **Makasae** | *hiʔa* | – | *he- ¿*[2] | – | *buʔu* |
| **Makalero** | *hiʔe* | – | *ufe-* | *piti* | *puʔu*[3] |
| **Fataluku** | *heʔe* | – | *ua- ¿*[2] | *pet(u)* | – |
| **Oirata** | – | – | *ua ¿*[2] | *het(e)* | – |

| **gloss** | new | new place | nose | one | other |
|---|---|---|---|---|---|
| **pTIM original** | *(t, s)ifa | – | – | – | – |
| **pTIM new** | *(t, s)ipa(r) | *lan | *-muni | *uneki | *epi |
| **Bunaq** | *tip* | *lon* | *-inup ¿*[4] | *uen~en* | *ewi*[6] |
| **Makasae** | *sufa* | – | *muni(kai)*[5] | *u* | – |
| **Makalero** | *hofar* | – | *mini* | *u~un* | – |
| **Fataluku** | – | – | *mini(ku)* | *ukani* | – |
| **Oirata** | – | – | – | *aʔuni* | – |

[1] Semantic shift to mean ‘knee’.
[2] The reflex of pTIM *f as /h/ in Makasae and Ø in Fataluku and Oirata is irregular; /f/ is expected for Makasae and Fataluku, and /p/ for Oirata.
[3] Semantic shift to ‘gable, top of house’.
[4] This item appears to show metathesis in the following stages: pTIM *-muni > *-minu > *-imun > *-inum > Bunaq *-inup* ‘nose’. The change of *m to Bunaq p is explainable as the result of m being prohibited from codas in Bunaq.
[5] The suffix *–kai* is frequently found in body part terms in Makasae. [6] It seems likely that medial *p changes to /w/ in Bunaq. However, we currently lack sufficient data to support this conclusion. There has also been a semantic shift to ‘foreigner’.

| gloss | path | person | rain | ripe | scorpion |
|---|---|---|---|---|---|
| **pTIM original** | *hika | – | – | *tina(k) | – |
| **pTIM new** | *jiga | *anu | *ine(r, R) | *tena | *fe(r, R)e |
| **Bunaq** | *hik* | *en* | *inel* | *ten* [1] | *wele*[4] |
| **Makasae** | *hiʔa* | *anu* | – | *tina*[2] | – |
| **Makalero** | *hiʔa* | *anu* | – | *tina~dina* [2] | – |
| **Fataluku** | *iʔa* | – | – | *tina*[3] | – |
| **Oirata** | *ia(ra)* | – | – | – | – |

| gloss | scratch | shark | six | spit | tooth |
|---|---|---|---|---|---|
| **pTIM original** | – | – | – | – | *wasi |
| **pTIM new** | *gabar | *supor | *tamal | *fulu(k, n) | *-wasin |
| **Bunaq** | – | – | *tomol* | *puluk* | *(-e)we* |
| **Makasae** | – | – | – | – | *wasi* |
| **Makalero** | *kapar* | *su(-amulafu)*[5] | – | *fulun* | *wasi* |
| **Fataluku** | *kafur(e)* | *hopor(u)*[6] | – | *fulu* | βahin(u) |
| **Oirata** | – | – | – | – | wain(i) |

[1] Semantic shift to 'be cooked, ready'.
[2] Semantic shift to 'cook'.
[3] Semantic shift to 'set alight'.
[4] It seems likely that initially before front vowels *f changes to /w/ in Bunaq. However, we currently lack sufficient data to support this conclusion.
[5] The meaning of the compound *su-amulafu* is not quite clear. It seems to refer to a large sea creature, possibly a dolphin or a dugong. The second element, *amulafu*, translates as 'human being, person'.
[6] This form is glossed in various ways in the different Fataluku sources either as 'shark' or 'dugong'

| **gloss** | tree | walk 1 | walk 2 | yellow | 1SG | 1PI |
|---|---|---|---|---|---|---|
| **pTIM original** | *hote | *lakor | – | – | – | – |
| **pTIM new** | *hate | *lagar[1] | *male | *gabar | *n- | *fi |
| **Bunaq** | *hotel* | *lagor* | *mele* | – | *n-* | – |
| **Makasae** | *ate* | *la?a* | – | *gabar* | – | *fi* |
| **Makalero** | *ate* | *la?a* | – | – | – | *fi* |
| **Fataluku** | *ete* | *la?a* | – | – | – | *afi* |
| **Oirata** | *ete* | *lare* | – | – | – | *ap-* |

[1] This root is possibly an Austronesian loan: PMP *lakaj ‘stride, take a step’.

## A.3 List of cognates and pTAP reconstruction

| gloss | pTAP | pAP | pTIM |
|---|---|---|---|
| bamboo | *mari | *mari | *mari |
| banana | *mugul | *mogol | *mugu |
| bark, call | | *lVu | *le(k)u(l) |
| bat | *madel | *madel | *maTa |
| bathe | *weLi | *weli | *weru |
| bird | *(h)adul | *(a)dVl | *haDa |
| bite | *ki(l) | *(ta)ki | *(ga)gel |
| blood | *waj | *wai | *waj |
| bone | *se(r, R) | *ser | *(se)sa(r, R) |
| breast | *hami | *hami | *hami |
| grandparent | *(t, d)ama | *tam(a, u) | *moTo |
| child | *-uaQal | *-uaqal | *-al |
| clew | *ma(i)ta(r) | *maita | *matar |
| coconut | *wata | *wata | *wa(t, D)a |
| crawl | *er | *er | *er |
| crouch | *luk(V) | *luk(V) | *luk |
| die | *mV(n) | *min(a) | *-umV |
| dirty | *karV(k) | *karok | *gari |
| dog | *dibar | *jibar | *Depar |
| dream | *(h)ipar | *hipar | *ufar(ana) |
| ear | *-waRi | *-uari | *-wali |
| eat | *nVa | *nai | *nua |
| excrement | *(h)at(V) | *has | *a(t, D)u |
| face | *panu | *-pona | *-fanu |
| far | *le(t, d)e | *lete | *eTar |
| fire | *hada | *hada | *haTa |
| fish | *habi | *habi | *hapi |
| flat | *tatok | *tatok | *tetok |
| garden | *magad | *magad(a) | *(u, a)mar |
| girl | *pan(a) | *pon | *fana |
| give | *-(e, i)na | *-ena | *-inV |
| green | *lugar | *(wa)logar | *ugar |

| gloss | pTAP | pAP | pTIM |
|---|---|---|---|
| hand | *-tan(a) | *-tan | *-tana |
| hear | *ma(g, k)e(n) | *magi | *mage(n) |
| inside | *mi | *mi | *mi |
| itchy | *iRak | *(i)ruk | *ilag |
| laugh | *jagir | *jagir | *jiger |
| leg | *buta | *-bat | *-buta |
| low | *po | *po | *ufe |
| mat | *bi(s, t) | *bis | *biti |
| meat | *isor | *iser | *seor |
| moon | *hur(u) | *wur | *huru |
| mountain | *buku | *buku | *bugu |
| name | | *-en(i, u) | *-nej |
| new | *(t, s)iba(r) | *siba(r) | *(t, s)ipa(r) |
| new place | *lan | *lan | *lan |
| nose | *-mVN | *-mim | *-muni |
| one | *nukV | *nuk | *uneki |
| other | *abe(nVC) | *aben(VC) | *epi |
| *P. indicus* | *matar | *matar | *ma(t, D)ar |
| path | *jega | *jega | *jiga |
| person | *anV(N) | *anin | *anu |
| pig | *baj | *baj | *baj |
| pound | *tapa(i) | *tapai | *tafa |
| price | *boL | *bol | *bura |
| rain | *anu(r, R) | *anur | *ine(r, R) |
| rat | *dur(a) | *dur | *Dura |
| ripe | *tena | *tena | *tena |
| run | *tipar | *tiara | *tifar |

| gloss | pTAP | pAP | pTIM |
|---|---|---|---|
| scorpion | *pV(r, R) | *pVr | *fe(r, R)e |
| scratch | *karab | *karab | *gabar |
| sea | *tam(a) | *tam | *mata |
| shark | *sibar | *sib(a, i)r | *supor |
| sit | *mit | *mis | *mit |
| six | *talam | *talam | *tamal |
| sleep | *tia(r) | *tia | *tia(r) |
| spit | *puRV(n) | *purVn | *fulu(k, n) |
| spoon | *suRa | *surV | *sula |
| stand | *nat(er) | *nate(r) | *nat |
| star | *jibV | *jibV | *ipi(-bere) |
| stone | *war | *war | *war |
| sugarcane | *ub(a) | *hu:ba | *upa |
| sun | *wad(i, u) | *wadi | *waTu |
| taboo | *palu(l, n) | *palol | *falu(n) |
| tail | *-oRa | *-ora | *-ula(?) |
| tongue | *-lebuR | *-lebur | *-ipul |
| tooth | *-wasin | *-uasin | *-wasin |
| tree | *hate | *tei | *hate |
| vagina | *-ar(u) | *-ar | *-aru |
| wake | *tan(i) | *-ten | *Tani |
| walk 1 | *lak(Vr) | *laka | *lagar |
| walk 2 | *lamV | *lam(ar) | *male |
| water | *jira | *jira | *ira |
| weave | *sine(N) | *sine(N) | *sina |
| yellow | *bagur(V) | *bagori | *gabar |
| 1PI | *pi | *pi- | *fi |
| 1SG | *na- | *na- | *n- |
| 3ALN | *gie | *ge | *gie |
| 3INAL | *g(a, i)- | *ga- | *g- |

## References

Aoki, Eriko & Satoshi Nakagawa. Endenese-English dictionary. Unpublished manuscript.

Arka, I Wayan et al. *A Rongga-English dictionary with an English-Rongga finderlist*. http://chl.anu.edu.au/linguistics/projects/iwa/WebPages/RonggaDictionary2007.pdf.
Arndt, Paul. *Li'onesisch-Deutsches Wörterbuch*. Ende-Flores: Arnoldus-Druckerei.
Arndt, Paul. *W"orterbuch der Ngadhasprache* (Studia Instituti Anthropos 15). Posieux (Fribourg, Suisse): Anthropos-Institut.
Baird, Louise. *A grammar of Kéo: an Austronesian language of East Nusantara*. Australian National University PhD thesis.
Baird, Louise. *A grammar of Klon: a non-Austronesian language of Alor, Indonesia*. Vol. 596 (Pacific Linguistics). Canberra: Pacific Linguistics, Research School of Pacific & Asian Studies, The Australian National University. xv+242. ISBN: 9780858835948.
Bani, Heronimus & Charles E. Grimes. Ethno-mathematics in amarasi: how to count 400 ears of corn in 60 seconds. Handout from talk given at the International Conference on Language Documentation and Conservation.
Barnes, Robert. *Kédang: a study of the collective thought of an Eastern Indonesian people*. Oxford: Clarendon Press.
Barnes, Robert. Number and number use in Kédang, Indonesia. *Man* (17) (1).
Blust, Robert. *Blust's Austronesian Comparative Dictionary*. http://www.trussel2.com/acd/.
Blust, Robert A. *The Austronesian languages*. Vol. 602 (Pacific Linguistics). Canberra: Research School of Pacific & Asian Studies, Australian National University. xxviii+824. ISBN: 9780858836020.
Calon, L. F. Woordenlijstje van het dialect van Sikka. *Tijdschrift voor Indische Taal-, Land- en Volkenkunde* 33. 501–530.
Capell, Arthur. Austronesian and Papuan 'mixed' languages: general remarks. In Stephen A. Wurm (ed.), *New Guinea area languages and language study*, vol. 2 (Pacific Linguistics C40), 527–579. Canberra.
Comrie, Bernard. Balto-Slavonic. In Jadranka Gvozdanović (ed.), *Indo-european numerals* (Trends in Linguistics 57), 717–833. Berlin & New York: Mouton de Gruyter.
Comrie, Bernard. Endangered numeral systems. In Jan Wohlgemuth & Tyko Dirksmeyer (eds.), *Bedrohte Vielfalt: Aspekte des Sprach(en)tods [endangered diversity: aspects of language death]*, 203–230. Berlin: Weißensee Verlag.
Comrie, Bernard. Numeral bases. In Martin Haspelmath et al. (eds.), *World atlas of language structures*, 530–533. Oxford: Oxford University Press.

Donohue, Mark. Complexities with restricted numeral systems. *Linguistic Typology* 12. 423–429.
Evans, Nicholas. Two plus one makes thirteen: senary numerals in the morehead-maro region. *Linguistic Typology* 13. 321–335.
Forth, Gregory. *Rindi: an ethnographic study of a traditional domain in Eastern Sumba*. The Hague: Martinus Nijhoff.
Forth, Gregory. *Nage birds: classification and symbolism among an Eastern Indonesian people*. London & New York: Routledge.
Greenberg, Joseph H. Generalizations about numeral systems. In Joseph H. Greenberg (ed.), *Universals of human language*, vol. 3, 250–295. Stanford: Stanford University Press.
Greenhill, Simon J., Robert Blust & Russell D. Gray. *The Austronesian Basic Vocabulary Database (ABVD)*. http://language.psy.auckland.ac.nz/austronesian/.
Grimes, Charles E., Ayub Ranoh & Helena Aplugi. *Lil Dhao (Ndao) online dictionary*. Kupang. http://e-kamus2.org/index.html.
Hägerdal, Hans. *Lords of the land, lords of the sea: conflict and adaptation in early colonial Timor, 1600-1800*. Leiden: KITLV Press.
Hammarstrom2010, Harald. Rarities in numeral systems. In Jan Wohlgemuth & Michael Cysouw (eds.), *Rehtinking universals: how rarities affect linguistic theory*, 11–60. Berlin, New York: Mouton de Gruyter.
Hanke, Thomas. Additional rarities in numeral systems. In Jan Wohlgemuth & Michael Cysouw (eds.), *Rethinking universals: how rarities affect linguistic theory*, 61–90. Berlin & New York: Mouton de Gruyter.
Heine, Bernd. *Cognitive foundations of grammar*. Oxford: Oxford University Press. 200.
Holton, Gary. *Western Pantar lexicon*. Accessed 06 December, 2011. http://www.uaf.edu/alor/langs/western-pantar/lexicon/.
Holton, Gary & Laura C. Robinson. The internal history of the Alor-Pantar language family. In Marian Klamer (ed.), *The Alor-Pantar languages*. Berlin: Language Science Press.
Holton, Gary et al. The historical relations of the Papuan languages of Alor and Pantar. *Oceanic Linguistics* 51(1). 86–122.
Hull, Geoffrey. *Waimaha (Waima'a)* (East Timor Language Profiles 2). Dili: Instituto Nacional de Linguística/Universidade Nacional de Timor-Leste.
Keraf, Gregorius. *Morfologi dialek Lamalera*. Jakarta: Universitas Indonesia PhD thesis. 483.

Klamer, Marian. *A grammar of Teiwa*. Vol. 49 (Mouton Grammar Library). Berlin: Mouton de Gruyter.

Klamer, Marian. *A short grammar of Alorese (Austronesian)*. Vol. 486 (Languages of the World/Materials). München: Lincom GmbH. 142.

Klamer, Marian. Papuan-Austronesian language contact: Alorese from an areal perspective. In Nicholas Evans & Marian Klamer (eds.), *Melanesian languages on the edge of asia: challenges for the 21st century*, vol. 5 (Language Documentation &Conservation Special Publication), 72–108. Honolulu: University of Hawaii Press.

Klamer, Marian et al. Numeral words and arithmetic operations in the Alor-Pantar languages. In Marian Klamer (ed.), *The Alor-Pantar languages*. Berlin: Language Science Press.

Kratochvíl, František. *A grammar of Abui: a Papuan language of Alor*. Utrecht: LOT.

Laycock, D. C. Observations on number systems and semantics. In Stephen A. Wurm (ed.), *Papuan languages and the New Guinea linguistic scene*, 219–233. Canberra: Pacific Linguistics.

Lean, Glendon. *Counting systems of Papua New Guinea and Oceania*. Papua New Guinea University of Technology PhD thesis. http://www.uog.ac.pg/glec/thesis/thesis.htm.

Lynch, John. At sixes and sevens: the development of numeral systems in vanuatu and new caledonia. In Bethwyn Evans (ed.), *Discovering history through language: papers in honour of malcolm ross*, 391–411. Canberra: Pacific Linguistics.

Majewicz, Alfred F. Le rôle du doigt et de la main et leurs désignations dans la formation des systèmes particuliers de numération et de noms de nombres dans certaines langues. In Fanny de Sivers (ed.) (ed.), *La main et les doigts dans l'expression linguistique*, vol. 2 (LACITO - Documents Eurasie 6), 193–212. Paris: SELAF.

Majewicz, Alfred F. Le rôle du doigt et de la main et leurs désignations en certaines langues dans la formation des systèmes particuliers de numération et des noms de nombre. *Lingua Posnaniensis* 28. 69–84.

Matisoff, James A. Sino-Tibetan numerals and the play of prefixes. *Bulletin of the National Museum of Ethnology (Osaka) [Kokuritsu Minzokugaku Hakubutsukan Kenkyuu Hookoku]* 20(1). 105–252.

Middelkoop, P. Proeve van een Timorese grammatica. *Bijdragen tot Taal-, Land- en Volkenkunde*. Bijdragen tot de Taal-, Land- en Volkenkunde van Nederlandsch-Indië 106. 375–517.

Nishiyama, Kunio & Herman Kelen. *A grammar of Lamaholot Eastern Indonesia: the morphology and syntax of the Lewoingu dialect*. Vol. 467 (Languages of the World/Materials). München: Lincom. 188.

Pampus, Karl-Heinz. *Mue moten koda kiwan: kamus bahasa lamaholot, dialek lewolema, flores timur*. Frankfurt: Frobenius-Institut Frankfurt am Main.

Pareira, M. Mandalangi & E. Douglas Lewis. *Kamus Sara Sikka - Bahasa Indonesia*. Ende, Flores, Indonesia: Penerbit Nusa Indah. 218.

Penn, David. *Introducing Dadu'a*. University of New England PhD thesis.

Plank, Frans. Senary summary so far. *Linguistic Typology* 13. 337–345.

Samely, Ursula. *Kedang (Eastern Indonesia): some aspects of its grammar*. Vol. 46 (Forum phoneticum). PhD from JWG U Frankfurt am Main 1989. Hamburg: Helmut Buske. xi+235. ISBN: 9783875480160.

Sawardo, P. Wakidi, Y. Lita Tarno & S. Kusharyanto. *Struktur Bahasa Lio*. Jakarta: Pusat Pembinaan dan Pengembangan Bahasa.

Schapper, Antoinette. *Bunaq: a Papuan language of central Timor*. Canberra: Australian National University PhD thesis.

Schapper, Antoinette & Harald Hammarström. Innovative numerals in Austronesian languages outside of Oceania. *Oceanic Linguistics* 52(2). 425–456.

Schapper, Antoinette, Juliette Huber & Aone van Engelenhoven. The relatedness of Timor-kisar and Alor-Pantar languages: a preliminary demonstration. In Marian Klamer (ed.), *The Alor-Pantar languages*. Berlin: Language Science Press.

Sidwell, Paul. The Austroasiatic numerals from 'one' to 'ten' from a historical and typological perspective. In Jadranka Gvozdanović (ed.), *Numeral types and changes worldwide*, 253–271. Berlin & New York: Mouton de Gruyter.

Stokhof, W. A. L. *Preliminary notes on the Alor and Pantar languages (East Indonesia)*. Vol. 43 (Pacific Linguistics: Series B). Canberra: Research School of Pacific & Asian Studies, Australian National University. vi+73. ISBN: 9780858831247.

Van Klinken, Catharina. *A grammar of the Fehan dialect of Tetun, an Austronesian language of west Timor*. (C-155). Canberra: Pacific Linguistics.

Vatter, E. *Ata Kiwan. unbekannte Bergvölker im tropischen Holland*. Leipzig: Bibliographisches Institut.

Verheijen, Jilis A. J. *Kamus Manggarai: Manggarai-Indonesia & Indonesia-Manggarai*. Vol. 1. 's-Gravenhage: Nijhoff.

Verheijen, Jilis A. J. *Kamus Manggarai: Manggarai-Indonesia & Indonesia-Manggarai*. Vol. 2. 's-Gravenhage: Nijhoff.

Verheijen, Jilis A. J. *Bahasa Rembong di Flores Barat*. Vol. 3. Ruteng: S.V.D.
Verheijen, Jilis A. J. *Komodo: het eiland, het volk en de taal*. Vol. 96 (Verhandelingen van het Koninklijk Instituut voor Taal-, Land- en Volkenkunde). The Hague: Martinus Nijhoff. xiv+260.
Wellfelt, Emilie & Antoinette Schapper. *Memories of migration and contact: East Timor origins in Alor*. Paper read at the Eighth International Convention of Asia Scholars, June 24–27, Macao.
Winter, Werner. Analogischer Sprachwandel und semantische Struktur. *Folia Linguistica* 3. 29–45.

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