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History, contact and classification of Papuan languages

Part One

The Greater Awyu language family of West Papua[i]

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ABSTRACT

Healey (1970) and Voorhoeve (2001) established the Awyu-Dumut family of Papuan languages in the Digul Basin of West Papua and presented a proto Awyu-Dumut phonology. This paper presents an outline of a proto Awyu-Dumut morphology and discusses the linguistic position of Korowai and Kombai in relation to the Awyu-Dumut family. It is argued that Korowai is not a member of the Awyu-Dumut family but a member of a sister branch of Awyu-Dumut within a larger genetic group that we call Greater Awyu. Kombai is a member of the Awyu-Dumut family but is not a member of one of the two subgroups, Awyu and Dumut, proposed by Healey (1970). Rather, Kombai is a member of a third subgroup that we call the Ndeiram subgroup of the Awyu-Dumut family.

KEYWORDS

proto morphology, historical linguistics, Greater Awyu, Awyu-Dumut

1. INTRODUCTION

Drabbe (1947, 1950, 1957, 1959) studied six Papuan speech varieties of what he called the Awyu language (Shiagha, Yenimu, Pisa, Aghu, Mandobo (=Kaeti) and Yonggom Wambon), spoken in the Digul Basin, south of the central mountain ranges of New Guinea, in what is now Indonesian West Papua (see Map I in Appendix A).

Healey (1970) divided the six speech varieties on the basis of proto phonology in two subgroups, Awyu (Shiagha, Yenimu, Pisa, Aghu) and Dumut (Mandobo and Yonggom Wambon), and called the group as a whole the Awyu-Dumut family. He took the name Dumut from the Dumut (or Mandobo) River where he assumed Proto Dumut had been spoken (Healey 1970: 997). He proposed phonologies of Proto Awyu, Proto Dumut and Proto Awyu-Dumut and reconstructed 337 proto forms for these three groupings, 96 of which he reconstructed in all three proto languages.

Using Awyu-Dumut language descriptions and sketches that became available after 1970 (e.g. Digul Wambon (de Vries & Wiersma 1992), Kombai (de Vries 1993)), Voorhoeve (2001)

confirmed Healey's initial hypothesis and proposed a number of modifications to Healey's Proto Awyu-Dumut phonology. Voorhoeve (2001) also found systematic consonant correspondences between Kombai and Proto Awyu-Dumut and concludes that Kombai is a member of the Awyu-Dumut family. Voorhoeve (2005: 149) reiterates that position and adds that Kombai is a language that "seems to stand by itself". Voorhoeve (1971: 88-92) presents some data on Sawuy, spoken by around 2,000 persons living on the Ajip, Pujit and Kronkel rivers and concludes that Sawuy as well can be classified as an Awyu-Dumut language based on preliminary cognate counts, personal pronouns and a number of shared patterns and matter in bound verb morphology. Korowai (Van Enk & de Vries 1997) is also mentioned by Voorhoeve (2005: 149) as a possible Awyu-Dumut language, but, in the absence of comparative work on Korowai, he left its classification to future research.

The purpose of this article is to present an outline of Proto Awyu-Dumut morphology on the basis of a bottom-up reconstruction of Proto Awyu and Proto Dumut (Section 3). This reconstruction also enables us to discuss the linguistic position of Kombai (Section 3) and Korowai (Section 4).

Before we discuss Awyu-Dumut proto morphology and the linguistic position of Kombai and Korowai, we briefly consider the issue of language names, language locations and language groupings in the Awyu-Dumut area (Section 2).

2. AWYU-DUMUT LANGUAGE NAMES, LOCATIONS AND GROUPINGS

Awyu-Dumut 'languages' and 'language names' come and go over the decades, and this makes the life of those engaged in comparative work or in linguistic surveys of this area not always easy. To bring some order in this chaos of names and locations, we will distinguish four groupings of languages and discuss the issue of language names and locations for each grouping. The four groups are the Awyu languages, the Dumut languages, the Ndeiram languages and the Becking-Dawi languages (see Map I, Appendix A). It is important to note right from the start that the first two groupings have a different status from the last two groupings. The Awyu and Dumut groups are established as subgroups of the Awyu-Dumut language family on the basis of reconstructive work that encompasses both proto phonology (Healey 1970, Voorhoeve 2001, 2005) and proto morphology (this article). For the Ndeiram group (Tayan, Kombai, Wanggom) and the Becking-Dawi group (Korowai, North Korowai, Tsaukambo, Komyandaret) there is not

enough data for reconstruction work but there is initial evidence that Kombai and Korowai are not isolated languages but are part of two groups of closely related speech varieties, probably at least partly connected by dialect chaining.

The Awyu group (Pisa, Shiagha, Yenimu, Aghu) has recently been surveyed by Kriens and Lebold (2010). They note the problem of dialect chaining (Kriens and Lebold 2010: 5): "The Awyu people […] speak a number of closely related languages. In addition, there is a great deal of language 'chaining' from one village to the next, which makes it difficult to define the boundaries between these languages." They also observe that language names of earlier surveys and decades appear to have vanished.

We use Drabbe (1950) as our source for Pisa, Shiagha and Yenimu, Drabbe (1957) for Aghu and Voorhoeve (1971) for Sawuy. The points on the Awyu chain where Drabbe and Voorhoeve took their data from are noted on Map I (Appendix A).

The Dumut group has recently been surveyed by Jang (2003). Basing himself on lexical similarity counts, Jang (2003) distinguishes two major Dumut groupings, Mandobo and Wambon, each with minor groupings, viz. Ketum Wambon, Upper Wambon and Lower Wambon for Wambon and for Mandobo, Kokenop Mandobo, Upper Mandobo, Central Mandobo and Mariam Mandobo. Again, dialect chaining plays a role within Mandobo and Wambon but it is not yet clear whether the Mandobo and Wambon speech varieties form a single unbroken Dumut chain. For reconstructive work we use the Mandobo and Yonggom Wambon descriptions by Drabbe (1959) and the Digul Wambon descriptions by de Vries & Wiersma (1992) and Jang (2008). The points on the Wambon and Mandobo dialect chains where the data were taken are noted on Map I (Appendix A).

The Ndeiram group probably consists of Tayan, Kombai and Wanggom. According to de Vries (1993:1), Central Kombai, Tayan and Wanggom are dialects of one language. This was based on statements by speakers of Central Kombai that they could understand both Tayan and Wanggom speakers, although they spoke differently from them. These dialects probably form a dialect chain that extends from the border with Asmat to the Upper Digul River where it meets languages of the Dumut subgroup (see Map I, Appendix A). Intelligibility judgments of informants quoted in a survey by Hughes (2009:9) also indicate that Wanggom speakers and speakers of Central Kombai understand each other. Versteeg (1983: 22) gave a lexical similarity percentage of 61% for Wanggom and Kombai. We have no data whatsoever on Tayan.

We have very little information on Wanggom morphology but the little evidence there is confirms a close relation between Kombai and Wanggom. Baas (1981) inserted a few remarks on Wanggom verb endings in his unpublished Tsaukambo notebook. He gives endings for what he calls 'past/present' forms, presented in Table 1. The endings of this Wanggom paradigm, labeled past/present in the notes of Baas, correspond in pattern and matter to the Kombai realis paradigm. Since realis forms are used throughout Awyu-Dumut languages in present and past contexts, Baas' label 'present/past' would be consistent with a realis reading of those forms.

	Wanggom Past/Present	Kombai Realis
1SG	-ndi	-nde
NON1SG	-xi	-ge/ø
1PL	-ndiwo	-ndefo
NON1PL	-xino	-geno

Table 1: Wanggom past/present endings and Kombai realis endings

Baas also gives a set of future endings for Wanggom, presented in Table 2. Again the match with Kombai future endings is striking. The future marker is *–i* in both languages and is preceded by the same person and number suffixes in both languages.

	Wanggom Future	Kombai Future
1SG	-w-i	-f-i
NON1SG	-n-i	-n-i
1PL	-win-i/-won-i	-fon-i
NON1PL	-non-i	-non-i

Table 2: Wanggom and Kombai future forms

The personal pronouns of Wanggom (Hughes 2009: 33) and Kombai (de Vries 1993: 35) also correspond, but not in the third person forms. Kombai has a rule that deletes word final consonants. Underlying final consonants surface whenever a word is suffixed (de Vries 1993: 10); for the 1SG and 2SG Kombai pronouns there is evidence of an underlying final /f/. The Wanggom wordlist of Hughes (2009) is in IPA. It is striking that all Wanggom words end either in a vowel or a vowel followed by a glottal stop.

	1SG	2SG	3SG	1PL	2PL	3PL
Kombai	nu(f)	ŋgu(f)	xe	naŋgu	naŋge	ya
Wanggom	nuʔ	ŋguʔ	ŋguːmaˈnɔ	nɑŋgu	nɑŋgiʔ	nɑŋgiː

Table 3: Kombai and Wanggom personal pronouns

In the absence of further descriptions of Tayan and Wanggom it is impossible to reconstruct Proto Ndeiram and establish Ndeiram as a subgroup of the Awyu-Dumut group. But there is enough initial evidence from intelligibility judgments, lexical similarity counts and correspondences in pronouns and bound verb morphology to conclude that Kombai is not an isolated language but part of a larger group of closely related speech varieties in the Ndeiram river area.

The Becking-Dawi group (see Map I, Appendix A) probably consists of Korowai (Van Enk and de Vries 1997), North Korowai (spoken along upper stretches of Becking river, for example in Abiowage, Hughes 2009), Tsaukambo (Baas 1981) and Komyandaret (see de Vries, this volume). Korowai is the only language in this group for which there is a grammar (Van Enk & de Vries 1997). Komyandaret is a dialect of Tsaukambo according to Baas (1981), who noted the mutual intelligibility of the two varieties. The close relation is supported by the 60% lexical similarity between Tsaukambo (as spoken in Waliburu village) and Komyandaret (as spoken in Danikit) noted by Hughes (2009: 7). The close relation between Korowai and Tsaukambo is strongly suggested by the systematic correspondences in (bound) morphology noted by de Vries (this volume).

3. AWYU-DUMUT PROTO MORPHOLOGY

This section presents an outline of the proto morphology of Proto Awyu (PA), Proto Dumut (PD) and Proto Awyu-Dumut (PAD). A bottom-up approach is taken, where PA and PD are reconstructed on the basis of Awyu and Dumut languages before PAD morphology is reconstructed using PA, PD and Kombai data. Following Voorhoeve (2000, 2005), Kombai is viewed as a third branch of the Awyu-Dumut language family. We will reconsider the subgrouping of Awyu-Dumut into three branches once the proto morphology is reconstructed and shared innovations can be traced.

It would be impossible to produce Awyu-Dumut proto morphology without Awyu-Dumut proto phonology. Healey (1970) and Voorhoeve (2000) have each written a phonology of PA, PD and

PAD, while Wester (forthcoming) presents a third (revised) proto phonology. Appendix B contains the reconstructed sound changes between PAD, PA, PD and their daughter languages, as well as the most common morphophonemic changes in Awyu-Dumut languages. These phonological changes will be referred to when they are relevant to the reconstruction of proto morphology.

The areas of the Awyu-Dumut language system reconstructed in this section are pronouns (Section 3.1), mood (Section 3.3) and person-number markers (Section 3.4) as well as tense (Section 3.5), negation (Section 3.6), interrogative (Section 3.7) and imperative (Section 3.8) morphology.

3.1. AWYU-DUMUT PRONOUNS

Table 4 contains the personal pronouns encountered in Awyu-Dumut languages. Although Healey (1970) and Voorhoeve (2001) both reconstructed proto-forms for most pronouns, the proto-forms represented here were reconstructed by Wester; some forms differ slightly from those reconstructed by Healey and Voorhoeve.

	1SG	2SG	3SG	1PL	2 PL	3 PL
Yonggom Wambon	nup	ŋgup	yup	naŋgup	ŋgaŋgup	yaŋgup
Digul Wambon	nuk	ŋgup	nexep	noxop	ŋgoxop	yaxop
Mandobo	nöp	ŋgöp	ege	noŋgüp	neŋgip	yeŋgip
PD	***nup**	***ŋgup**	***eke/*yup**	***nakup**	***ŋgakup/*nakep**	***yakup**
Aghu	nu	gu	eke	nügu	gügu	yoxo
Pisa	nu	gu	eki	nugu	gugu	yoxo
Shiagha	no	go	ege	noxo	goxo	yoxo
Yenimu	nu	gu	egi	nugu	gugu	yoxo
PA	***nu**	***gu**	***eke**	***nüku**	***güku**	***yoxo**
Kombai	nu(f)	ŋgu(f)	xe	naŋgu	naŋge	ya
PAD	***nup**	***ŋgup**	***eke/*yup**	***nakup**	***ŋgakup/*nakep**	***yakup**

Table 4: Awyu-Dumut personal pronouns

The 1SG pronoun is reconstructed as **nu* in Proto Awyu and **nup* in Proto Dumut and Proto Awyu-Dumut. In PA, the PAD final consonant /p/ was dropped. The final consonant /p/ found in PAD **nup* is present in Kombai as an underlying /f/ which is realized whenever the pronoun is followed by a vowel-initial morpheme, for example the focus marker *-a*: *nuf-a* 'I-FOC'[ii]. The reconstructed vowel /u/ in 1SG forms is straightforward; /u/ occurs in all languages except

Shiagha and Mandobo, for which it is known that PA *u changes to /o/ (Shiagha) and PD *u changes to /ö/ [iii] (Mandobo).

The Proto Awyu-Dumut, Proto Dumut and Kombai[iv] 2SG form is **ŋ gup*, while in Proto Awyu the 2SG pronoun is **gu*. In Shiagha and Mandobo, we find the same vowel change as in the 1SG pronouns, namely PA/PD *u to Shiagha /o/ and Mandobo /ö/ respectively. The PAD, PD and Kombai 2SG forms have an initial prenasalized stop /ᵑg/ while PA has /g/, due to PA dropping prenasalization before stops.

The 3SG pronoun is reconstructed as **eke* in Proto Awyu, while Proto Dumut and Proto Awyu-Dumut had two competing forms, **eke* and **yup*. The 3SG form **eke* reconstructed for all three proto languages is derived from a demonstrative element *e* or *ep* 'that'. The /k/ found in **eke* is derived from the topic marker *ke* which often combines with Awyu-Dumut pronouns. This /k/ changes to /x/ in Digul Wambon and Kombai, and to /g/ in Mandobo[v]. Yonggom Wambon is the only Awyu-Dumut language which retained the original 3SG pronoun *yup*; the *yup* form is also found in Korowai and can be related to Trans New Guinea 3SG pronoun **[y]a/*ua* reconstructed by Ross (2005). PAD and PD **yup* were replaced by **eke*, but not entirely.

The first person plural pronoun is reconstructed as **nüku* in Proto Awyu and **nakup* in Proto Dumut and Proto Awyu-Dumut. The underlying middle consonant is a /k/: for Dumut languages regular sound changes are established which state that PD medial *k turns into /x/ in Digul Wambon and into /ᵑg/ in Mandobo and Yonggom Wambon. For Awyu languages, no such regular sound change can be established but it is not uncommon for a voiceless /k/ to become a voiced /g/ intervocalically. In the case of Shiagha, which has *goxo* as 2PL form, PA *k has become /x/ before an /o/.

The first vowel of the Dumut 1PL pronoun is /a/, while in PA it is /ü/[vi]. In PD /a/ is reconstructed because PD *a changes to /o/ in Mandobo before /ü/, and often also changes to /o/ in Digul Wambon. Yonggom Wambon retains the original PD sound. In PA, the first vowel is /ü/ because /u/ in Pisa, Shiaxa and Yenimu is always a reflex of PA /ü/; Aghu retains PA /ü/. In Kombai, the vowel is /a/ and as PD also has /a/, the PAD 1PL pronoun is reconstructed as having an /a/. The second vowel in the 1PL pronoun is /u/ in all three proto languages.

The Proto Awyu 2PL pronoun is **güku*, while for both Proto Dumut and Proto Awyu-Dumut two forms are reconstructed, namely **nakep* and **ŋ gakup*. The form with initial /n/, **nakep*, is reconstructed to account for the 2PL pronouns found in Kombai and Mandobo, which both start

with /n/. The two vowels in this form are /a/ and /e/ because PD *a changes to Mandobo /e/ before /i/ or /e/, and PD *e changes to Mandobo /i/. The initial /n/ is seen as a shared retention, rather than as a shared innovation, between Mandobo and Kombai. At the same time, *^{ŋ}*gakup* is reconstructed in PD to account for the Digul Wambon and Yonggom Wambon 2PL pronouns. A ^{ŋ}g-initial proto-form is also reconstructed for PAD because /g/ is found in both PA **güku* and PD *^{ŋ}*gakup*.

The third person plural pronoun is **yoxo* in Proto Awyu and **yakup* in Proto Dumut and Proto Awyu-Dumut. These two reconstructed forms are related through regular sound changes, as PAD *a often changes to PA *o, and PAD *k to PA *x before a low vowel /a/ or /o/. Note that although the Kombai 3PL pronoun consists of a single syllable *ya*, the PAD form is reconstructed as **yakup*; Kombai is thought to have dropped the second syllable, which is found in all other Awyu-Dumut languages.

The proto pronouns reconstructed above are based on data from Awyu languages, Dumut languages and Kombai. Voorhoeve (1971) also classified Sawuy as an Awyu-Dumut language. This classification is verified by a comparison of Sawuy personal pronouns with PA, PD and PAD pronouns:

	1SG	2SG	3SG	1PL	2PL	3PL
Sawuy	nogo, nogop	go, gop	e, ep	nigi, nigip	gi	-
PD	*nup	*^{ŋ}gup	*eke/*yup	*nakup	*^{ŋ}gakup/*nakip	*yakup
PA	*nu	*gu	*eke	*nüku	*güku	*yoxo
PAD	*nup	*^{ŋ}gup	*eke/*yup	*nakup	*^{ŋ}gakup/*nakip	*yakup

Table 5: Sawuy and PAD, PA and PD pronouns

3.2. AWYU-DUMUT VERB STRUCTURE

Before any other proto morphology is reconstructed, we need to explain briefly how Awyu-Dumut verbs are structured. There are three types of verbs in Awyu-Dumut languages: non-finite, semi-finite and finite verbs:

	mood	person-number	tense
non-finite	--	--	--
semi-finite	+	+	--
Finite	+	+	+

Table 6: Awyu-Dumut verb types

Non-finite verb forms consist of a bare verb stem, or a verb stem with a suffix that expresses same subject (SS) and/or temporality (sequence or simultaneity). These verb forms do not express mood, person-number or tense. The semi-finite verbs express mood (realis vs. irrealis) and subject person-number. The fully finite forms express tense in addition to mood and person-number. In Dumut languages, the verb structure is verb stem-mood-person number-tense, whereas in Awyu languages, the verb structure is verb stem-mood-tense-person number. Semi-finite forms are by far the most frequent in Dumut and Awyu languages; tense is only expressed sporadically, at the end of a clause chain or sometimes even only once at the end of a narrative. Awyu-Dumut non-finite verbs are only used in clause chaining constructions as SS verbs. The grammatical place assigned to semi-finite and finite verbs varies in significant and interesting ways from one language to another. For example semi-finite realis *–t* forms in Yonggom Wambon are independent verb forms used in clause conjoining, whereas the same realis *–t* forms in Digul Wambon have been 'medialized' into dependent different subject switch reference forms that can only be used in clause chaining constructions (de Vries 2010).
We will now look at Awyu-Dumut mood before reconstructing Awyu-Dumut person-number markers and tense morphology.

3.3. AWYU-DUMUT MOOD

The opposition between realis and irrealis mood is at the heart of the Awyu-Dumut verb system. Tense is a secondary distinction, dependent on the realis/irrealis opposition. Mood is marked by a separate mood marker which comes directly after the verb stem. Awyu languages and Kombai in addition make a distinction between realis and irrealis stems; irrealis stems are derived from realis stems and are glossed with II, while realis stems are glossed with I. Table 7 illustrates three ways in which Awyu irrealis stems are derived from Awyu realis stems, (1) by prefixing *a-*, (2) by suffixing *–me* (3) by suffixing *–fV* to the realis verb stem.

	realis stem	irrealis stem	meaning
prefix *a-*			
Aghu	i-	ai-	'to mention'
	mi-	ami-	'to drink'
Pisa	do-	ado-	'to bake'
	fo-	afo-	'to marry'
Shiagha	ri-	ari-	'to call'
	roxo-	aroxo-	'to say'
suffix *-me*			
Aghu	kũ-	kume-	'to put in'
	ifĩ-	ifime-	'to bind'
Pisa	tũ-	atume-	'to chop'
Shiagha	tigi-	tigimo-	'to build'
suffix *-fV*			
Aghu	da-	dafi-	'to come'
	agu-	agufe-	'to seek'
Pisa	de-	defi-	'to come'
	ra-	rafi-	'to take'
Shiagha	ré-	réfé-	'to take'

Table 7: Awyu realis and irrealis verb stems

Dumut languages do have multiple stems for each verb as well, but they do not clearly mark a distinction in mood. We will now first consider irrealis forms before moving on to realis forms. Irrealis mood in Awyu-Dumut languages is zero-marked, that is, it is not marked overtly. Thus semi-finite irrealis forms consist of a verb stem + person-number marker; in Awyu languages and Kombai the verb stem used is an irrealis verb stem. We here give two irrealis paradigms, one from Shiagha, an Awyu language (Drabbe 1950:123) and one from Mandobo, a Dumut language (Drabbe 1959:128):

Shiagha irrealis paradigm	**Mandobo irrealis paradigm**
ado-n-ewe	*tami-p*
hear.II[IRR]-tr.nasal-1SG	build.canoe[IRR]-1SG
'I will hear/I want to/let me hear'	'I will/I want to/let me build a canoe'
ado-n-en	*tami-n*
hear.II[IRR]-tr.nasal-NON1SG	build.canoe[IRR]- NON1SG
'you/he/she/it will/ want(s) to hear'	'you/he/she/it will/want(s) to build a canoe'
ado-n-ewan	*tami-wan*
hear.II [IRR]- tr.nasal -1PL	build.canoe[IRR]-1PL

'we will/we want to /let us hear'	'we will/we want to/let us build a canoe'
ado-n-enan	*tami-n-an*
hear.II[IRR]- tr.nasal -NON1PL	build.canoe[IRR]-tr.nasal-NON1PL
'they will/they want to /let them hear'	'they will/they want to/let them build a canoe'

The semi-finite irrealis forms have either an intentional, optative or adhortative meaning, depending on the context in which they are used. We can reconstruct *(irrealis) verb stem + person-number as the PA, PD and PAD irrealis construction, where PA and PAD had specific irrealis stems.

Awyu-Dumut semi-finite realis forms are much less straightforward to analyze and reconstruct than Awyu-Dumut irrealis forms. In all four Awyu languages, the realis forms consist of a realis verb stem, followed by a realis marker and a person-number marker. Realis is marked by *–d* in first person forms and by *–k* (allomorph *–x*) in non-first person forms, as illustrated by the two following paradigms of the verb *da* 'to come':

Aghu realis paradigm	**Pisa realis paradigm**
da-d-e	*de-d-i*
come.I- REAL.1-SG	come.I - REAL.1-SG
I am coming/just came	I am coming/just came
da-k-e	*de-x-i*
come.I - REAL.NON1-SG	come.I - REAL.NON1-SG
you/he/she/it is/are coming/just came	you/he/she/it is/are coming/just came
da-d-owã	*de-d-a*
come.I - REAL.1-1PL	come.I - REAL.1-1PL
we are coming/just came	we are coming/just came
da-k-enã	*de-x-enã*
come.I - REAL.NON1-NON1PL	come.I - REAL.NON1-NON1PL
they are coming/just came	they are coming/just came

In Pisa, /k/ is realized as /x/ intervocalically. The realis form of Proto Awyu can be reconstructed as realis stem+realis marker *-*d*(1st person)/*-*k* (non1 person) + person-number.

Kombai, like Awyu languages, has realis markers which vary according to which subject person-number is expressed by the verb. Kombai has a realis marker *-d* in first person forms and either

zero marking or *–g* in non-first person forms. The *–g* only occurs in verbs with stem-final nasals, as in this example paradigm of the realis of the verb *ũ-* 'to kill':

Kombai realis paradigm

ũ-d-e(f)	*ũ-g-e*	*ũ-d-efo*	*ũ-g-eno*
kill.I-REAL.1-1SG	kill.I-REAL.NON1-NON1SG	kill.I-REAL.1-1PL	kill.I-REAL.NON1-NON1PL
'I kill(ed)'	'you/he/she/it kill(ed)'	'we killed'	'they killed'

Unlike Awyu languages and Kombai, Dumut languages do not use separate realis markers for first person and non-first person verb forms. Rather, in all Dumut languages we find two different realis verb paradigms, one formed with the realis marker *–t* and one formed with the realis marker *–ken*[vii]. Consider the following examples of *-t* and *–ken* paradigms from Yonggom Wambon, where /t/ changes to /r/ intervocalically in morpheme sequencing:

Yonggom Wambon realis *–ken* paradigm	**Yonggom Wambon realis *–t* paradigm**
kim-gen-ep	*kagaende-r-ep*
rub- REAL-1SG	search-REAL-1SG
'I rub(bed)'	'I search(ed)'
kim-gen	*kagaende-t*
rub- REAL[NON1SG]	search- REAL[NON1SG]
'you/he/she/it rub(s)/ rubbed'	'you/he/she/it search(es)/searched'
kim-gen-ewan	*kagaende -r-ewan*
rub- REAL-1PL	search-REAL-1PL
'we rub/rubbed'	'we search(ed)'
kim-gin-in	*kagaende -r-in*
rub- REAL-NON1PL	search-REAL-NON1PL
'they rub/rubbed'	'they search(ed)'

These two different realis forms compete with one another and in each Dumut language we see they clearly fulfill different functions. In Digul Wambon, the *–ken* forms are always conjoined unless they occur clause-finally, while the *–t* forms specialized into medial verbs that express realis switch reference (de Vries 2010). In Yonggom Wambon, *-t* forms are by far more frequent than *–ken* forms: of all realis forms, 92% are *–t* forms. In Mandobo, *-ken* forms are medial

different subject forms while *–t* forms were marginalized and only occur in thematic clauses (de Vries 2010).

If we compare Mandobo, Yonggom Wambon and Digul Wambon realis markers, we can reconstruct proto Dumut **-t* and proto Dumut **-ken* as competing realis formations in proto Dumut, with different outcomes of the competition in the three Dumut languages.

What was the realis situation in PAD? In PA there are two realis markers: **-d* for first person forms and **-k* for non-first person forms. The same two mood markers in found in Kombai, although there the non-first person mood marker *–g* (an allomorph of Awyu *–k*) only occurs with verbs whose stem ends in a nasal vowel. In PD, there are two realis markers as well: **-t* and **-ken*, each appearing throughout a whole paradigm. If we compare the Kombai and PA realis markers **-d* with the PD realis marker **-t*, we may reconstruct a PAD realis marker **-t* that has a reflex **-d* in Proto Awyu (where it always occur intervocalically and is accordingly voiced) and a reflex **-t* in Proto Dumut. Similarly, the Kombai and PA realis marker **–k* and the PD realis marker **–ken* could also be seen as reflexes of a proto Awyu-Dumut form **-ken* that was a realis marker with non-first persons but spread to all members of the paradigm in Dumut languages, and which shortened to **-k* in Awyu languages. The situation in Awyu languages and Kombai would then reflect the older situation in PAD. However, this is a very tentative reconstruction of how realis markers were distributed in PAD. What we can say with more certainty is that PAD had two realis markers: **-t* and **-ken*.

3.4 AWYU-DUMUT PERSON-NUMBER

Awyu-Dumut semi-finite and finite verb paradigms distinguish four person-number forms, based on two oppositions, namely speaker (first person, 1) versus non-speaker (non1) and number (singular versus plural). Table 8 gives the person number proto-forms we propose.

	1SG	NON1SG	1PL	NON1PL
Mandobo (realis)	-ep	- ø	-ewon	-on
Y. Wambon (realis)	-ep	- ø	-ewan	-in
D. Wambon (realis)	-ep	- ø	-eva	- ø
PD REALIS	*-ep	*- ø	*-evan	*-in
Mandobo (irr.)	-p	-n	-won	-non
Y. Wambon (irr.)	-p	-n	-wan	-nan
D. Wambon (irr.)	-ep	- ø	-eva	-na

PD IRREALIS	*-p	*-n	*-evan	*-nan
Aghu (realis)	-e	-e	-owã	-enã
Pisa (realis)	-i	-i	-ã	-inã
Shiagha (realis)	-ø, -ewe	- ø	-a, -owa	-ona, -ena
Yenimu (realis)	-i, -efi	- ø	-a, -efa	-ona, -ena
PA (realis)	*-e(fe)	*-e	*-ofa(n)/*efa(n)	*-enan
Aghu (irr.)	- ø	nas.stem	-owã	-enan
Pisa (irr.)	- ø	nas.stem	- ã	-nan
Shiagha (irr.)	-(e)we	-en	-ewan	-enan
Yenimu (irr.)	-fi	-n	-fa	-na
PA IRREALIS	*-(e)fe	*-(e)n	*-ofan/*-efan	*-(e)nan
Kombai realis	-e(f)	-e(n)	-efo(n)	-eno(n)
Kombai irrealis	-f	-n	-fon	-non
PAD (realis/irr.)	*-ep	*-en	*-ep-an	*-en-an

Table 8: Awyu-Dumut subject person-number endings

The PAD 1SG subject person-number marker is reconstructed as *–*ep*; PA *f is a reflex of PAD *p; it is PAD *p which has turned into /f/ intervocalically. PA *f corresponds to PD final *p, as does Kombai /f/. For PAD, NON1SG person-number marker *-*en* is reconstructed. In PD realis forms, the NON1SG marker is dropped, as it is in Shiagha and Yenimu. However, for PD irrealis NON1SG forms *-*n* can be reconstructed, while for PA *-*e* is reconstructed, taking into account that PA *e always changes into /i/ in Pisa. The underlying /n/ found in Kombai realis NON1SG forms, as well as –*en* in Shiagha irrealis forms, allows us to reconstruct *-*en* as the NON1SG person number marker in PAD; Proto Awyu deleted the final /n/ while in Proto Dumut and Kombai irrealis forms the initial /e/ is no longer realized after vowel-final verb stems.

The PAD 1PL subject marker is reconstructed with a final /n/, which is still present in PD and underlying in Kombai. We also see traces of this /n/ in Awyu languages, in which several person-number markers end in nasal vowels; the nasal vowels are a residue of a final /n/ that has been dropped due to Awyu's tendency to delete final consonants. The PAD NON1PL form is reconstructed as *-*enan*; PD NON1PL *-*in* is thought to be an innovation, while in PD and Kombai irrealis forms again the initial /e/ is elided. For a detailed discussion of Awyu-Dumut person number proto morphology, see Wester (forthcoming).

3.5. AWYU-DUMUT TENSE

Awyu and Dumut languages have past tense(s) and future tense; there is no present tense[viii]. Kombai only has a future tense. In some Awyu languages, there are up to four past tenses, while any Awyu-Dumut language has at most one future tense. Tensed forms are not frequent; rather, semi-finite forms which only distinguish mood are far more frequent.

The two Awyu languages with four past tenses are Shiagha and Yenimu; they distinguish between today's past, yesterday's past, distant past and historical past. The other two Awyu languages, Aghu and Pisa, each have three past tenses. Pisa distinguishes between today's past, yesterday's past and distant past, while Aghu has forms for yesterday's past, distant past and historical past. As can be seen in Table 7 below, there are four distinct past tense markers that occur throughout the Awyu paradigms: *-ø* (zero marked), *-k, -ra* and *-ma*. The suffix *-k* is a today's past marker in Yenimu, yesterday's past marker in Shiagha and distant past marker in Aghu and Pisa. The suffix *-ra* is yesterday's past marker in Pisa, but the historical past tense marker in Shiagha and Yenimu. The suffix *-ma* is only found as a distant past marker in Shiagha and Yenimu. The distribution of the past markers across the languages is represented schematically in Table 9.

	Aghu	Pisa	Shiagha	Yenimu	Proto Awyu
Today's past	-ø	-ø	-ø	-k	*-ø
Yesterday's past	-ø	-ra	-k	-k	*-k
Distant past	-k	-k	-ma	-ma	*-ma
Historical past	-ra	-	-ra	-ra	*-ra

Table 9: Awyu past tense markers

A possible scenario for the history of these four Awyu past tense markers is as follows. Shiagha and Yenimu have more past tenses than Aghu and Pisa, and hence more variety in past tense markers as well. Therefore they represent the older state. Aghu and Pisa lost the past tense marker *–ma* and started using *–k* as a distant past marker instead. The gap which was then left in Pisa and Aghu yesterday's past was filled by *–ø* in Aghu and *–ra* in Pisa; Pisa consequently no longer has a historical past tense and Aghu makes no distinction between today's and yesterday's past. Shiagha represents the Proto Awyu state: present realis and today's past were marked by no tense marker, while **-k* was yesterday's past marker, **-ma* the distant past marker and **-ra* the historical past marker. Hence, PA had four past tenses. In Yenimu, yesterday's past marker **-k*

spread to today's past; Yenimu distinguishes between today's past and yesterday's past by using slightly different person-number markers.

Dumut languages distinguish a single past tense, but Digul Wambon has a different past tense marker than Yonggom Wambon and Mandobo. The Digul past tense marker is *–mbo*, while Yonggom Wambon and Mandobo have *–an*. We reconstruct **-an* as the Dumut past tense marker, as it is more frequent than *–mbo*. For PAD, no past tense marker can be reconstructed, as PA and PD are too different from each other and no past tense marker occurs in Kombai. However, it is likely that PAD had at least one past tense.

The future tense form is similar across multiple Awyu-Dumut languages. In Yonggom Wambon the future tense marker is *–in*, in Mandobo it is *-en*, while Digul Wambon has future tense marker *–mat*. For PD, **-en/*-in* is reconstructed as the future marker; reconstructed sound changes do not allow us to determine which vowel should be reconstructed here. Aghu is the only Awyu language with a future tense marker, which is *–e*. Kombai realizes future tense by adding *–i* to the verb. For PA we reconstruct **-e*, and for PAD future tense marker **-en* is reconstructed. Following established regular sound changes, PAD *e changes to /i/ in Kombai, while in both Kombai and PA the final /n/ is dropped.

3.6. AWYU-DUMUT NEGATION

Awyu languages all have a double negation: the verb is preceded by *fa(na)* (Pisa, Shiagha, Yenimu) or *fede-* (Aghu), while *–de* follows the verb in all languages. In Aghu, *fede-* is optional, whereas in Shiagha and Yenimu, *-de* is optional:

(1) *fa* *agogho-ne* *(de)*
NEG go.II[IRR]-NON1SG (NEG)
'He will not go.' (Shiagha, Drabbe 1950:118)

In Pisa, both negators are obligatory:

(2) *fa* *wu-d-i* *de*
NEG enter.I-REAL.1-SG NEG
'I do/did not enter.' (Pisa, Drabbe 1947:43)

For Proto Awyu, **fa* is reconstructed as the pre-verbal negator; another possibility is **fede*, but as *fa(na)* occurs in three languages and *fede* only in one, **fa* is reconstructed. Aghu *fede* can possibly be explained as being a combination of two negators: *fa* and *de*. The post-verbal negator is reconstructed as **de*.

When we look at Kombai, we see that its negation marker is *(fe-)... -^{n}do*, where *fe-* is optional. Kombai therefore has a double negation, like proto Awyu. When a verb is negated in Kombai, all person number distinctions are neutralized and the non-finite form of the verb, consisting of just the verb stem, is used:

(5) *Nu ai fe-fera-^{n}do.*
I pig NEG-see-NEG.
'I do not see a pig.' (de Vries 1993:30)

(6) *Ya ai fe-fera-^{n}do.*
they pig NEG-see-NEG.
'They do not see a pig.' (de Vries 1993:30)

This is a Kombai innovation, not found in either Awyu or Dumut languages.

In Dumut languages, we find multiple negation strategies. The strategy which all three Dumut languages share, is placing *^{n}doi* (Digul Wambon, Yonggom Wambon) or *^{n}da* (Mandobo) after the verb:

(7) *atki-p-^{n}doi*
wrap[IRR]-1SG-NEG
'I do not want to wrap.' (Digul Wambon, Jang 2008)

(8) *mbegi-ne-ken-ep-^{n}da*
sit-AUX-REAL-1SG-NEG
'I did not sit/I am not sitting.' (Mandobo, Drabbe 1959:36)

A lexicon drawn up by Drabbe informs us that both *^{n}doi* and *^{n}da* mean 'nothing'. For Proto Dumut, we reconstruct **^{n}da/*^{n}doi* as a negator; both forms are equally likely as it is not possible in this case to determine which vowel is the original vowel.

Taking Proto Awyu **fa…*de* and Proto Dumut **^{n}doi/^{n}da*, and taking into consideration that Kombai has double negation *fe…^{n}do*, we reconstruct **pa/*pe…*^{n}dV* for PAD. The double negation continued in PA and Kombai, while in PD the pre-verbal negator was lost. The PAD pre-verbal negator is reconstructed with a *p, which according to regular sound changes then became *f in both PA and Kombai. Vowels are difficult to reconstruct for PAD and hence there are several possibilities for the vowels in both the pre-verbal and the post-verbal negator in PAD. It is possible that the post-verbal negator originated as a lexical item *^{n}doi* meaning 'nothing' and then weakened into *^{n}da* (Mandobo), *^{n}do* (Kombai), and *de* (Awyu languages).

3.7. AWYU-DUMUT INTERROGATIVE

Awyu-Dumut languages optionally mark utterances as interrogative by an utterance-final clitic. This clitic takes the form *–kuyi* in Yonggom Wambon, *-keya* in Mandobo and *–koi* in Digul Wambon and therefore we suggest a proto Dumut interrogative clitic **-kVyi*. In the Awyu group Aghu has two clitics, *-ka* and *–kayo*, Pisa has two interrogative markers (*–ne* and *–de*), whereas Shiagha marks questions with the suffix *–de*. For Proto Awyu we therefore reconstruct two possible forms: **-ka(yo)* and **-de*. Kombai marks questions with *–xa*. For PAD, **-ka(yV)* is reconstructed.

3.8. AWYU-DUMUT IMPERATIVE

Awyu and Dumut languages have verb stems which are specifically used for the imperative modality, while Kombai has a separate imperative marker. Awyu and Dumut imperative verb stems are either irregular or derived through the prefixing of addition of /n/ or /nV/ to a basic or suppletive stem. The Kombai imperative marker is *–ni*, which is suffixed to the verb *after* the subject person-number marker.

In Yonggom Wambon and Mandobo some imperative verb stems are formed by adding *nok-*, which is the imperative stem of *mo-* 'to do'. Other Yonggom Wambon and Mandobo imperative stems are formed by prefixing *nV-* to the verb stem, in Yonggom Wambon most often *na-*. Example 9 from Mandobo contains two imperative *–nok* forms, and one imperative verb formed by prefixing *ni-* to the verb:

(9) *…ndu ne^{ŋ}gi gip roa-nog-i-nin; yogüp ne^{ŋ}gi gip*
sago you.PL self cultivate-IMP-LIG-NON1PL; garden you.PL self
roa-nog-i-nin; ^{ŋ}goa ne^{ŋ}gi gip ni-ge-nin.
cultivate-IMP-LIG-NON1PL; hunt you.PL self IMP-go-NON1PL.
'…your sago, grow it yourself, your garden, cultivate it yourself, the hunt, go (do it) yourselves.'(Mandobo, Drabbe 1959:92)

In Digul Wambon we also find *na-* as an imperative marker. Therefore for PD we can reconstruct **n* as part of a PD imperative construction. Also, as the imperative stem of *mo-* 'to do' is used in two of three Dumut languages to form imperatives, it can be concluded that a similar imperative construction existed in PD.

In Awyu languages, *-n* or *–n(V)* is used to derive imperative stems. The *–n(V)* can occur at the beginning, in the middle or at the end of an imperative stem in all Awyu languages. Drabbe calls *-n* 'the most stable element' in Aghu imperative forms (Drabbe 1957:19). Although a conclusion can be drawn that *-n(V)* is a general Awyu imperative marker, and can therefore be reconstructed for Proto Awyu, each Awyu language also has a few imperative verb stems which do not contain *–n(V)*.

To summarize, for PD, **-nok* and **-n(a)* are reconstructed as imperative stem markers, for PA **-n(V)* can be reconstructed and Kombai has imperative marker *-ni*. PAD we reconstruct as having had **n* as an imperative marker or imperative element in stems. As this element can occur in all positions in the stem in PAD's daughter languages (initially, medially, finally), its origin is likely to have been as an independent grammatical or lexical item that then merged with stems in a number of ways.

3.9 SUBGROUPING OF AWYU-DUMUT LANGUAGES

A critical look at the subgrouping of Awyu-Dumut languages is possible now that proto morphology has been reconstructed. Both Healey (1970) and Voorhoeve (2001) came to a classification of two subgroups, Awyu and Dumut, on the basis of phonological and lexical similarities and differences. Voorhoeve (2001), who unlike Healey had access to Digul Wambon and Kombai data, notes that he found no phonological or lexical evidence which would support a

classification of Kombai as either an Awyu or a Dumut language. What division into subgroups is supported by the reconstructed proto morphology?

A group of languages is seen as a subgroup when they all have a common innovation with respect to the proto language. Hence the Dumut languages form a subgroup because they all have mood markers *–t* and *–ken* in two paradigms, while PAD has two alternating mood markers **–t* and **–ken* which distinguish between person-number. This innovation is *unique* to PD. If two subgroups *share* an innovation, they can be further classified as a subgroup. Thus if PD and PA share an innovation which Kombai does not have, then PD and PA would form a subgroup of PAD that excludes Kombai. Table 10 lists the innovations found in PA, PD and Kombai morphology.

	PA innovations	**PD innovations**	**Kombai innovations**
pronouns			no *–kup* in 3PL
person-number		3PL REAL **-in*, not **-enan*	
Mood		*-t* and *–ken* throughout paradigms	*-k* only with nasal-final verb stems
Tense	4 past tenses	1 past tense **-an*	no past tense
negation		no pre-verbal negator	no person-number markers in negated verbs
imperative			*-ni* comes after person-number

Table 10: morphological innovations in PAD's daughter languages

Kombai has 5 unique innovations, PD has four, while PA has one. There are no shared morphological innovations. Therefore we conclude that morphological evidence shows that Awyu-Dumut has three subgroups. Kombai and PA do share a phonological innovation: they both drop word-final consonants, although Kombai still has some final (underlying) consonants. However, this phonological similarity is not a strong enough reason to classify Kombai and PA as a subgroup of PAD, as Voorhoeve (2001) already saw.

3.10 SUMMARY PROTO MORPHOLOGY OF AWYU-DUMUT

In the above paragraphs, we reconstructed PA, PD and PAD proto morphology using a bottom-up approach. First PA and PD forms were reconstructed based on the languages which are established as Awyu (Aghu, Shiagha, Yenimu and Pisa) and as Dumut (Digul Wambon, Yonggom Wambon and Mandobo). Kombai, which following Voorhoeve's (2001) hypothesis we treated as a third separate branch of the Awyu-Dumut language family, was incorporated when reconstructing PAD morphology. Proto morphemes were reconstructed for pronouns, subject person-number markers, mood, tense, negation, imperative and interrogative forms. A look at unique and shared morphological innovations led to a verification of the hypothesis that the Awyu-Dumut language family has three subgroups or branches: Proto Awyu, Proto Dumut and Kombai.

4. THE LINGUISTIC POSITION OF KOROWAI

In this section we investigate the linguistic position of Korowai, and argue that Korowai is distantly related to the Awyu-Dumut languages, as part of a 'Greater Awyu family', presented in the following tree.

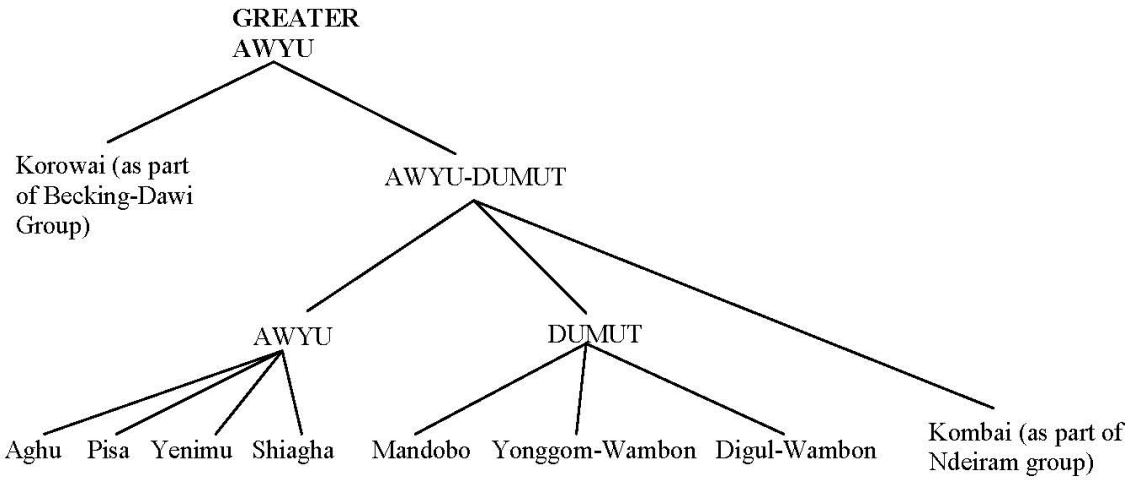

Figure 1: The 'Greater Awyu family'

Section 4.1 will present lexical evidence for genealogical links between PAD and Korowai. On the basis of lexical cognates and regular sound correspondences, we will hypothesize that Korowai appears to have its closest genealogical ties with the Awyu-Dumut languages, but cannot itself be classified as an Awyu-Dumut language. This hypothesis will be confirmed in

Section 4.2, which will present Korowai morphology, and relate this to the Awyu-Dumut proto morphology presented in Section 3above.

4. 1 LEXICAL COMPARISON AND REGULAR SOUND CORRESPONDENCES

4.1.1 Some, but few, 'lookalikes' between PAD and Korowai

In reconstructing PAD phonology, Voorhoeve (2001) came up with a list of 104 lexical items for which he reconstructed PA, PD, or PAD forms.[ix] In this section we want to investigate how many Korowai forms appear to be related to PAD forms, or, in other words, are lookalikes compared to Voorhoeve's reconstructed PAD forms. The following section will go into the question whether these 'lookalikes' present evidence for regular sound correspondences.

Consider the following table, based on Voorhoeve (2001). The first column indicates for each Awyu-Dumut language how many words (out of the total of words considered for this language, indicated after the slash) can be analyzed as reflexes of PAD. The second column also includes those words which can be related only to a Proto Awyu or only to a Proto Dumut form.

	Reflexes of PAD	Reflexes of PAD, PA or PD
Aghu (Awyu)	69 / 103 (67%)	89 / 103 (87%)
Pisa (Awyu)	67 / 101 (66%)	90 / 101 (90%)
Siagha (Awyu)	68 / 103 (66%)	90 / 103 (87%)
Mandobo (Dumut)	69 / 102 (67%)	88 / 102 (86%)
Yonggom Wambon (Dumut)	66 / 102 (64%)	83 / 102 (81%)
Digul Wambon (Dumut)	54 / 93 (58%)	67 / 93 (72%)
Kombai	57 / 97 (59%)	74 / 97 (76%)

Table 11: number of reflexes of proto Awyu Dumut in its daughter languages.

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In Table 11, 69/103 should be read as 69 reflexes out of a total of 103 lexical pairs. The total is determined by the number of lexical items for which, in the respective language, reflexes were attested. Now compare this table to Table 12, which gives the number of lookalikes between Korowai and Proto Awyu-Dumut.

	Lookalikes to PAD
Korowai	33 /99 (33%)

Table 12: Korowai lexical similarity to PAD

Comparison of the two tables leads to the following observations and tentative conclusions.
(1) The number of possible reflexes of PAD for Korowai is substantially lower than for any Awyu or Dumut language or Kombai. While Korowai has a number of 33 forms that are 'lookalikes' to PAD, all Awyu-Dumut languages have 67 or more reflexes of proto Awyu, proto Dumut, or PAD. Although the number of 33 forms may increase (or possibly decrease) somewhat after regular sound correspondences between PAD and Korowai have been found, it is unlikely that this will lead to more than a doubling of the number of forms relatable to PAD.[x] Therefore, Korowai differs more from PAD than any of PAD's established daughter languages.
(2) At the same time, however, the number of possible cognates is much too high to be explained as due to 'mere chance', or as due to a shared membership of Proto Trans New Guinea.[xi]
In the next section we will look for regular sound correspondences; the more regular sound correspondences we find, the higher is the chance that the lookalikes are cognates rather than borrowings (or chance resemblances), and the stronger is the evidence for a genealogical relationship between Korowai and Awyu-Dumut languages.

4.1.2 Regular sound correspondences

The following table gives an overview of all Korowai lexical items that we have classified as 'lookalikes' compared to reconstructed PAD forms by Voorhoeve. The list contains the 33 reconstructed forms mentioned in the previous section, with a few additions on the basis of new data from de Vries (p.c.). The brackets around forms have been copied from Voorhoeve, who writes that "forms between brackets are not Healey's reconstructions but tentative reconstructions added on the basis of new data" (Voorhoeve 2001: 372).

	Korowai (van Enk and de Vries 1997)	PAD (Voorhoeve 2001, unless indicated otherwise)
arm,hand	mel	*wit
banana	dup	PA *tu / (PAD *tyut)
bite	ʔæl̪əʔumʔo (Hughes 2009)	*ati-
breadfruit	yawol	*rawot
female breast	am	*am
cheek	maŋgum	(*moka)
cloud, sky	xul	PD *kut (PAD *koüt)
coconut	mbiyon	*biyon[xii]
cook	alü	(*audu)
die	xomi	*küm
drink	mi	*mi
faeces	ol	*or
father	até	(*ati)
flower	xel	*ket
fruit	op	*rop
hair	mux	*muk
head	xabéan	*kaiban
hear	dai	*dat
heart	debop	*dümorop
house	xaim	(*xaim)[xiii]
inside	xaup	(*karup)
lie down	ye	(*rei)
moon	waxol	(*wakot)
mother	ni	*noi
(outer) mouth	bon	*bon=xa (Healey 1970)
name	fi	*pip
sago	ndaü	(*dou)
short	bæŋgo	(*bogo)
stone	ilol	*irop (Healey 1970)
sit	ba	*ba
skin	xal	*kat
thorn	aün	PD *arün
uncle (MB)	mom	*mom (de Vries)
vein	memil	*met
walk, go	xai	*ko / ka
water	ax	*ok
woman	lal	*ran

Table 13: Korowai lookalikes to PAD forms

If we compare Korowai words with the reconstructed PAD words given in the Table 13, we find lexical cognates that show a number of regular sound correspondences. If we restrict ourselves to the correspondences between consonants, these are the following:

1. PAD *m corresponding to Korowai /m/

   Proto Awyu-Dumut *m corresponds to Korowai /m/, in initial and final position of the word. Examples of initial *m : /m/ are **moka : maŋgum* 'cheek'; *muk : mux* 'hair' **mi : mi* 'drink'; **mom : mom* 'uncle'; **met : memil* 'vein'. Examples of final *m : /m/ are *küm : xomi* 'die' and *xaim : xaim* 'house'. There is only one example of medial *m, corresponding to /m/ in **dümorop : debop* 'heart'.

   There are only three instances of Proto Awyu-Dumut *w, in initial position irregularly corresponding to /m/ and /w/, and intervocalically to /w/, in **wit : mel* 'arm, hand'; **wakot : waxol* 'moon', and *rawot : yawol* 'breadfruit'.

2. PAD *b corresponding to Korowai /b/ or /mb/

   The list contains four instances of Proto Awyu-Dumut *b, all word-initial. In three cases, *b corresponds to /b/, namely in **bon= xa : bon* 'mouth'; **bogo : bæŋgo* 'short'. Interestingly, the exception to this rule is formed by a word that Voorhoeve describes as a loan from Marind: **biyon* 'coconut' corresponding to *mbiyon*.

3. PAD velar stop *k corresponding to Korowai velar fricative /x/

   Proto Awyu-Dumut *k corresponds to Korowai /x/, in all positions in the word. Examples of initial *k : /x/ are **küm : xomi* 'to die'; **kut : xul* 'sky'; **ket : xél* 'flower'; **kaiban : xabéan* 'head'; **kat : xal* 'skin'; **ko/ka : xai* 'to go, walk'. Examples of medial *k : /x/ are **wakot : waxol* 'moon'. There is one exception to this correspondence rule, however: *k in PAD *moka 'cheek' corresponds to Korowai /ŋg/ in *maŋgum*. Examples of final *k : /x/ are **muk : mux* 'hair'; **ok : ax* 'water'.

4. PAD *p corresponding to Korowai /p/ and /f/

   In final position, Proto Awyu-Dumut *p regularly corresponds to Korowai /p/, the only exceptions being **pip : /fi/* 'name', and **irop : ilol* 'stone' (possibly **irop > *ilo*

> *ilol*). Examples of final *p : /p/ are **rop: op* 'fruit'; *dümorop : debop* 'heart' and **karup : xaup* 'inside'. There is only one example of PAD *p in initial position, where *p corresponds to /f/: **pip* 'name' corresponds to Korowai */fi/*.

5. PAD *t corresponding to Korowai lateral

   PAD *t corresponds to Korowai /l/ in final positions, as is seen in **wit : mel* 'arm, hand'; **rawot : yawol* 'breadfruit'; **kut : xul* 'cloud, sky'; **ket : xél* 'flower'; **wakot : waxol* 'moon'; **kat : xal* 'skin'; **met : memil* 'vein'. The only exception to this correspondence is the pair **dat : dai* 'hear'. There is insufficient data to draw any conclusions about correspondences in other positions. The only example of initial *t corresponds to Korowai /d/ in PAD */*tyut/ : dup* 'banana', while the only occurrence of medial *t tentatively corresponds to Korowai /l/ in **ati : ʔæl̪əʔumʔo* 'bite'.

6. PAD *r corresponding to Korowai /y/, /l/ or nothing

   Although we do find plausible correspondences between PAD *r and Korowai phonemes, these correspondences are not fully regular, and cannot be explained as conditioned by the phonological environment[xiv]. First, in initial position *r may correspond either to /y/ or to -ø. Examples of the first correspondence are **rawot : yawol* 'breadfruit' and *rei : ye* 'lie down', while **rop : op* 'fruit' exemplifies the second correspondence.

   In intervocalic position, **r* corresponds to -ø, as in **dümarop : debop* 'heart', **karup : xaup* 'inside', and (PD) **arün : aün* 'thorn'.

   Finally, we also find examples of *r corresponding to /l/, in initial, intervocalic, and final position, illustrated by **ran : lal* 'woman'; **irop : ilol* 'stone', and **or : ol* 'faeces', respectively.

4.1.3 Korowai Lexical Conclusion

Summarizing, the lexical evidence suggests a definite possibility of a genealogical relationship but one that needs independent confirmation from other types of evidence. We now turn to

morphological evidence to see whether a genealogical relationship between Korowai and Awyu-Dumut languages can be established with some degree of certainty.

4.2 KOROWAI SUBJECT PERSON-NUMBER

Korowai shares the pattern of Awyu-Dumut subject person-number distinctions in verb paradigms: conflation of second and third person. However, the subject person number suffixes (see Table 14 below) are completely different from those of Awyu-Dumut languages, with one important exception: the intentional paradigm of Korowai has a first person suffix *–p* (with intervocalic allomorph /f/) and a plural suffix *–Vn*. PAD has **-ep* and **-Vn*.

	1SG	NON1SG	1PL	NON1PL
Realis	-lé / -ndé	'zero'/ -l	-lè /-tè/ -ndè	-té(l)
Irrealis	-lé	-é	-lè /tè	-té
Perfect (= completed)	-lé	-o	-lè	-té
Progressive	-lé	-o / -ol	-lè / -tè	-té
Immediate Past	-lé	-o / -ol	-lè	-té
Today's past	-li	-i	-un	-ti
Yesterday's Past. Ir	-ndé	-lo	-ndè	-té
Negative INT.ADH/IMP	-pelé	-n	-pelè	-tin
Intentional / Adhortative /	-p	-m (2sg); -n	-f-Vn	-m-Vn (2pl)

Table 14: Korowai subject person-number suffixes

The following paradigm exemplifies the intentional/adhortative/imperative paradigm of *lu-* 'to enter'. Notice that the paradigm has six forms, and does not conflate second and third person.

Korowai intentional/adhortative paradigm

lu-p	*lo-fun*
enter-[IRR]1SG	enter-[IRR]1PL
'I want to enter/let me enter'	'we want to enter/let us enter'
lu-m	*lo-mun*
enter-[IRR]2SG	enter-[IRR]2PL
'you must enter/you want to enter'	'you (pl) must enter/you (pl) want to enter'
lu-n	*le-tin*
enter-[IRR]3SG	enter-[IRR]3PL
'let him enter/he wants to enter'	'they want to enter/let them enter'

It is clear that in terms of subject person number morphology, Korowai is very different from the three groups of the Awyu-Dumut family, Awyu, Dumut and Ndeiram, although similarities to Proto Awyu-Dumut are found in 1SG *–p* and plural *-Vn*. If the first person suffix *–p* and the plural suffix *–Vn* in the intentional paradigm were the only evidence from (bound) morphology, we would not have a convincing case for a genealogical link with the Awyu-Dumut languages. But we have more evidence from (bound) morphology to which we now turn.

4.3 KOROWAI NEGATION

Korowai has a negative formation that is similar to the PAD negation **pa/*pe…*ⁿdV*, both in pattern and matter. Korowai independent verb forms are negated as follows:

be- (NEG)+ independent verb form + *-da* (NEG)

Some examples:

Korowai realis positive paradigm	**Korowai realis negative paradigm**
dépa-le	*be-dépa-le-da*
smoke[REAL]-1SG	NEG- smoke[REAL]-1SG-NEG
'I smoke(d)'	'I do/did not smoke'
dépo	*be-dépo-da*
smoke[REAL.NON1SG]	NEG-smoke[REAL.NON1SG]-NEG
'you/he/she/it smoke(d)'	'you/he/she/it do(es)/did not smoke'
dépa-lè	*be-dépa-lè-da*
smoke[REAL]-1PL	NEG-smoke[REAL]-1PL-NEG
'we smoke(d)'	'we do/did not smoke'
dépa-te	*be-dépa-te-da*
smoke[REAL]-NON1PL	NEG-smoke[REAL]-NON1PL-NEG
'they smoke(d)'	'they do/did not smoke'

5.4 KOROWAI PERSONAL PRONOUNS

	1SG	2SG	3SG	1PL	2PL	3PL
Korowai	nup	gup	yup	noxup	gexenép	yexenép
PA	*nu	*gu	*ege	*nüku	*güku	*yoxo
PD	*nup	*ŋgup	*eke/*yup	*nakup	*ŋgakup/*nakep	*yakup
PAD	*nup	*ŋgup	*eke/*yup	* nakup	*ŋgakup/*nakep	*yakup
Proto TNG	*na	*ŋga	*[y]a/*ua	*ni/*nu	*ŋgi/*nja	*i

Table 15: Korowai pronouns

As can be seen in Table 15, Korowai free pronouns are clearly very similar to those reconstructed for PAD. Not only is the vowel quality /u/ shared with the Awyu-Dumut languages compared to proto TNG (taken from Ross 2005:29), also the final /p/ is a shared innovation. PAD voiceless velar stop *k regularly corresponds to fricative /x/ in Korowai (see the examples in Section 4.2.1). It should be noted that we find a similar correspondence between velar stops and fricatives if we consider the pronouns: the voiced (prenasalized) velar stop *ŋg of PAD pronouns corresponds to /x/ in Korowai. The 2PL and 3PL pronouns in Korowai have an extra syllable *-en* that is absent in PAD. The 3SG pronoun *yup*, that also occurs in Yonggom Wambon, does not correspond to PAD **eke*, though indicates a shared retention between Korowai and Yonggom Wambon, confirming that PAD **eke* is a newer form which entered the language family after Korowai split off from Greater Awyu.

4.5 KOROWAI INTERROGATIVE

Korowai has an interrogative utterance-final clitic *–xo(lo)* that could be seen as related to PAD **-ka(yV)*. According to Stasch (p.c.) *–xo(lo)* is only ever used in quoting questions, and therefore interrogative and quotative at the same time, adding that the longer form with *-lo* is the more usual one.

4.6 THE POSITION OF KOROWAI

Summarizing, there is good evidence for a genealogical relation of Korowai with the Awyu-Dumut family. The evidence from two subject person-number suffixes, negation, pronouns, and interrogative marking satisfies paradigmaticity, systematicity and form-function correlation constraints. These shared retentions in morphology confirm the initial lexical evidence and the evidence from systematic sound changes.

Yet the relationship between Korowai and Awyu and Dumut languages is different from that between its neighbor Kombai and Awyu and Dumut languages. For example, Korowai does not form imperative stems by adding *–nV* to verb stems, a pattern found in all Awyu-Dumut languages. Korowai does not form special imperative stems at all and the second person forms from the intentional/adhortative paradigm function as imperatives. Korowai shares the distinct Awyu-Dumut verb pattern (conflation of second and third person, basic opposition between

realis and irrealis, tripartite verb system of non-finite SS verbs, semi-finite mood verbs and finite tensed verb forms) but, unlike Kombai, Korowai realizes that pattern with very different forms in its subject person-number, mood and tense morphology. These features of Korowai which set it apart from the Awyu-Dumut family are not shared with neighboring language families, including the West Ok languages, directly neighboring Korowai, or any other Ok language. Compare the Korowai subject person-number suffixes of Table 14 with the following Ok subject person number suffixes:

	Kati (Muyu)	Telefol	Mian	Ngalum	Kopkaka	Proto Ok
1SG	-an/-in/-aan	-i	-i	-er/-ir	-oi	*-i(n/r)
2SG	-ep	-ab	-eb	-ep/-erep	-ep	*-ep/-eb
3SG.M	-on/-oon/-een	-a	-e	-ar/-er	-o	*-a(r/n)/e(r/n)
3SG.F	-un/-uun	-u	-o	-or/-ur	-u	*-u(r)
1PL	-up/-uup/-uub	-ub	-ob/-uo/-obo/	-up/-erup	-up	*-up/-ub
NON1PL	-ip/-ib/iib	-ib	-ib/-ibo/-io	-ip/-erip	-ip	*-ip/-ib

Table16: person number affixes in certain Ok languages and proto Ok. Sources: Kati (Drabbe no date:22-32), Telefol (Healey 1964:71), Mian (Fedden 2011), Ngalum (Hylkema 1996:6) Kopkaka (Kroneman 2010:11), Proto Ok (Wilco van den Heuvel)

For now the best way to account for both the differences and correspondences in morphology between Korowai and PAD seems to be that both the Awyu-Dumut group (with its subdivisions into Awyu, Dumut and Ndeiram) and Korowai (as representative of the Becking-Dawi group) are two branches of a higher level group called the Greater Awyu family. This is shown in the following figure, which is the same as Figure 1 above:

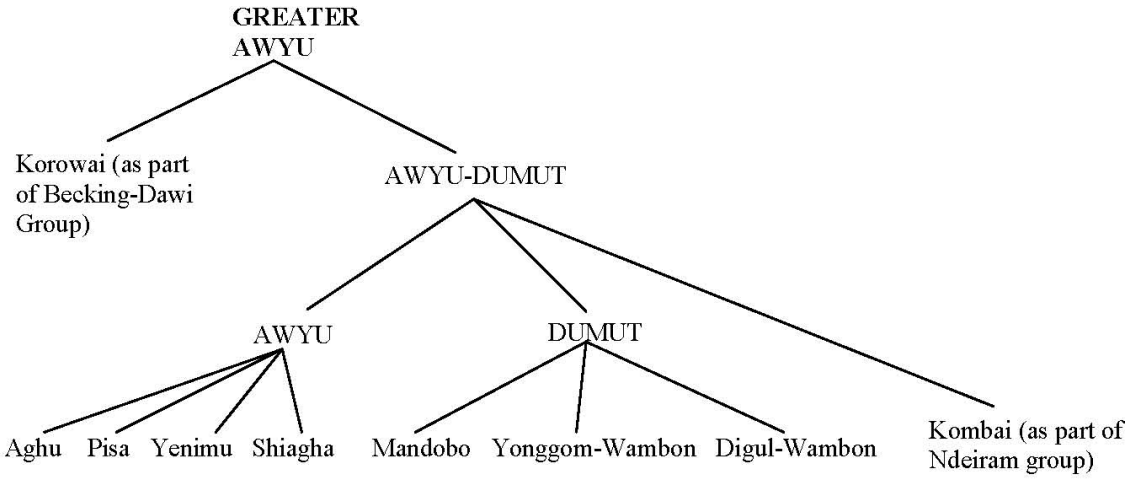

Figure 2: The 'Greater Awyu family'

5. CONCLUSIONS

We reconstructed PA, PD and PAD proto morphology using a bottom-up approach. First PA and PD forms were reconstructed based on the languages which are established as Awyu (Aghu, Shiagha, Yenimu and Pisa) and as Dumut (Digul Wambon, Yonggom Wambon and Mandobo). Kombai, which following Voorhoeve's (2001) hypothesis we treated as a third separate branch of the Awyu-Dumut language family, was incorporated when reconstructing PAD morphology. Proto morphemes were reconstructed for pronouns, subject person-number markers, mood, tense, negation, imperative and interrogative forms. A look at unique and shared morphological innovations led to a verification of the hypothesis that the Awyu-Dumut language family has three subgroups or branches: Proto Awyu, Proto Dumut and Kombai. There is good initial evidence that Kombai is not an isolated language but part of a dialect chain that comprises Tayan and Wanggom, a group of languages that we called the Ndeiram group.

We found good evidence for a genealogical relation of Korowai with the Awyu-Dumut family. The evidence comes from two subject person and number suffixes, negation, pronouns, and interrogative marking. These shared retentions in morphology confirm the initial lexical evidence and the evidence from systematic sound changes.

Yet the relationship between Korowai and Awyu and Dumut languages is different from that between its neighbor Kombai and Awyu and Dumut languages. For example, Korowai differs very significantly from Awyu-Dumut languages in bound verb morphology: different subject person number, mood and tense morphology. These features of Korowai which set it apart from the Awyu-Dumut family are not shared with neighboring language families, including the West Ok languages, directly neighboring Korowai, or any other Ok language.

The best way to account for both the differences and correspondences in morphology between Korowai and PAD seems to be that both the Awyu-Dumut group (with its subdivisions into Awyu, Dumut and Ndeiram) and Korowai (as representative of the Becking-Dawi group) are two branches of a higher level group called the Greater Awyu family.

[i] We would like to thank Rupert Stasch, Harold Koch and our anonymous reviewers for valuable comments on various versions of this paper, and Jaap Fokkema from the VU University Amsterdam for making the map in Appendix A. The work reported here was carried out as part of the project 'the Awyu-Dumut family of Papuan languages in its linguistic and cultural context' at VU University, funded by NWO (Netherlands) under grant 360-89-020. We thank NWO for their support.

[ii] The Digul Wambon first person pronoun does not end in /p/ but in /k/. Drabbe does note that final /p/ is often not realized in Dumut speech; Digul Wambon could have dropped the /p/. Its subsequent replacement by /k/ can be explained by the emphatic or focus marker *k* or *ke* which often follows Awyu-Dumut pronouns.

[iii] Mandobo /ö/ is equivalent to IPA /ø/, a half closed rounded vowel.

[iv] In Kombai, PAD *p changes into /f/

v PD *k changes to /ŋg/ in Mandobo but Drabbe for unknown reasons does not write the /g/ in *ege* as prenasalized. In Digul Wambon we find *nexep* instead of *exe* as the 3SG pronoun; the addition of /n/ and /p/ can be ascribed to analogical leveling occurring in the Digul Wambon pronominal paradigm.

[vi] Awyu-Dumut /ü/ is equivalent to IPA /y/, a closed high rounded vowel.

[vii] Both Drabbe (1959) and de Vries (1992) analyze *–t* and *–ken* not as realis markers, but as 'present-neutral tense' markers. For the rationale behind the reanalysis of these morphemes, see Wester (forthcoming).

[viii] Again, Drabbe (1959) and de Vries (1992) speak of a 'present neutral tense'; in Wester's (forthcoming) reanalysis, present tense meaning is expressed by semi-finite realis forms.

[ix] In 14 of the 108 cases, a proto Awyu-Dumut form is lacking. In those cases, Voorhoeve constructed only a proto Dumut form, or constructed only a proto Awyu form, or could not find one ancestor from which both the Awyu form and the proto Dumut form could be derived. In 41 of the 108 cases, Voorhoeve qualifies his reconstruction as 'tentative', different from Healey's reconstructions, and based on new data compared to the data that Healey (1970) based his reconstructions on.

[x] This can easily be seen by even a superficial look at Appendix C, which gives the 104 PAD forms reconstructed by Voorhoeve and corresponding Korowai forms. Most of the Korowai forms not classified as lookalikes are so different from the Awyu-Dumut proto-forms that it is unlikely that they will be derivable from them by regular sound changes (or phonological rules).

[xi] That the possible cognates are not just shared retentions from PTNG can easily be shown by taking two TNG languages that are (probably) not related at lower levels. In such cases, the number of lookalikes will be much lower. Another way to rule out 'chance' as an explanatory factor is to show how some of the lookalikes differ from the PTNG forms reconstructed by Pawley (2005). Comparison of the following forms suggest that the similarity is due to shared innovations compared to PTNG (note that Pawley often gives multiple reconstructions for PTNG): Korowai *mi* 'drink', PAD **mi*, PTNG [the word for 'eat']; Korowai *até* 'father', PAD **ati*, PTNG **mbapa, *apa*; Korowai *mux* 'hair', PAD **muk*, PTNG **(nd,s)umu(n,t)[V]*; Korowai *xabéan* 'head', PAD **kaiban*, PTNG **kV(mb,p)utu, *mVtVna*; Korowai *dai* 'hear', PAD **dat* PTNG **nVŋg*; Korowai *debop* 'heart', PAD**dümorop*' PTNG **mundu-maŋgV, *simu, *kamu*; Korowai *waxol* 'moon', PAD **wakot*, PTNG **takVn[V]*, **kal(a,i)m, *se[k,ᵑg][a,e]lak*; Korowai *ni, niox* 'mother', PAD **noi*, PTNG **am(a,i,u);* Korowai *bo, babo/beba, bai/ba, xami* 'sit', PAD **ba*, PTNG **mVna;* Korowai *xal* 'skin', PAD **kat*, PTNG **ka(ŋg,k)a(nd,t)apu;* Korowai *lal* 'woman' PAD **ran*, PTNG **panV;* Korowai *fi*, PAD **pip* PTNG **imbi, *wani.*

[xii] According to Voorhoeve (2001:374) these forms could reflect a PA loan from a Marind language. He points out that the Yaqay (Marind) form is *payo,* and that the eastern neighbours have related forms too (which suggests that these languages have borrowed the form from Marind too): Moraori has *peyo*, while Yey has *po*.

[xiii] Voorhoeve (2001:376) notes that "There seem to have been two words for 'house'. **ap* and *xaim*, the latter referring more specifically to houses built in trees (as in Korowai which has both forms: *op, xaim*)."

[xiv] We find that Korowai has -ø instead of /y/ before /o/, /u/ or /ü/. Although these vowels share the feature 'close', or 'non-low', it is not possible to posit the rule that -ø is used before 'close' or non-low vowels, as this rule would incorrectly predict **rei* 'lie down' to correspond to *e*, instead of *ye.*

ABBREVIATIONS

AUX = auxiliary
F = feminine
FUT = future
IMP = imperative
INT.ADH = intentional-adhortative
IRR = irrealis
M = masculine

NON1 = non-first person
NEG = negator
PA = Proto Awyu
PAD = Proto Awyu-Dumut, based on pADK, and informed by Korowai.
pADK = Proto Awyu-Dumut-Kombai, based on PA, PD and Kombai.
pAWD = Proto Awyu-Dumut (tentative, based on PA and PD)
PD = Proto Dumut
PL = plural
REAL = realis
SG = singular
tr.nasal = transitional nasal

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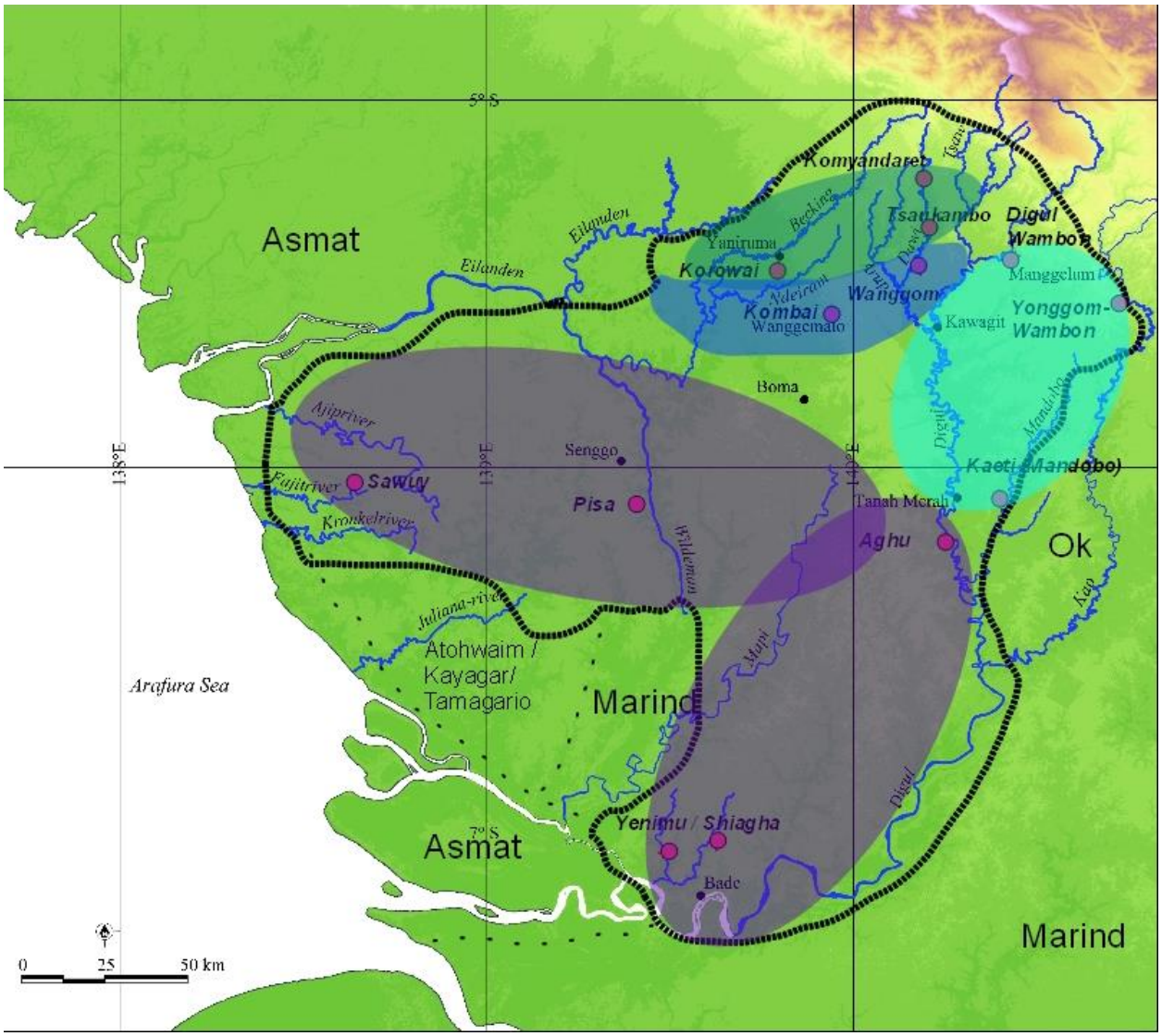
APPENDIX A



Map I: The Greater Awyu languages, subgroups and surrounding families. The language names are indicated by bold italics, with red dots indicating the geographic locality of the variety that the available language description is based on. The oval shadings represent both well-established subgroups (Awyu subgroup: Pisa, Aghu and Sjiagha; Dumut subgroup: Digul Wambon, Yonggom Wambon and Mandobo) and tentative ones (Ndeiram: Tayan, Kombai and Wanggom; Becking-Dawi: Korowai, Tsaukwambo and Komyandaret). The black dotted line indicates the border of Greater Awyu language family with neighbors.

APPENDIX B

The following presents an overview of regular sound changes between PAD, PA, PD and their respective daughter languages.

PAD into daughter languages PD, PA and Kombai:

PAD *ɛ > PD *e
PAD *a > PA *o (not always)
PAD final *n > nasalization final vowel in PA
PAD final *n > nasalization final vowel or dropped in Kombai
PAD final consonants > dropped in PA
PAD final consonants except *p, *m, *n, *t > dropped in Kombai
PAD *p > PA *f
PAD *p > Kombai *f
PAD initial and medial *p > PD *v
PAD initial and medial *t > Kombai /r/
PAD final *t > Kombai /l/ or dropped
PAD *k > PA *x before /a/ or /o/
PAD *k > Kombai /x/

PA into Awyu daughter languages:

PA *ü > /u/ in all Awyu languages except Aghu
PA *u > Shiaxa /o/
PA *e > /i/ in all Awyu languages except Shiaxa (not always)
PA *t > /s/ in Aghu and Pisa before high vowel
PA *r > dropped in Aghu

PD into Dumut daughter languages:

PD *ü or *u > Digul Wambon and Yonggom Wambon /i/ (not always)
PD *a > Mandobo /e/ before /i/ or /e/
PD *a > Mandobo /o/ before /a/, /o/ or /u/
PD *a > Digul Wambon and Yonggom Wambon /o/ (not always)
PD *e > Mandobo /i/ (not always)
PD *u > Mandobo /ö/
PD *r > Digul Wambon /l/
PD final *m > Mandobo /n/
PD initial *t > Yonggom Wambon /s/ before low vowel /a/ or /o/
PD initial *t > Digul Wambon /s/
PD medial *t > Digul Wambon /s/ before high vowel /i/ or /e/
PD initial, medial *k > Mandobo and Yonggom Wambon /ᵑg/
PD initial, medial *k > Digul Wambon /x/
PD initial *v > dropped in Mandobo and Yonggom Wambon

Morphophonemic changes which occur in Awyu-Dumut languages:

1. /t/ changes to /r/ intervocalically in Mandobo and Yonggom Wambon.
2. /t/ changes to /l/ intervocalically in Digul Wambon.
3. /k/ changes to /^{n}g/ or /g/ intervocalically in Mandobo and Yonggom Wambon.
4. /k/ changes to /x/ intervocalically in Digul Wambon.
5. /k/ in Awyu languages tends to become /g/ intervocalically.
6. /p/ fricativizes intervocalically in all Awyu-Dumut languages, to /w/, /f/ or /v/.
7. Vowel harmony occurs in all Awyu-Dumut languages, but no specific rules have yet been found.

APPENDIX C

The PA, PD and PAD proto-forms have been taken from Voorhoeve (2001). Voorhoeve states that "Forms between brackets are not Healey's reconstructions, but tentative reconstructions on the basis of new data". Forms in bold have been classified as lookalike to PAD. The lexical items presented here are those presented in Voorhoeve (2001), with the exception of the free pronouns. This gives a total of 104 lexical items. Note that for 9 of them, no Korowai form could be found, which brings down the total of Korowai forms to 95. The Korowai forms have been taken from van Enk & de Vries (1997), unless indicated otherwise.

	PA	PD	PAD	Korowai
arm	*bedo	*wit	(*wit)	**mél**
armpit	*togon	*taagon	*togon	lenan
banana	*tu	(*tyut)	(*tyut)	dendü, dufol, **dup**, saxu
bird	*yi	*yet	*yet	dél
bite	*ati-	*ati(go)-	*ati-	**ʔæl̪ə**ʔumʔo (Hughes 2009)
blood	*gon	*gom	*gom	büngga, xafun, mamüngga
bone, skeleton	*bogi	*mit		xoxux, xolol
breadfruit	*yowot	*rawot	*rawot	**yawol**
break wood,	raxafün-	(*raka)	(*raka)	
breast, female	*om	*om	*am	**am**
bring along	*radi de-		*(rep me)	
brother, elder	*yaxo	*net	(*nait)	afé
butterfly	*aparo			
call	*ri-	*yo-	(*yo-)	dodépo, doleli
canoe	yofün	(yopün)	(yopün)	alèp, kélo
carry	*kekun-			abi, akéamo
cheek	*moxo		(*moka)	**manggum**
chest	(*bie)	(*be)	(*be)	ban, manop
climb	*otu-	*törö		
cloud,sky	*xuito	(*kut)	(*koüt)	(*cloud*:) dép, déptemül, lemül; (*sky*:) dalibün, **khul**, khubün.
coconut	*pæyo	*bian	(*biyon)	**mbiyon**
cold	*toru	(*toruy)	*torüy	xagil
cook		udü-	(*audu)	**alü**, indo
cry	*efɛ ron-	*rom-	*rom-	èxmo, füp, ülelo, yamo
dark	*asü			gülelo, xofi(lun)
die	*kün-	*küm-	*küm-	**xomi**
dig	*küo-	*so-	(*küo-)	yaxü
dog	*yagi	*agai	*agai	xendép, méan, muman, mumengga
drink	*mi	*mi	*mi	**mi**
dry	*so	(*sok)	(*soke)	kəl̪ɔːl̪ɸɔˈbɔː (Hughes 2009)
ear	*turun	*turutop	*turun	daun, xotoxal, xotop
earth	*soxo	*itip	(*ip)	mé
eat	*en/ade-	*en/ade-	*en/ade-	lé(ndé, nté), fonolé, langgamo, nolé

egg	*mugo	(*wadin)	(*waidin)	loxesux
elbow		(*wi-	(*wi-gabün)	laxa, bonggup
eye	*kero	*kerop	*kerop	lul, lulop
faeces	*or	*oy	*or	lelua, **ol**(exi)
father		(*ati)	(*ati)	**até**
fire	*yin	(*yen)	*yin	melil, menil, alun
fish	*axae	*rokae	*rokai	xelé
flower	*ket	*ket	*ket	**xél**
fly	*burun-		(*burun-)	bedi(fo)
foot, leg	*kito	*kodok	(*kudok)	bél, bélol, bélum, si(si)
fruit	*ro	*rop	*rop	**op**
garden,		*yaküp		yasim
give	*ede-	(*diak-)	(*adiak-)	fédo
hair(body)	*mox/mux	*ron, muk	*ron, muk	**mux**
head	*xaibian	*kabian	*kaiban	gegüp, **xabéan**, loxul
hear	*da-	*dat-	*dat-	**dai**
heart	*düburo	*dümarop	*dümorop	**debop**
hole	*to	*top	*top	bol, bu
hot	*apat	*mamin	(*mamün)	xox
house	(*àfoxain)	*ap	*ap	**xaim**, xaü, xeyop[xiv]
inside	*womu	(*karup)	(*karup)	xaxo, **xaup**
jaw			(*gadom)	
knife	*waki	*waki	*waki	fix (*bamboo knife, razor blade*)
language	*ru, roxo	*ruk, roko	*ruk, roko	aup, mahüon
leech	*tese	*teren		layo
lie down	*re-	*ra(n)/re-	(*rei-)	ibo; é(bo), élo, **ye** (*to sleep*)
long	*pere	*guruap		dal, nggolo(lalé)
louse	*agu	*gut	*gut	meli
man	*xo batin	*koap	*koap batim	abül
meat on body	*kodu	(*kadö)	*kodö	xal, nop
moon		*wakot	(*wakot)	**waxol**, alümexon
mother	*ni	*noi	*noi	**ni**, niox
mouth inside	*xate	*magot	*magot	bonggol, bontebil, xaxalop, lalobop
mucus	*sinifo			xim
nail		*betit		singga (*fingernail*)
name	*fi	*fip	*pip	**fi**
nose		*togut	(*togut)	gelip
old of duration	*patü			mur
penis	*tege	*teget	*teget	dul
put down			*pa/*paro-	
rain	*a	*mürüp	(*murüp)	maun
rattan		*tik	(*tik)	yebun (*rattan rope*)
river	*wadi		(*wadei)	ax, maél, maun
sago	(*doü)	*du(n)	(*doü)	**ndaü**, xo, xosül, naumatélexa

see	*feteox-	(*petaok-)	(*peta-)	imo
shoot	*piemo-	*taem-		duo, laxoto(l)mo, lebüx, ülmexo
short			(*bogo)	gembenul, genul, gun, **bæŋgo** (Hughes 2009)
sit	*ba-	*ba-	*ba-	bo, babo/beba, **bai/ba**, xami
skin	*xa	*katay	*kat	**xal**
sleep	*kunun	*kinum	*kunum	ibo; é(bo), élo, ye
smell	*fümi-	*püpmo-	(*püpmo-)	sumo
smoke	*aruku	*uruk	(*aruk)	lemül, melitemül, temül
snake	*wati	(*gwati)	(*gwati)	anol, émol, yafil
stand	*e	(*re/ra-)	(*re/ra-)	alo, aloli
sun		*sat	(*seyat)	lup, mamün
tail of animal	*wobu	*wabit	*wabüt	xendép
take, grab	*ra-	*rap-	*rap-	ati(lo), fo
thigh	*midi(n)			
this, these	*ne(go)	*mene	(*mene)	alip, dip, i(p), ndalip, ndi(p)
thorn	*yomo	*arün		**aün**
throw away	*sumu-	(*samo-)	*somo-	püxmo
thunder (V)	*xoru	*kumöt	(*kumöt)	balalmo
tongue	*fage	(*pagat)	*pogat	léf
two	*okorumon	*irumon	-rumon	pol, senanafül
ulcer	*rün	*rün	*rün	gun, xabül, langgéntop, lefu
urine	*yit	*yet-ok	*yet	dulax
vein	*me	*met	*met	**memil**
walk	*xo-	*ko/ka-	*ko/ka-	alo, **xai**
water	*oxo	*ok	*ok	**ax**, maél, maun
wind	*kifi	*kiwuy	*kipuy	fup
woman	*ran	*ran	*ran	**lal**