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5 The Papuan languages of East Nusantara and the Bird's Head

Gary Holton and Marian Klamer

5.1. Introduction

This chapter is concerned with the non-Austronesian languages spoken to the west of Cenderawasih (Geelvink) Bay. It is organised areally, and includes three distinct geographic regions: (i) northern Halmahera Island and environs in the North Maluku province of Indonesia; (ii) the Alor Archipelago, including Alor and Pantar Island in the East Nusa Tenggara Province of Indonesia plus parts of Timor in Timor Leste; (iii) the 'Bird's Head' (Dutch 'Vogelkop'). Here we use the term 'East Nusantara' to refer to the three broad geographic regions defined above.[1] 'Nusantara' is Malay for 'islands in between' and the term has come to refer to the Indo-Malaysian archipelago generally, without reference to national borders (see Jones 2007: x). We avoid use of the term 'Papua' in defining the region discussed in this chapter, as this term notoriously mixes genealogical grouping with geographical location. Moreover, most of the languages discussed in this chapter are geographically unrelated to the Papuan mainland: both the North Halmahera family and the Timor-Alor-Pantar family are located far west of it.

In this chapter, we survey a total of 60 languages: 26 spoken in the Timor-Alor-Pantar regions; 10 in North Halmahera; and 24 in the Bird's Head of New Guinea.[2] The languages spoken in the neck of the Bird's Head are surveyed in Pawley and Hammarström (this volume) as possible members of the Trans New Guinea family, and they will not be further discussed here.

The languages surveyed in this chapter are spoken by some 630,000 speakers, an average of about 12,500 speakers per language. The three most populous languages include two of the languages of Timor: Bunaq (80,000 speakers) and Makasae (70,000 speakers), as well as Galela of North Halmahera (79,000 speakers).

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1 This is similar to earlier uses of this term, as in Donohue (2007: 233) who defines the area of 'east Nusantara' as including New Guinea (2007: 350, 352) and Klamer et al. (2008) and Klamer and Ewing (2010), who use the term to refer to the geographical area that extends from Sumbawa to the west, across the islands of East Nusa Tenggara, Maluku (including Halmahera), to the Bird's Head of New Guinea in the east. In the northwest, the area is bounded by Sulawesi. In contrast, Ross (2005: 15) defines East Nusantara as 'the islands of East Timor and eastern Indonesia', separate from mainland New Guinea.

2 Materials from many of the languages discussed in this chapter have been archived in The Language Archive (www.mpi.nl) as part of the Laiseang archive (http://hdl.handle.net/1839/00-0000-0000-0018-CB72-4@view)

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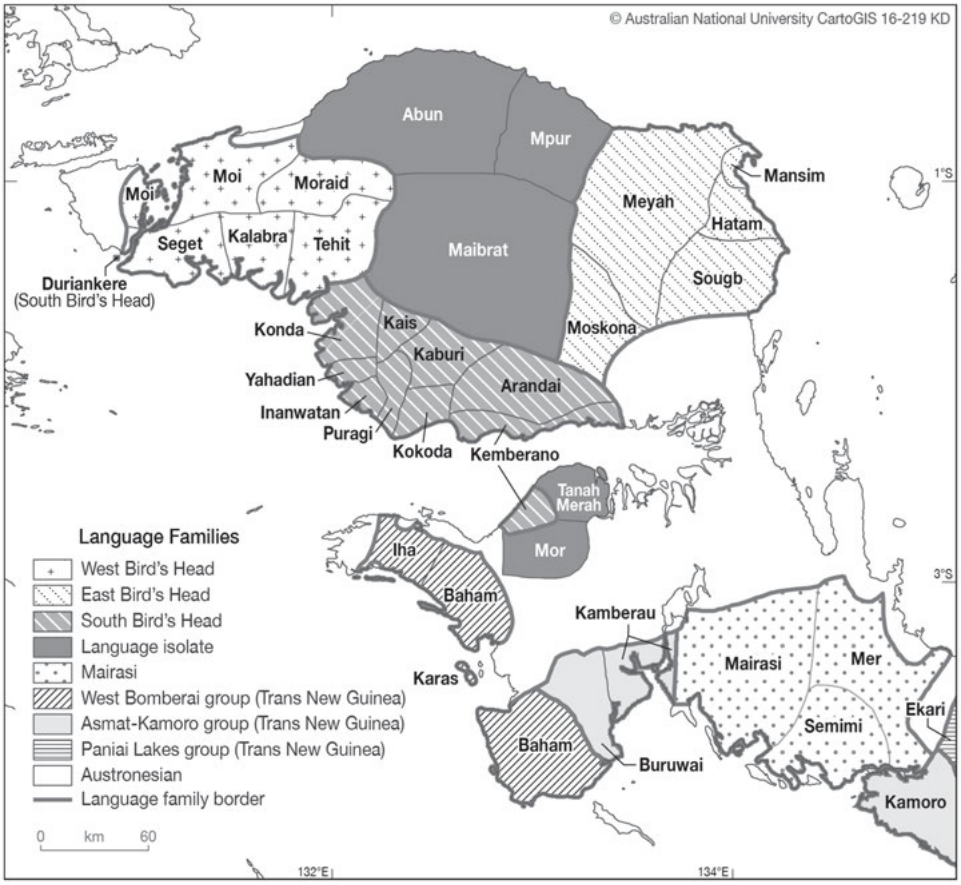
The languages of this chapter are structurally and genealogically extremely diverse. In this chapter we present an overview of this diversity, focussing on their genealogical classification in section 2, morpho-syntactic structures in section 3,

Table 1: The Papuan languages of the Bird's Head, in their genetic groupings: West Bird's Head (WBH), East Bird's Head (EBH), South Bird's Head (SBH), and three isolates. As discussed below, the EBH and SBH genetic groupings are less than secure. Additional details on the SBH languages can be found in Pawley and Hammarström (this volume).

Language	**ISO 639-3**	**Alternate Name(s)**	**Family**	**Population**[3]	**References (selected)**
Kalabra	kzz		WBH	3,290	Berry and Berry (1987a)
Kuwani	--		WBH	?	Smits and Voorhoeve (1998)
Moi	mxn	Mekwei	WBH	4,600	Menick (1995)
Moiraid	msg		WBH	1,000	Berry and Berry (1987a)
Seget	sbg		WBH	1,200	Berry and Berry (1987a)
Tehit	kps		WBH	10,000	Flassy (1991)
Hatam	had		EBH(?)	16,000	Reesink (1999)
Mansim	--	Borai	EBH(?)	0	Reesink (2002c)
Meyah	mej	Mansibaber, Meax	EBH	14,800	Gravelle (2010)
Moskona	mtj	Meningo	EBH	8,000	Gravelle (2011)
Sougb	mnx	Mantion, Manikion	EBH	12,000	Reesink (2002a)
Arandai	jbj	Dombano	SBH	1,000	Berry and Berry (1987b), Voorhoeve (1985)
Kokoda	xod	Kasuweri, Tarof	SBH	3,700	de Vries (2004)
Kemberano	bzp	Barau	SBH	1,500	Berry and Berry (1987b)
Kaburi	uka	Benawa	SBH	1000	de Vries (2004)
Kais	kzm	Kampung Baru	SBH	700	Smits and Voorhoeve (1998)
Puragi	pru		SBH	700	de Vries (2004)
Konda	knd	Ogit	SBH(?)	500	Smits and Voorhoeve (1998)
Yahadian	ner	Mugim	SBH(?)	500	de Vries (2004)
Duriankere	dbn		SBH(?)	0	Smits and Voorhoeve (1998)
Inanwatan	szp	Suabo	SBH(?)	1,100	de Vries (2004)
Abun	kgr	Karon, Madik	isolate	3,000	Berry and Berry (1999)
Maibrat	ayz	Karon Dori, Ayamaru	isolate	25,000	Dol (2007)
Mpur	akc	Amberbaken	isolate	7,000	Odé (2002)

[3] Population estimates from Lewis et al. (2015).

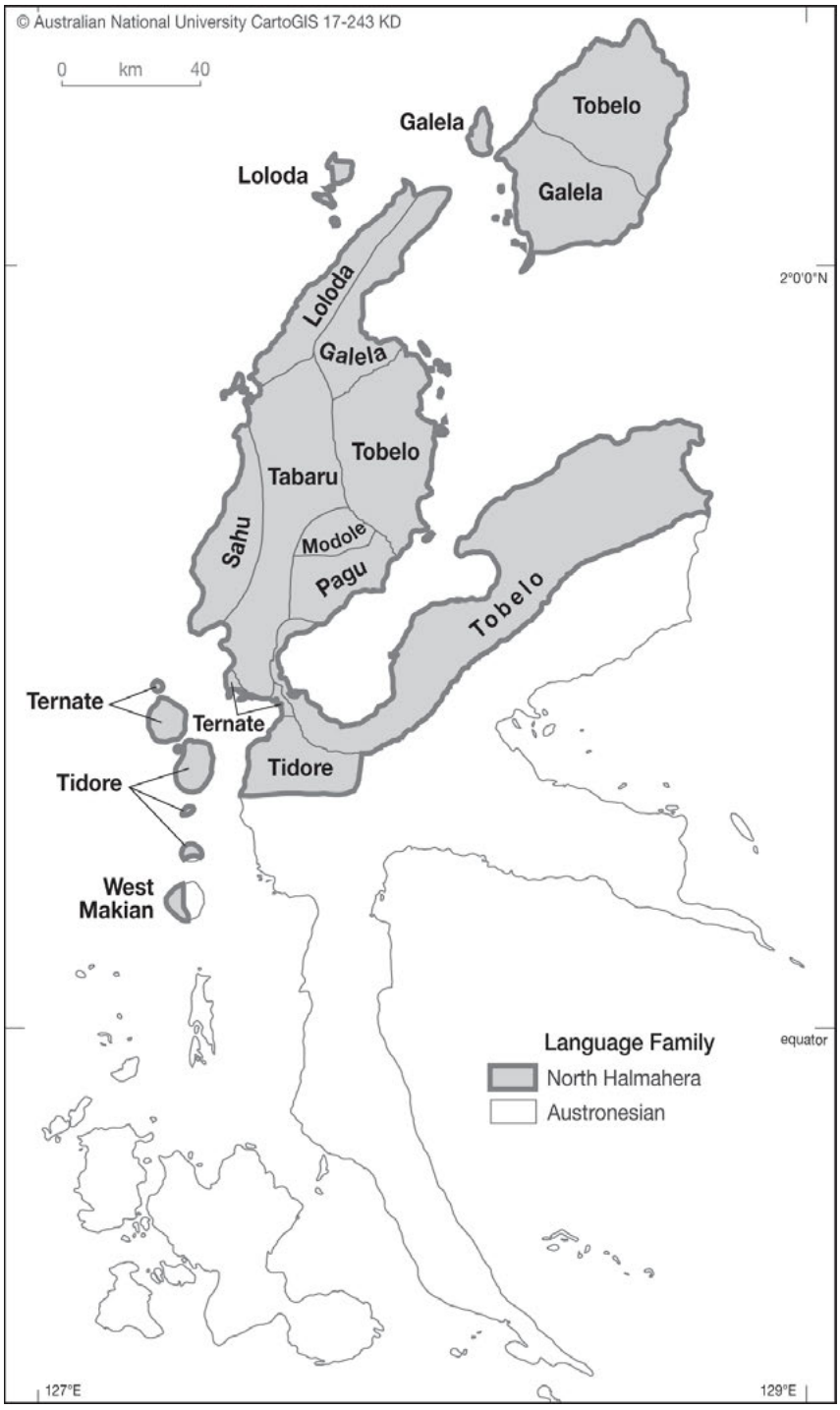


Map. 5.1: Papuan languages of the Bird's Head.

and vocabulary in section 4. All of the Papuan languages of East Nusantara are surrounded by Austronesian languages and/or in contact with Indonesian/Malay, and the issue of contact is addressed in section 5. In section 6 we summarize our findings. In section 7 we point out challenges for future research.

Map 5.1 shows the locations of the Papuan language families and family-level isolates of the Bird's Head. This chapter surveys the West Bird's Head (WBH), East Bird's Head (EBH) groups, and South Bird's Head (SBH) groups, as well as the isolates of this region.

Map 5.2 shows the homeland locations of the Papuan languages of North Halmahera and environs. It does not show more recent immigrant populations, especially on the southwest coast of Halmahera, nor more distant migrations settled on other islands of Maluku and Raja Ampat. For more details on these wider distributions see Voorhoeve (1988).



Map. 5.2: Papuan languages of Halmahera.

Table 2: The Papuan languages of the North Halmahera family

Language	ISO 639-3	Alternate Name	Family	Population[4]	References (selected)
West Makian	mqs	Moi		12,000	Voorhoeve (1982)
Ternate	tft		core NH	42,000	Watuseke (1991), Hayami-Allen (2001)
Tidore	tvo		core NH	26,000	van Staden (2000)
Sahu	saj		core NH	12,000	Visser and Voorhoeve (1987)
Tobelo	tlb	Tugutil	NEH	27,720	Holton (2003), Hueting (1936)
Galela	gbi		NEH	79,000	van Baarda (1891, 1895), Shelden (1989, 1991)
Loloda	loa		NEH	15,000	van Baarda (1904)
Modole	mqo		NEH	2,000	Ellen (1916a)
Pagu	pgu		NEH	3,309	Ellen (1916b) Wimbish (1991)
Tabaru	tby		NEH	15,000	Fortgens (1928), Kotynski (1988)

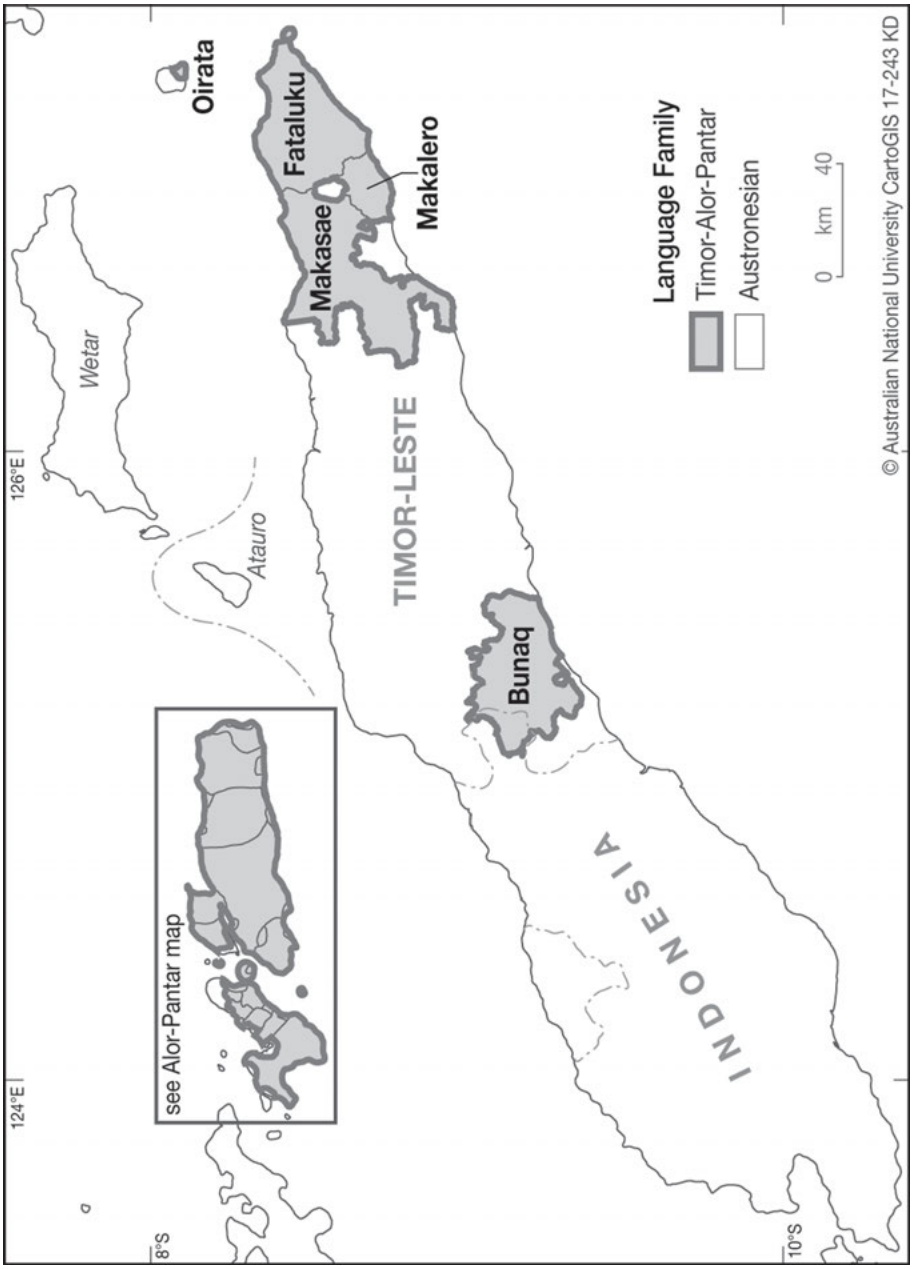
Table 3: The Papuan languages of the Timor-Alor-Pantar family

Language	ISO 639-3	Alternate Name(s)	Family	Population[4]	References (selected)
Abui	abz	Papuna	AP	17000	Stokhof (1984), Kratochvíl (2007), Kratochvíl and Delpada (2008a, 2008b), Klamer and Kratochvíl (2006, 2010), Kratochvíl (2011a, 2011b)
Adang	adn		AP	7000	Haan (2001), Robinson and Haan (2014)
Blagar	beu	Pura	AP	10000	Steinhauer (1977, 1991, 1993, 1995, 2010, 2014), Wakidi et al. (1989)
Bunaq	bfn	Bunak, Buna'	TIM	80000*	Berthe (1959, 1963), Schapper (2010)
Deing	–	Diang, Tewa	AP	1000	Vatter (1932: 277), Volk (2008)
Fataluku	ddg		TIM	30000*	Campagnolo (1973, 1979), van Engelenhoven (2009, 2010, forthcoming)
Hamap	hmu		AP	1300*	Stokhof (1975)

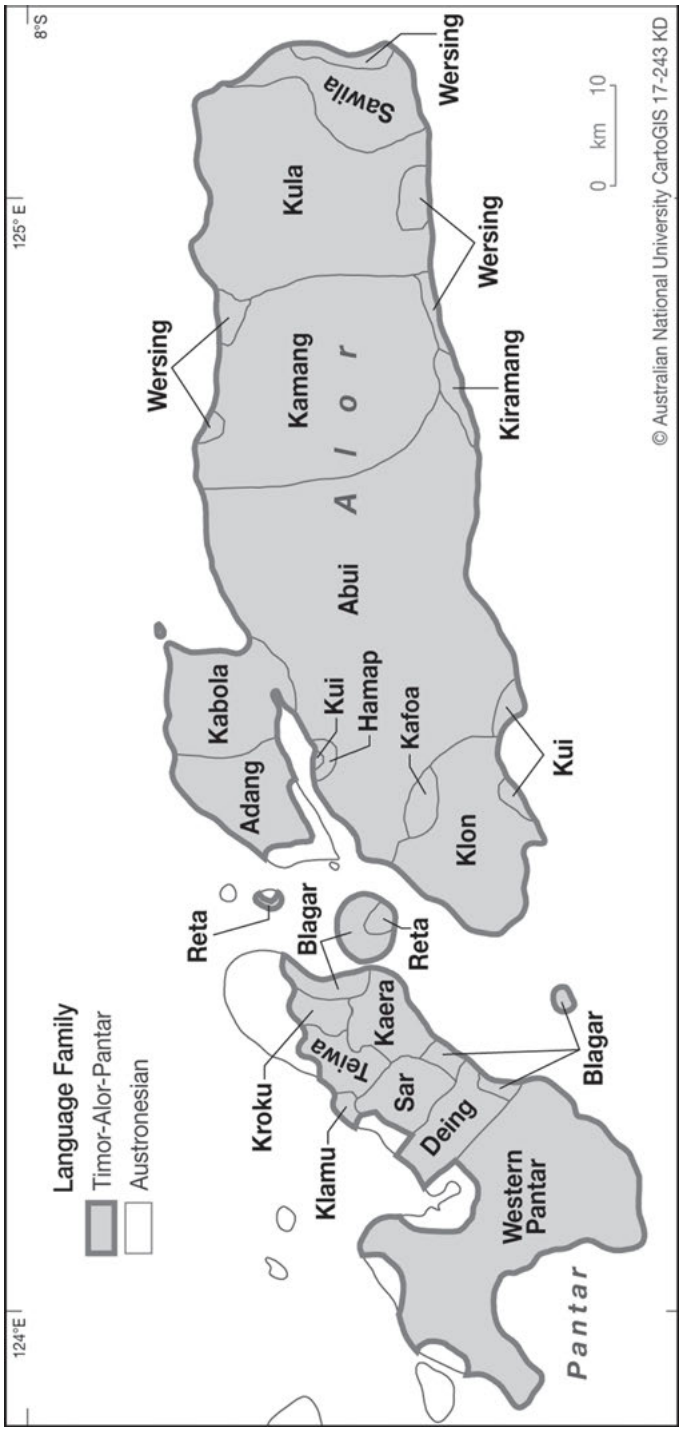
[4] Population estimates from fieldworker/source; starred (*) estimates from Lewis et al. (2015).

Language	ISO 639-3	Alternate Name(s)	Family	Population[4]	References (selected)
Kabola	klz		AP	3900*	Stokhof (1987)
Kaera	–		AP	5500	Klamer (2010b, 2014b)
Kafoa	kpu		AP	1000*	Baird (forthcoming)
Kamang	woi	Woisika	AP	6000	(Stokhof 1977, Stokhof 1979, Stokhof 1980, Stokhof 1982), Stokhof (1977), Schapper (2014), Schapper and Manimau (2011)
Kiraman	kvd	Kui, Kiramang	AP	1900*	Stokhof (1975), Holton (fieldnotes 2012)
Klon	kyo	Kelon	AP	5000	Baird (2005, 2008, 2010)
Kroku	–			4000	Amos Sir, p.c., Francesca Moro (fieldnotes 2016)
Kui	kvd		AP	1900*	Stokhof (1975)
Kula	tpg	Tanglapui	AP	5000*	Williams and Donohue (forthcoming), Donohue (1996)
Makalero	mkz	Maklere	TIM	6500	Huber (2011, forthcoming)
Makasae	mkz		TIM	70000*	Brotherson (2003), Carr (2004), Huber (2008, forthcoming)
Nedebang	nec	Klamu	AP	1380*	Stokhof (1975), Holton (fieldnotes 2004)
Oirata	oia		TIM	1220*	de Josselin de Jong (1937), Faust (2005)
Reta	ret	Retta	AP	800	Stokhof (1975), Robinson (fieldnotes 2010)
Sar	–	Teiwa?	AP		Baird (fieldnotes 2003)
Sawila	swt		AP	3000	Kratochvíl (2014)
Teiwa	twe	Tewa	AP	4000	Klamer (2010a, b, c, 2012b), Klamer and Kratochvíl (2010), Klamer and Sir (2011), Klamer (2014c)
Wersing	kvw	Kolana	AP	3700*	Schapper and Hendery (2014)
Western Pantar	lev	Lamma, Tubbe, Mauta, Kalondama	AP	10300[5]	Holton (2010, 2014a, 2014b), Holton and Lamma Koly (2008)

[5] This figure is from census data (Badan Pusat Statistik 2005).



Map. 5.3: Papuan languages of Timor.



Map. 5.4: Papuan languages of Alor and Pantar.

5.2. Documentation and genealogical classification

5.2.1. North Halmahera

Extensive documentation of NH languages was undertaken by Dutch missionaries in the late 19th and early 20th centuries, resulting in dictionaries, grammatical descriptions, and collections of traditional folktales for most of the languages (see Table 2). Modern descriptions can be found for Tidore (van Staden 2000), Ternate (Hayami-Allen 2001), West Makian (Voorhoeve 1982), Tobelo (Holton 2003), Sahu (Visser and Voorhoeve 1987), Pagu (Wimbish 1991), and Galela (Shelden 1989, Shelden 1991). West Makian is distinguished from the Austronesian language East Makian, or Taba (Bowden 2001), and non-Austronesian Ternate should not be confused with Ternate Malay, a regional Malay variety (Litamahuputty 2012).

There is extensive dialect variation within the family, and authors differ as to the number of distinct languages recognized, though there is general agreement regarding the internal subgrouping of the family. West Makian (Moi) is by far the most divergent, largely as a result of contact with East Makian (Taba), an Austronesian language with which it shares an island (Voorhoeve 1982: 5). Voorhoeve classifies West Makian as a stock-level isolate based on the language sharing no more than 28 % cognates with the other NH languages on a 100-item basic wordlist, though he admits that this figure is likely skewed by undetected borrowings (1988: 182–183). Ternate and Tidore are grouped together as dialects of a single language by Voorhoeve (1988), while they are considered distinct and mutually-unintelligible languages by van Staden (2000: 17–18). Sahu is spoken in five dialects, one of which, Ibu, was remembered by only a few elderly speakers in 1980 and is now likely extinct (Visser and Voorhoeve 1987: 7). Lewis et al. (2015) recognize Waioli, Gamkonora, and Ibu dialects as distinct languages but group Pa'disua and Tala'i together as a single language which they denote "Sahu" (ISO 693-3 saj).

The six languages Tobelo, Galela, Loloda, Modole, Pagu, and Tabaru are closely related and are grouped together as single language "Northeast Halmaheran" by Voorhoeve (1988), though treated as distinct languages in most of the literature. Each of these varieties has significant internal dialect variation. Grimes and Grimes (1994: 48) distinguish two additional languages, Kao and Tugutil. The former they group along with Modole and Pagu as part of a "Kao River Subfamily," while the latter they group with Tobelo as part of a "Tobelo Subfamily." Kao is more properly viewed as a dialect of Tobelo (Taylor 1990: 18), while the language spoken in Kao village (and presumably recorded by Grimes and Grimes 1994) represents that of several immigrant populations (Hueting 1921: 223). Tugutil is sometimes considered a dialect of Tobelo (e. g., Hueting 1921) but is more properly an ethnonym referring to various (originally) interior-dwelling populations, most of whom speak a variety of Tobelo but some of whom speak other unrelated Austronesian languages. Duncan (1998: 51) identifies twelve distinct

Tugutil groups in Northeast Halmahera alone. Lewis et al. (2015) distinguishes an additional language, Laba, within a "Galela-Loloda" group, while Voorhoeve (1988: 186) identifies Laba as a variant of Galela.

The non-Austronesian character of the languages of North Halmahera was first noted by Robide van der Aa (1872) and later rigorously demonstrated by van der Veen (1915). Reconstructions for more than 200 proto-NH forms are found in Wada (1980). The North Halmahera group is suggested to be about 3000 years old in Holman et al. (2011).

5.2.2. Timor-Alor-Pantar

The Timor-Alor-Pantar family comprises approximately 25 languages, spoken on Alor and Pantar and several islets between them, as well as on Timor and Kisar island (Map 5.3 and 5.4). The family is divided into a group of Alor Pantar (AP) languages and a group of Timor (TIM) languages. References to descriptive work on TAP languages are given in Table 3. A volume dedicated to the history of the AP languages and their typological characteristics is Klamer (ed.) (2014).

The non-Austronesian character of the TAP languages and their speakers has long been recognized in the literature. De Josselin de Jong (1937) described Oirata (on Kisar) as a close relative of Fataluku, spoken on the eastern tip of Timor. Nicolspeyer in her dissertation on Abui social structure cited Brouwer (1935: 83), who observed that the speakers of this central Alor language 'look like Papuans' (1940).

Shortly thereafter Capell (1943) identified Bunaq and Makasae on Timor as Papuan. Stokhof (1975) surveyed basic vocabulary for twelve language varieties of Alor and Pantar and concluded that the languages are lexicostatistically related. Recent bottom-up historical reconstruction has demonstrated that the Papuan languages of Timor, Alor and Pantar all belong to a single family (Holton and Robinson 2014a, Schapper et al. 2014). The internal relatedness of the AP languages is studied in Holton et al. (2012), Robinson and Holton (2012a), and Holton and Robinson (2014a), while the internal relatedness of the Timor languages is studied in Schapper et al. (2012).

The wider genealogical affiliations of the TAP languages have been the subject of much speculation. Beginning with Wurm et al. (1975), most authors (Wurm 1982, Ross 2005) have assumed that the TAP family belongs to the Trans-New Guinea (TNG) family, a position that is also reflected in Pawley and Hammarström (this volume), who list the TAP family among the 'groups and isolates with weak claims to membership in TNG'. Clearly, if such a relation exists, it can only be determined on the basis of supporting lexical evidence. During the past decade, a surge of descriptive work in TAP languages (see the references in Table 3) allowed for detailed comparisons of the lexicons of a representative set of TAP languages. Yet, the lexical evidence supporting a link between TAP and TNG remained thin, which lead Holton et al. (2012) to conclude that TAP should be considered a dis-

tinct family unrelated to Trans-New Guinea. In a later paper, Holton and Robinson (2014b) examine typological, pronominal and lexical evidence to evaluate three hypotheses regarding the higher-level affiliations of the TAP languages: (i) the languages are related to NH languages; (ii) the languages are part of the TNG family; and (iii) the languages are related to the West Bomberai family with no link to TNG more broadly. They conclude that the evidence currently available is insufficient to confirm a genealogical relationship between TAP and any other family, so that TAP must be considered a family-level isolate. Given the fact that Austronesian loan words can be reconstructed up to the level of proto-TAP, the family must have split up after having been in contact with Austronesian speakers. As the Austronesians are commonly assumed to have arrived in the area some 3,000 years ago (Pawley et al. 2005: 100, Spriggs 2011), the TAP family is unlikely to be not older than that.

5.2.3. Bird's Head

Substantial linguistic documentation of the Bird's Head languages was compiled as part of the interdisciplinary Irian Jaya Studies program at Leiden University (1993–2000). The non-Austronesian languages of the Bird's Head region of West Papua comprise three distinct groupings: West Bird's Head (WBH), East Bird's Head (EBH), and South Bird's Head (SBH), plus three isolates, Abun, Maibrat, and Mpur (Miedema and Reesink 2004: 25–42). While the genealogical status of WBH is fairly secure, that of EBH and SBH is less so.

5.2.3.1. West Bird's Head

The languages of the WBH family are spoken on the western part of the Bird's Head as well as the eastern part of the island of Salawati to the west. As proposed by Wurm (1971) and further delineated by Voorhoeve (1975b) the family includes six closely related language varieties: Kalabra, Kuwani, Tehit, Moi, Moraid, and Seget. Kuwani, known only from a single wordlist, is counted as Kalabra in Smits and Voorhoeve (1998: 14). However, the Smits and Voorhoeve list shows many lexical dissimilarities with Berry and Berry's Kalabra list, suggesting that Kuwani is indeed a distinct language.

Table 4: Lexical dissimilarities between Kuwani ("Kalabra", Smits and Voorhoeve 1998) and Kalabra (Berry and Berry 1987a)

Kuwani	Kalabra	
indibit	*difitlas*	'ear'
inzibun	*sifogo*	'eye'
owani	*defo*	'hand'

Voorhoeve (1975b: 719) shows that Kuwani *tetike* '1SG' is similar to Kalabra *tet*, but this source does not record any other Kuwani pronouns. The best documented of the WBH languages is Tehit (Flassy 1991). Based on both lexical and structural data Berry and Berry (1987a) propose a primary branch within the family separating Moi-Seget and Moraid-Kalabra-Tehit (1987: 51). Flassy (2002: 74) offers a preliminary reconstruction of proto-WBH based on a comparison of 150-item wordlists from Kalabra, Tehit, Moi, Moraid, and Seget. The West Bird's Head family is estimated to be 2500 years old (Holman et al. 2011).

Cowan proposed a genealogical relationship between WBH and the North Halmaheran family, based on a comparison of pronouns and the identification of ten putative etymologies (Cowan 1957: 87–8). Voorhoeve (1987, 1994a) demonstrated the existence of regular sound correspondences between WBH and NH, and postulated a genetic relationship between the NH and WBH languages. Given the geographic proximity, the connection between WBH and NH is entirely plausible. Yet, until such a relationship is demonstrated, they should be treated as separate families, the approach taken in this chapter.

5.2.3.2. East Bird's Head

The East Bird's Head comprises two families which may be distantly related. EBH proper includes Meyah (Mansibaber, Meax), Moskona (Meningo), and Sougb (Mantion/Manikion), corresponding to Cowan's "Eastern Group" (1958: 161). Reesink (2002b) and Miedema and Reesink (2004: 32) include Moskona as a dialect of Meyah, but more recent data from Gravelle (2011) establish Moskona as a distinct language, though more closely related to Meyah than to Sougb. Hatam and Mansim (Borai) are closely related, but the evidence connecting them to the rest of the EBH languages is much weaker. Mansim was remembered by only a few speakers a decade ago (Reesink 2002c) and is today presumably extinct. Reesink (1998) provides lexical evidence supporting membership of Hatam-Mansim in EBH, while Reesink (2002b) discusses structural similarities between Hatam-Mansim and EBH but stops short of asserting a genealogical connection. Most classifications treat Hatam as an isolate, ignoring presumably extinct Mansim. Miedema and Reesink (2004: 32) differ in the grouping of Moskona (as a separate language or a dialect of Meyah) and Hatam (as an isolate or a member of EBH). Reesink (1998) provides several potential lexical correspondences between EBH proper and Hatam.

Documentation of EBH is quite good. Grammars of Meyah (Gravelle 2010) and Moskona (Gravelle 2011) include grammatical description, texts, and wordlists, and the Moskona grammar provides a detailed comparison of Meyah and Moskona, once thought to be dialects. Hatam is described in a published grammar (Reesink 1999); sketch grammars of Sougb and Mansim can be found in Reesink (2002b).

Table 5: Lexical similarities between EBH languages

Meyah	Moskona	Sougb	Hatam	Mansim	
mem	*mem*	*ba*	*hab*	*waw*	'bird'
mej	*mej*	*mem*	*mem*		'louse'
egens	*erges*	*hom*	*gom*	*wom*	'one'
motu	*mot*	*loba*	*mmun*		'night'
didif	*dif*	*dan*	*dani*	*danu*	1SG

5.2.3.3. South Bird's Head

The South Bird's Head (SBH) languages are spoken in the McCluer Gulf region of the Bird's Head (Map 5.1). All but one of the languages are spoken to the north of the Gulf; Kemberano is also spoken on the south side of the Gulf along the Bomberai Peninsula by a population which migrated recently from the main SBH language area to the north (Voorhoeve 1985: 3). The languages comprise three distinct families whose genetic unity is in doubt. Based on lexicostatistics Voorhoeve (1975a) posits a SBH stock consisting of three families: core South Bird's Head; Inanwatan-Duriankere; and Konda-Yahadian. Pawley and Hammarström (this volume) note that "the three groups are lexically quite divergent and do not obviously form a coherent subgroup," while de Vries (2004: 11) considers Inanwatan to be part of the SBH family.[6] Following the latter, we are tentatively treating Inanwatan as a divergent member of SBH here, although future research may require a revision of this position. Berry and Berry (1987b: 93) further recognize an East subfamily within core SBH consisting of Arandai, Kokoda, and Kemberano, while Voorhoeve (1985) considers these three varieties dialects of a single language he labels Arandai. The varieties identified as Tarof and Kasuweri by Voorhoeve (1975a: 339) are considered by subsequent authors as dialects of Kokoda (de Vries 2004: 130). The two varieties share 86% lexical similarity on an 80-item word list (Berry and Berry 1987b: 84).

[6] Beyond SBH de Vries has also speculated that Inanwatan may be related to Marind, a group of Papuan languages spoken some 1000 km to the southwest. Though cognation percentages for basic vocabulary are low, de Vries suggests that "if we take structural considerations into account, the similarity between Inanwatan and the Marind languages could well be too great to be coincidental" (1998: 651). However, structural evidence is not generally accepted as evidence of genealogical connections.

Table 6: Lexical similarities between core SBH languages

Arandai	Kokoda	Kemberano	Kaburi	Kais	Puragi	
emago	*mago*	*magu*	*amiagu*	*magu*	*imagu*	'eye'
kabe	*kaba*	*kabe*	*wa'ava*	*kabo*	*koibi*	'head'
kuo	*ukwo*	*oku*	*uko*	*uku*	*vuko*	'egg'
onate	*onasia*	*anate*	*ma'aja*	*onate*	*mo'onata*	'one'
ogi	*ogia*	*oge*	*uge*	*uge*	*oge*	'two'
nendi	*nedi*	*nedi*	*neri*	*neri*	*nedi*	1SG

Substantive descriptive material is available only for Inanwatan (de Vries 2004). A brief sketch of "Arandai" in Voorhoeve (1985) also contains a wordlist comparing five language varieties, including the three varieties labelled Arandai, Kokoda and Kemberano in Table 6. De Vries (2004) contains brief survey data on Kokoda, Puragi, and Yahadian, as well as a short wordlist for Kaburi (Benawa). A comparative wordlist of all SBH languages except Arandai is found in Berry and Berry (1987b).[7] An older hypothesis connects SBH to the Timor-Alor-Pantar languages (Stokhof 1975); the lexical evidence for this hypothesis, which is examined in Robinson and Holton (2012b) and Holton and Robinson (2014b), is extremely weak.

5.2.3.4. Bird's Head Isolates

Three languages of the central north Bird's Head are isolates, not demonstrably related to each other or to other Bird's Head languages. These are Abun (Karon, Madik), Maibrat, and Mpur (Amberbaken). Voorhoeve (1975b) included these languages within three families: "North Bird's Head," "Central Bird's Head," and "Amberbaken." However, the varieties within these putative families are in fact dialects; hence, Voorhoeve's families correspond to Abun, Maibrat, and Mpur, respectively (see Berry and Berry 1999: 2). Voorhoeve's putative grouping of these languages into a Central Bird's Head stock has not been confirmed by regular sound correspondences. Indeed, the lack of lexical similarity contrasts strikingly with the widespread structural similarity in the region. Flassy (2002: 24) groups Abun and Maibrat, but not Mpur, with the WBH languages into what he dubs the "Toror" family.

The Bird's Head isolate languages are well described through grammars of Abun (Berry and Berry 1999) and Maibrat (Dol 2007), and a grammatical sketch of Mpur (Odé 2002).

[7] Although Berry & Berry (1987b: 98) note that an Arandai (Dombano) wordlist was collected, it is inadvertently omitted from their publication.

5.3. Language structure

The languages discussed in this chapter are structurally quite diverse. In this section, we present a comparative overview of their phonology, morphology and syntax. We describe common and rare typological patterns, and point out similarities and differences found between the various languages and families. In choosing our features, we have used the overviews in Foley (2000) and Aikhenvald and Stebbins (2007) as guidelines.

5.3.1. Phonology

Phonological systems of East Nusantara languages have up to seven places of articulations for consonants, which is significantly more than the three places of articulation that Aikhenvald and Stebbins (2007: 251) consider as 'usual' for Papuan languages.

The size of the consonant inventory is small to medium, in the terms of Maddieson (2013), yet all of them are well below the worldwide average of 22.7 (see Hajek 2010). Larger inventories are found in the outlier language groups of North Halmahera and Timor-Alor-Pantar. The Bird's Head exhibits the most diversity in terms of consonant inventory. The isolate Abun, which has the largest consonant inventory of any language considered here (20 consonants), is spoken adjacent to Maibrat, a language with the smallest consonant inventory (11 consonants).

Table 7: Maibrat consonant inventory (Dol 2007)

	labial	alveolar	palatal	velar
Stop	p	t		k
Nasal	m	n		
Fricative	f	s		x
Glide	w		j	
Liquid		r		

Maibrat owes its small inventory to the lack of a voiced stop or fricative series, but other languages achieve small inventories by other means. Inanwatan, which also has 11 consonants, lacks phonemically distinct liquids (though liquids do occur as allophones of nasals). Many languages present a full series of fricative phonemes without gaps.

Some of the largest consonant inventories are found in the North Halmaheran languages. These include Tobelo and Tidore, with 19 consonants each, and Sahu, with 20 consonants. The Pa'disua and Talá'i dialects of Sahu include a series of marginally phonemic implosive stops, raising the total number of phonemes in

those dialects to 24 (Visser and Voorhoeve 1987: 12). However, if loan phonemes are excluded proto-NH reconstructs as a moderately small inventory with just 16 consonants, as shown in Table 8.[8] The retroflex *ɖ is preserved as such only in Galela and otherwise realized as a stop (Modole, Tabaru), affricate (Loloda), lateral approximant (Tobelo), glide (Pagu, Tidore), rhotic (Sahu), nasal (Ternate), or fricative (West Makian). The labial fricative *f is preserved only in West Makian; it is reflected as glottal fricative in Galela, Ternate and Tidore; elsewhere it is lost.

Table 8: Reconstructed pNH consonant inventory (after Voorhoeve 1994a: 68).[9]

	labial	alveolar	retroflex	velar	glottal
Stop	p b	t d	ɖ	k g	
Nasal	m	n		ŋ	
Fricative	f	s			h
Glide	w				
Liquid		l r			

The NH inventories are comparable to those found in the Timor-Alor-Pantar (TAP) languages, which have on average about 15 consonants. As an illustration of the type of consonant inventory found in TAP languages, the pAP consonant inventory is presented in Table 9, and the pTAP consonant inventory in Table 10. (As the phonemic status of pAP *r is unclear it appears in brackets, see the discussion below.) The argumentation and the empirical underpinning of these reconstructed inventories are given in Holton et al. (2012), Holton and Robinson (2014a), and Schapper et al. (2014).

Table 9: Reconstructed pAP consonant inventory

	labial	alveolar	palatal	velar	uvular	glottal
Stop	p b	t d		k g	q	
Nasal	m	n				
Fricative		s				h
Glide	w		j			
Liquid		l (r)				

[8] Wada (1980) reconstructs three additional correspondences (in addition to several correspondences occurring only in loan words); however, these can be shown to be phonotactically conditioned variants of *p, *l and *r. Wada's P-1 and L-2 sets represent medial correspondences; R-1 represents a non-initial correspondence.

[9] The correspondence here represented by *h is reconstructed as *S by Voorhoeve, who does not reconstruct a glottal fricative. This *h is preserved as such only in Tobelo.

Table 10: Reconstructed pTAP consonant inventory

	labial	alveolar	palatal	velar	glottal
Stop	p b	t, d		k g	
Nasal	m	n			
Fricative	f	s			h
Glide	w		j		
Liquid		l, r, ʀ			

Within TAP, consonant inventories are largest in Pantar, where Teiwa has 20 consonants, and West Pantar has 16 consonants plus 10 geminates. The inventories decrease in size towards the eastern part of Alor, where Abui has 16 (native) consonants, and Kamang 14. Consonant inventories are lowest in East Timor, with 14 consonants in Oirata and 11 in Makalero. The latter language is unique in the family in that it lacks a voice distinction for labial and velar stops.

While the consonant inventories of TAP languages are rather similar to each other, some variation is found in the number of fricatives and nasals; for instance, velar nasals are frequently found in Alor-Pantar, but not in Timor. In Pantar we find consonants unique to the family: the Western Pantar geminate stops, the Teiwa pharyngeal fricative, the Teiwa uvular stop, the Kaera velar fricative, and the Blagar implosive voiced bilabial stop /ɓ/.

Geminates are also found in Hatam (East Bird's Head). Hatam is highly unusual in that it allows geminates in initial position. Thus, compare Hatam /mɐj/ 'to die' versus /m:ɐj/ 'to be embarrassed' (Reesink 1999: 13).

If it is the case that Papuan languages usually lack an /r/ ~ /l/ distinction (see Foley 1986), then the languages discussed in this chapter are atypical, as the distinction between /r/ and /l/ is found pervasively in Alor-Pantar, North Halmahera, as well as the Bird's Head.

However, there is evidence that the distinction did not yet exist in the proto-language of Alor-Pantar. In pAP, all consonants except *r may occur in initial position (see Table 11). In contrast, the glides *j and *w do not occur in medial and final positions; final glides in the modern languages derive from original vowels (Holton et al. 2012). This complementary distribution of *r and *j may suggest that *r was actually an allophone of *j in pAP, and that the phonemic distinction /r/ ~ /l/ is a later development.

Table 11: Distributional restrictions on pAP consonants (Holton et al. 2012)

	Initial	Medial	Final
b	+	+	+
d	+	+	+
g	+	+	–
p	+	+	–
t	+	+	+
k	+	+	+
q	+	+	–
s	+	+	+
h	+	–	–
m	+	+	+
n	+	+	+
l	+	+	+
(r)	–	+	+
j	+	–	–
w	+	–	–

If the /r/ ~ /l/ distinction has been innovated in Alor-Pantar, then its original distribution may have been limited to NH and WBH, which are likely related (see section 2.3.1). Thus, the /r/ ~ /l/ distinction may be less an areal feature of East Nusantara than a genetic feature of Proto-NH-BH which was independently innovated in Alor-Pantar.

Vowel inventories of the Papuan languages of East Nusantara employ 3 to 8 distinctions. The vowel systems in Timor-Alor-Pantar are typical for the region. Most involve the five cardinal vowels, possibly adding some mid vowel distinctions (e. g. Klon, Makalero), and/or length (e. g. Teiwa, Abui, Kamang). Makalero in Timor is atypical: its seven vowels are additionally distinguished as [+ long] or [+ creaky] or [+ long, + creaky], resulting in an inventory of 28 vowel phonemes (7 plain, 7 long, 7 creaky, and 7 long creaky ones) (Huber 2011: 55). Larger vowel systems are also reported for some SBH languages. De Vries (2004: 130) reports an 8 vowel system for Kokoda, including distinctions between mid (/e/, /o/) and lowered-mid (/ɛ/, /ɔ/) vowels. However, in the absence of a detailed phonological analysis it is possible that some of these vowel distinctions may turn out to be sub-phonemic. No Papuan language of East Nusantara has fewer than five vowels.

Tone, in its various guises, is said to be one of the defining features of Papuan languages, but in the area under investigation here it is rare, and if it occurs, it has a low functional load. Some evidence for phonemic tone is found in the Bird's Head isolate languages of Abun and Mpur. Abun exhibits a three-way contrast in level tones: low (V̀), mid (V), and high (V́).

(1) a. *ʃúr ʃè* b. *ʃúr ʃé* c. *ʃúr ʃe* [Abun]
water flow water flood water big
'the water flows' 'a big flood' 'a big river' (Berry and Berry 1999: 21)

However, Berry and Berry (1999) acknowledge that there are few minimal pairs of the same word class, so that tone carries a very low functional load in Abun. In contrast, neighbouring Mpur has four lexical tones, with a fifth complex contour tone as a phonetic compound of two lexical ones (Odé 2002, 2004). For example, *bé* 'but' (high tone), *be* 'in' (mid tone), versus *bè* 'fruit' (low tone). On Timor, Fataluku is analyzed as a tone language in which each syllable either has a high tone or no tone (Stoel 2008), though more recent work finds no convincing evidence for tone (Heston 2015: 165). On Alor, tone plays a marginal role in the lexicon of Abui (Kratochvíl 2007). A detailed study of Abui tone concludes that "tone is associated only with certain syllables and minimal pairs are relatively sparse" (Delpada 2015: i)

A more common feature of Papuan languages is a pitch-accent system which distinguishes one syllable of a word as more prominent than others. Foley observes that most Papuan languages described as tone languages actually "have a single contrast between high and low tone, and this suggests a pitch-accent system with a contrast between accented syllables and unaccented ones" (Foley 1986: 63). Where pitch accent systems exist they tend to affect a subset of the lexicon. Usually stress is predictable for the majority of the lexicon but must be lexically specified for a subset of the lexicon. In Moskona (EBH) accent falls on the penultimate syllable of the word, but there are a small number of polysyllabic words with ultimate stress (Gravelle 2011: 52). Many of these exceptional lexical items are function words or are morphologically complex. In Western Pantar (TAP) accent falls on the penultimate syllable unless that syllable precedes a geminate consonant. However, a small number of disyllabic words without geminates have ultimate stress, yielding minimal pairs distinguished only by accent placement (Holton 2014b: 39). For example, *ˈmata* 'luck' versus *maˈta* 'sulphurous water'; *ˈtame* 'where to' versus *taˈme* 'tamarind'. In some cases stress distinctions are phonemic. Lexical stress is even more distinctive in Inanwatan, where numerous minimal pairs can be identified, for example: *meˈʔo* 'rope' versus *ˈmeʔo* 'wood' and *toˈʔo* 'palm wine' versus *ˈtoʔo* 'bone' (de Vries 2004: 25).

Underived words are typically up to three syllables long, and syllables may be open (CV) or closed (CVC). Some TAP languages have consonant clusters in word-initial onsets, which involve a liquid second consonant (e. g. Teiwa *bluking* 'arrow', Western Pantar *bro* 'dust'). Stress patterns are variable in the TAP languages. Stress may be trochaic (on the penultimate syllable, e. g. Western Pantar, Bunaq), on the final syllable (Kaera), or be weight-sensitive (where heavy syllables are stressed) (Abui), or it may mix penultimate and weight-sensitive stress (Teiwa).

In sum, with respect to vowel and consonant inventory sizes, the East Nusantara languages appear to be somewhat transitional between the smaller vowel systems and large consonant systems of insular Southeast Asia and the more complex vowel systems but much more reduced consonant inventories to the east, in the wider New Guinea/Oceania region (see Hajek 2010).

5.3.2. Word order

The Bird's Head region is distinct in New Guinea for its diverse word order profiles. After Bickel (2011: 402) we use the following primitives for core participants: S for the single argument of an intransitive verb, A for the more agent-like argument of a transitive verb, and O for the more patient-like argument of a transitive verb. Many languages of the Bird's Head show a very non-Papuan AVO word order. This constituent order is found across the Austronesian languages of East Nusantara but is rare among Papuan languages (Klamer et al. 2008: 113). AVO order is found in all of the WBH languages, such as Moi (2) and Tehit (3).

(2) *Tu-mun* *w-owo* *ofun.* [Moi, WBH]
1SG-father 3SG.M-see dog
'My father sees a dog.' (Menick 1995: 67)

(3) *Mesak-w* *w-sqa* *ndrawai-m.* [Tehit, WBH]
M.-3M 3M-kill eel-3F
'Mesak killed the eel.' (Flassy 1991: 78)

Similarly, the Bird's Head isolates Abun, Mpur, and Maibrat display rigid AVO order.

(4) *Men* *git* *boge-ka.* [Abun]
1PL eat fish-flesh
'We ate fish.' (Berry and Berry 1999: 51)

(5) *A-bwana* *a-rokwa* *in.* [Mpur]
3SG.M-want 3SG.M-carry 1SG
'He wants to carry me.' (Odé 2002: 55)

(6) *Ku* *kintah* *m-ai* *mtah* *ro-Petrus.* [Maibrat]
child small 3SG.NON.M-hit dog POSS-P.
'The small child hit Petrus' dog.' (Dol 2007: 213)

In SBH languages word order is generally verb-final.

(7) *Nidi* *goyne* *pogi* *ni-ndi-ba-ni.* [Arandai, SBH]
1EXCL.PL all pork eat-PROG-1PL-ASP
'All of us are eating pork.' (Voorhoeve 1985: 12)

(8) *Itigi pugido m-eri-bi.* [Inanwatan, SBH]
3SG banana 3-eat-3SG.M.SBJ.PRS
'He eats bananas.' (Berry and Berry 1987b: 87)

However, word order in transitive clauses is less rigid in SBH languages, where an alternate AVO order is possible. For instance, in Inanwatan "objects frequently follow the verb" (de Vries 2004: 54). SV word order is preferred in intransitive clauses, but both AOV and AVO are possible in transitive classes.

(9) *Agó-wai e-rá-qa mé-rabu-ego-i* [Inanwatan, SBH]
and-that.F 3-from-TOP 3-hide-cause-3SG.M.SBJ.PST
méduro éwai.
wing that.F
'And he had hidden her wings.' (de Vries 2004: 54)

AVO word order is also found among the westernmost NH languages, ostensibly due to contact with Austronesian. The influence of Austronesian is more pronounced in the westernmost languages Ternate, Tidore, West Makian, and Sahu, which has resulted in a shift to AVO as the basic word order in those languages (Voorhoeve 1994b: 656). Thus compare Tobelo (AOV) with Tidore (AVO).

(10) *Ngohi o-nyawa to-wi-gohara.* [Tobelo, NH]
1SG ART-man 1SG.SBJ-3SG.M.OBJ-hit
'I hit a/the man.' (Holton 2008: 258)

(11) *Una wo-cako mina.* [Tidore, NH]
3SG.M 3SG.M-hit 3SG.F
'He hit her.' (van Staden 2000: 181)

However, even in Tobelo pragmatically conditioned alternate word orders are possible, as shown by the VOA order in the following example.

(12) *Ya-koki-duhuku o-Miti ma-nyawa, o-Jepangoka.* [Tobelo, NH]
3PL.SBJ-DIST-shoot NM-M. NM-people NM-Japanese
'They shot each Miti person, the Japanese.' (Holton 2003: 51)

The alternate VO word order may be a recent innovation in NH languages. Hueting (1936: 402) finds that the alternate AVO order in Tobelo is found only in written texts, and he suggests that this alternate word order is due to an influence of literary tradition. Alternate word order is also found occasionally in descriptions of other NH languages.

(13) *Yo-uit-isa ya-siguti ma-naok.* [Pagu, NH]
3PL-descend 3PL-unload NM-fish
'When they got out, they unloaded the fish.' (Wimbish 1991: 103)

Some of these Papuan AVO languages show evidence of head-final phrase order in other areas. Tidore (NH), for instance, has clause final complementisers, although it does have prepositions, and all of the AVO languages have post-predicate negation (section 3.8).

Basic word order in the TAP languages is AOV/SV, and clausal negators follow the predicate.

(14) *Manu sei pataŋ.* [Adang, TAP]
M. water boil
'Manu boiled water.' (Robinson and Haan 2014: 233)

(15) *Qau a ta ewar mis. Mis-an a ta man pi'i.* [Teiwa, TAP]
good 3SG TOP return sit sit-REAL 3SG TOP grass twine
'So she sits down again. Sitting she twines grass.' (Klamer 2010: 25)

However, left-dislocation is a pragmatically motivated variant in many of the languages, resulting in OAV.

(16) *Gai-ke'e maru si aname ging haggi kanna.* [Western Pantar, TAP]
3SG.AL.POSS-fish PL ART person 3PL.ACT take already
'People took those fish of his.' (Holton 2014b)

In Makasae left-dislocated O arguments are often followed by a resumptive pronoun which essentially maintains the basic AOV order. The subject marker *ini* additionally marks the position of the A, differentiating it from the left-dislocated O argument.

(17) *Ani ere wani ini ani tia.* [Makasae, TAP]
1SG DEM bee FOC 1SG bite
'I was stung by a bee.' (Huber 2005: 90)

In adpositional phrases, postpositions follow their complement. In nominal phrases, determiners such as articles and demonstratives, as well as numerals and adjectival attributes follow the noun, but possessors precede the possessed noun.

5.3.3. Person indexing and morphological alignment

Across the groups discussed here, free pronouns exist alongside verbal affixes that index person and number of the verbal arguments. In existing descriptions, the affixes are variably referred to as agreement, pronominal, or person indexing prefixes. There is a preponderance of prefixing to index verbal arguments and also a

tendency to index arguments in the absence of tense-aspect morphology (Reesink 2010: 72).

5.3.3.1. No person indexing

The isolate Abun, as well as the SBH languages Konda and Yahadian, are unique among the languages discussed here in that they completely lack verbal affixes indexing nominal arguments. Only free pronouns can be used to index arguments, and the form of those pronouns is identical regardless of whether the argument is S, A, or O.

(18) a. *Men* *kas.*
1PL ran
'We ran.'

b. *Men* *gwa* *Isak.* [Abun]
1PL hit I.
'We hit Isak.'

c. *Isak* *gwa* *men.*
I. hit 1PL
'Isak hit us.' (Berry and Berry 1999: 49)

The closely related SBH languages Konda and Yahadian also lack person-marking affixes.

(19) *Ne* *momó* *ginan* *nó-me.* [Yahadian, SBH]
1SG pig meat eat-FUT
'I want to eat pig meat.' (de Vries 2004: 149)

However, the remaining SBH languages do index A/S arguments via suffixes (see following section).

5.3.3.2. Indexing of A/S

The EBH languages, SBH languages (though not Inanwatan; see below), and the isolates Mpur and Maibrat obligatorily index S/A arguments on the verb, while O is not indexed. In EBH languages the S/A marker is a prefix, and the same prefix is used for subjects of transitives (A) and for subjects of both active and stative intransitive verbs (S).

(20) a. *Dif* *di-ek* *mars* *ofoga* *jig* *merga.* [Moskona, EBH]
1SG 1SG.SBJ-impale game flesh LOC wood
'I skewer the meat on the stick.' (Gravelle 2011: 120)

b. *Dif* *di-oyka* *kog.*
1SG 1SG.SBJ-walked ahead
'I walked ahead.' (Gravelle 2011: 142)

c. *Dif* *di-aksa.*
1SG 1SG.SBJ-tall
'I am tall.' (Gravelle 2011: 107)

The S/A marker is also a prefix in the isolates Mpur and Maibrat. The same prefix is also used to index inalienable possessors.

(21) a. *In-bwana in-un si in-aya a-tar jan.* [Mpur]
1SG-want 1SG-go to 1SG-father 3SG.M-father house
'I want to go to my father's house.' (Odé 2002: 52)

b. *In-tek.*
1SG-hot
'I am hot.' (Odé 2002: 60)

In Maibrat the occurrence of the A/S prefix is phonotactically conditioned. Vowel-initial stems require a prefix; however, consonant-initial stems do not admit a prefix if the resulting form (including epenthetic vowels) would exceed two syllables. Thus, the stems *ate* 'bathe' and *no* 'do' require prefixes, with epenthetic schwa preceding the latter, e. g., *t-ate* 'I bathe' and *tə-no* 'I do'. In contrast the stems *xawe* 'refuse' and *snuk* 'count' do not admit prefixes, since the resulting forms would require an epenthetic vowel which would result in a tri-syllabic word form, e. g., **tə-hawe* 'I refuse' and **tə-sənuk* 'I count'. Dol (2007: 52) considers these forms to have a "covert" prefix, but the pronominal referent cannot always be recovered. Independent pronouns can be used but usually have an emphatic reading.

(22) *Ait kpat Kocu Ata.* [Maibrat]
3SG.M leave K.A.
'He leaves Kocu Ata.' (Dol 2007: 116)

In some cases the referent can be recovered from the indexing on other verbs in a serial verb construction.

(23) *M-tu m-awe hawe m-pet* [Maibrat]
3NON.M-call 3NON.M-say refuse 3NON.M-marry
ait.
3SG.M
'She calls saying she refuses to marry him.' (Dol 2007: 202)

But in other cases the referent is not recoverable even in a serial construction, as in (24), in which the A argument of the verb *hawe* 'refuse' is ambiguous between first and third person readings.

(24) *Hawe y-aut ara.* [Maibrat]
refuse 3SG.M-climb tree
'I don't like him climbing the tree.' / 'He refuses to climb the tree.'
(Dol 2007: 198)

In the SBH languages, except for Konda and Yahadian, A/S arguments are obligatorily marked by suffixes, while O is not marked on the verb. Person-marking interacts with tense-aspect-mood marking, resulting in different paradigms of

tense-aspect marking. Person and number are sometimes marked separately, as in (25), where plural is marked by the suffix *i*.

(25)	a.	*notúa-ra-ba*	go-PST-1	'I went'	[Kokoda, SBH]
	b.	*notúa-ra-be*	go-PST-2	'you went'	
	c.	*notúa-ra-ja*	go-PST-3	's/he went'	
	d.	*notúa-ra-ba-i*	go-PST-1-PL	'we went'	
	e.	*notúa-ra-be-i*	go-PST-2-PL	'you all went'	
	f.	*notúa-ra-ja-i*	go-PST-3-PL	'they went'	
				(de Vries 2004: 135)	

The westernmost NH languages are exceptional in this family in that O prefixes have been lost and only A/S prefixes remain. Even these may be optional, so that bare stem verbs are permitted.

(26)	*Muna*	*(mo-)sari*	*(mo-)wako.*	[Tidore, NH]
	3F	3F-be.about.to	3F-return	
	'She is about to go home.' (van Staden 2000: 210)			

5.3.3.3. Indexing of A/S and O

In Tehit (WBH), A/S subjects are obligatorily indexed on the verb via a prefix (27a). In addition, third person pronoun O's are suffixed to the verb (27b). These pronouns do not co-occur with co-referential NPs. Non-third person pronouns occur as independent words (27c).

(27)	a.	*T-mba*	*na-w.*	b.	*T-mba-w.*	[Tehit, WBH]
		1SG-hit	man-3M		1SG-hit-3M	
		'I hit the man.'			'I hit him.' / 'I hit it (large).'	
	c.	*T-mba*	*nen.*			
		1SG-hit	2SG			
		'I hit you.' (Flassy 1991: 38)				

Tehit also has constructions where the subject role is filled by a generic noun *ni* 'thing', so that the A is an impersonal actor and the O refers to an experiencer, as in (28). Constructions like these have been referred to as "experiential" constructions by Reesink (1998, 2005).

(28)	*Ni*	*y-syoq-w.*	[Tehit, WBH]
	thing	3PL-do-3M	
	'He is sick (affected by evil spirits).' (Flassy 1991: 29)		

When the impersonal A is zero-marked, these constructions are formally indistinguishable from constructions that index only O (section 3.3.3). In Sougb, the first-person argument of 'sick' is encoded as O via a suffix (29a), while A is coded as a subject via a prefix (29b).

(29) a. *Dan ar-eb-ed.* b. *Dan d-et aret.* [Sougb, EBH]
1SG thing-do-1SG 1SG 1SG-eat food
'I am sick.' 'I eat food.'
(lit. 'it did me') (Reesink 2005: 192)

A common pattern in NH is to index both S/A and O via distinct pronominal prefixes. Tobelo (NH) has two distinct paradigms of prefixes for actor and undergoer, with some evidence of vowel grading between the actor and undergoer paradigms. Transitive verbs are obligatorily inflected for both actor (A) and undergoer (O).

Table 12: Tobelo actor and undergoer prefixes (Holton 2003)

	A/S (actor)	O/ S (undergoer)
1SG	*to-*	*hi-*
2SG	*no-*	*ni-*
3SG.M	*wo-*	*wi-*
3SG.F	*mo-*	*mi-*
1INCL	*ho-*	*na-*
2EXC	*mi-*	*mi-*
2PL	*ni-*	*ni-*
3PL.HUM	*yo-*	*a:-*
3NHUM	*i-*	*a-*

Though most SBH languages index only S/A (see Kokoda above), Inanwatan indexes both S/A and O. As in the NH languages, the Inanwatan S/A (Subject) prefix is formally distinct from the O (Object) prefix, as shown in Table 13.

Table 13: Inanwatan Subject and Object prefixes (de Vries 2004: 36)

	Subj	Obj
1SG	*ne-*	*na-*
2SG	*e-*	*a-*
1PL.EXC	*nige-*	*ni-*
2PL/1PL.INC	*ge-*	*i-*
3	*me-*	

The S/A prefix precedes the O prefix (30a); however, no O prefix occurs when a full NP or independent pronoun is present (30b).

(30) a. *Ni-á-weigo-re.* [Inanwatan, SBH]
1SG.SBJ-2SG.OBJ-deceive-PST
'I deceived you.'

b. *Áwe* *ni-weigo-re.*
2SG 1SG.SBJ-deceive-NON3SG.M.SBJ.PST
'I deceived you.' (de Vries 2004: 36)

Though most Alor-Pantar languages index only O arguments (see section 3.3.3), some of these languages do permit indexing of both A and O for certain lexical items.

(31) *Ke'e* *pi-ga-ussar.* [Western Pantar, TAP]
fish 1INCL.PL-3SG-catch
'We are catching fish.' (Holton 2010: 112)

5.3.3.4. Indexing of O

Languages which permit O but not S/A to be indexed on verbs are typologically rare, occurring in only 7% of the 378 languages surveyed by Siewierska (2013). However, such languages are common within the Timor-Alor-Pantar family. All across the family, verbal prefixes index person and number of O, while A and S are typically expressed as free forms. However, O-indexing is more regular and widespread in Alor-Pantar than in the Timor group, which has all but lost the original O prefixes. The Timor languages Fataluku and Oirata do not mark O arguments, whereas some vestige of O-marking remains in Makasae and Makalero in the form of a small set of verbs which mark third person O arguments (Schapper et al. 2012: 213). Among the Timor languages only Bunaq robustly indexes O arguments on verb analogous to the Alor-Pantar languages.

Person prefixes are similar in form across all AP languages, and are reconstructed for pAP as in Table 14.[10] In the prefixes, the initial consonant encodes person, and the theme vowels *a* and *i* encode singular and plural number.

Table 14: Reconstructed pAP pronominal prefixes encoding O (Kratochvíl et al. 2011, Klamer and Kratochvíl, In press)

1SG	**na-*
2SG	**ha-*
3SG	**ga-*
1INCL.PL	**pi-*
1EXCL.PL	**ni-*
2PL	**hi-*
3PL	**gi-*
COMMON/DISTRIBUTIVE	**ta-*

[10] All the AP languages have at least one paradigm of free pronouns, but the variation in forms makes it impossible to reconstruct a paradigm of pAP free pronouns.

All AP languages distinguish inclusive from exclusive forms (see section 3.6). All the modern AP languages also have reflexes of pAP *ta-, a prefix with a common or impersonal referent (compare 'one' in English *One should consider this*), and a reading that is often distributive or reciprocal *('each one, each other')*. Note that this prefix carries the singular theme vowel *a*.

Going east towards Alor, the languages have increasingly complex systems of grammatical relations involving multiple paradigms of person-indexing prefixes distinguished by vowel grading. For example, Teiwa on Pantar has one only paradigm of object prefixes (which is almost identical to the pAP paradigm in Table 14), Klon in West Alor has three paradigms (Table 15), and Abui (Central Alor) has five (Table 16).[11]

Table 15: Klon pronominal prefixes (Baird 2008: 69, 39)

	I	II	III
1SG	*n-*	*ne-*	*no-*
2SG	*V-/ Ø-*	*e-*	*o-*
3	*g-*	*ge-*	*go-*
1EXCL.PL	*ng-*	*nge-*	*ngo-*
1INCL.PL	*t-*	*te-*	*to-*
2PL	*i-*	*ege-*	*ogo-*
RECIPR	*t-*	*te-*	*to-*

Table 16: Abui pronominal prefixes (Kratochvíl 2007: 78, 2011: 591)

	I	II	III	IV	V
1SG	*na-*	*ne-*	*no-*	*nee-*	*noo-*
2SG	*a-*	*e-*	*o-*	*ee-*	*oo-*
3	*ha-*	*he-*	*ho-*	*hee-*	*hoo-*
1EXCL.PL	*ni-*	*ni-*	*nu-*	*nii-*	*nuu-*
1INCL.PL	*pi-*	*pi-*	*pu-*	*pii-*	*puu-*
2PL	*ri-*	*ri-*	*ru-*	*rii-*	*ruu-*
DISTR	*ta-*	*te-*	*to-*	*tee-*	*too-*

Where more than one O-marking paradigm exists the choice of paradigm is determined by lexical class, which may be more or less motivated by semantic factors, especially animacy (Fedden et al. 2014). In particular, while a verbal prefix in a TAP language typically indexes O, not every O is always indexed on a verb. In Teiwa the role of animacy in determining choice of prefix is relatively transparent. For instance, when the O argument of the Teiwa verb *mar* 'take' is inanimate, it

[11] Prefixes with theme vowels *e* and *o* reflect the pAP genitive and locative prefixes.

is not indexed on the verb (32a), but when O is animate, it is obligatorily indexed (32b).

(32) a. *Na* *ga'an* *mar.*
1SG 3SG take
'I take / get it.'

b. *Na* *ga-mar.* [Teiwa, TAP]
1SG 3SG-take
'I follow him/her.' (Klamer 2010: 91)

Yet other Teiwa verbs are less sensitive to animacy in this respect. In Abui, the different prefixes roughly correspond to semantically different events. For example, in (33) the O is a patient, location, recipient, benefactive and goal, respectively, and the prefix varies accordingly.

(33) a. *Na* *a-ruidi.* [Abui, TAP]
1SG 2SG-wake up
'I woke you up.'

b. *Di* *palootang* *mi* *ne-l* *bol.*
3 rattan take 1SG-GIVE hit
'He hit me with a rattan (stick).'

c. *Fanmalei* *no-k* *yai.*
F. 1SG-THROW laugh
'Fanmalei laughed at me.'

d. *Ma* *ne* *ee-bol.*
be.PROX 1SG 2SG-hit
'Let me hit instead of (i. e. for) you.'

e. *Simon* *di* *noo-dik.*
S. 3 1SG-prick
'Simon is poking me.' (Kratochvíl 2007: 592)

However, few Abui verbs admit more than one O marking paradigm. The role of referential properties and lexical stipulation is examined by Fedden et al. (2014) for Abui, Kamang, and Teiwa, and by Holton (2010) for Western Pantar. The diachronic evolution of differential O marking in the Alor-Pantar languages is investigated in Klamer and Kratochvíl (in press).

Among the Papuan languages of Timor, only Bunaq has person indexing of O. The Bunaq prefix encodes person only (Table 17).

Table 17: Bunaq pronominal prefixes (Schapper 2010)

1EXCL	*nV-*
1INCL/2	*V-*
3ANIM	*gV-*

Bunaq person prefixes are sensitive to animacy. The third person prefix *gV-* can only refer to animate O's, so in Bunaq animate O's are indexed (34a), while inanimate Os are free forms (34b).

(34) a. *Markus en ge-sen.* [Bunaq, TAP]
M. person 3ANIM-point
'Markus pointed to the person.'
b. *Markus zo sen.*
M. mango point
'Markus pointed to the mango.' (Schapper 2010: 77)

Apart from the multiple ways to index O, the AP languages also show variation in their morphological alignment type. That is, in some of the languages the pronominal prefix can index certain S or even A arguments, reflecting a semantic alignment system. The Alor-Pantar languages Teiwa, Kaera, Blagar and Adang only allow pronominal indexing of O arguments, reflecting an accusative system of alignment. That is, O arguments may be indexed on the verb while A/S arguments cannot. An illustration is Blagar, where the same pronoun *ʔana* '3SG' can encode A (35a) or S (35b), and O is prefixed on the verb (35a).

(35) a. *ʔana uruhiŋ aru ʔ-atapa-t. imina.* [Blagar, TAP]
3SG deer two 3-shoot.with.arrow-*t* die
'S/he killed two deer with bow and arrow.' (Steinhauer 2014: 208)
b. *ʔana mi bihi.*
3SG in run
'He/she/it runs in it.' (Steinhauer 2014: 173)

In the other Alor-Pantar languages A and S arguments can sometimes be indexed on the verb using the same prefixes as used for O arguments. In Klon, stative intransitive verbs index their single S argument using the same prefix that indexes the O argument of transitive verbs. This results in an alternation in which more patient-like S arguments are indexed via a prefix (36b), while more agent-like S arguments are indexed via an independent pronoun (36a).

(36) a. *Ga ihih.* [Klon, TAP]
3SG stand.up
'He stands up (deliberately).'
b. *Ge-ihih.*
3SG-stand.up
'He stands up (involuntarily, reluctantly).' (Baird 2008: 8)

Western Pantar allows pronominal prefixes that may index not only O, as in (37a), but also even more agent-like S arguments, as in (37b). Some verbs, such as *diti* 'stab' in (38) allow an alternation in the coding of a O or S with either a prefix or a free pronoun, with a difference in the degree of affectedness resulting.

(37) a. *Gang na-niaka.* [Western Pantar, TAP]
3SG.A 1SG-see
'S/he saw me.'

b. *Nang na-lama ta.* [Western Pantar, TAP]
1SG 1SG-descend IPFV
'I'm going.' (Holton 2010: 105–106)

(38) a. *Nang ga-diti.* [Western Pantar, TAP]
1SG 3SG-stab
'I stabbed him.' (superficially)

b. *Nang gaing diti.*
1SG 3SG stab
'I stabbed him.' (severely) (Holton 2010: 105–106)

In Abui pronominal prefixes may index not only more patient-like S arguments (39a) but also agent-like S arguments which are not sufficiently volitional or controlling (39b).

(39) a. *Na-rik.* b. *Na-kaai.* [Abui, TAP]
1SG-hurt 1SG-drop.COMPL
'I am ill.' 'I stumbled.' (Kratochvíl 2011: 596, 606)

In Kamang pronominal prefixes may index less volitional S arguments, while more volitional arguments are not marked on the verb.

(40) a. *Kui tak.* b. *Kui ge-tak.* [Kamang, TAP]
dog run dog 3SG-run
'The dog runs.' 'The dog was forced to run.'
(Schapper 2014: 326)

The use of an O-indexing affix to also express S is also found in NH. In Galela (NH) stative verbs index their single argument (41a) via the pronominal paradigm usually reserved for O arguments (41b).

(41) a. *Ni-kiolo.* b. *Wo-ni-doto.* [Galela, NH]
2SG.O-asleep 3M.SG.A-2SG.O-teach
'You are asleep.' 'He teaches you.' (Holton 2008: 261)

However, the Galela construction can be shown to have evolved from recent aphaeresis of the former third-person singular non-human subject prefix *i* (Holton 2008). This prefix is still present on stative verbs in closely-related, neighbouring Tobelo, as in (42).

(42) *I-wi-tokata.* [Tobelo, NH]
3NHUM.SBJ-3M.SG.OBJ-angry
'He is evil.' (Holton 2003: 58)

These NH constructions are reminiscent of the Bird's Head constructions discussed in section 3.3.2. In those languages (e. g., Sougb) certain constructions also appear as if S is encoded in the same way as O. In fact, in the Bird's Head these constructions are still clearly related to transitive "experiencer" constructions that have an impersonal A (a word like 'thing'). If such constructions lose their overt A-prefix, it seems as if the verb has only one argument which is expressed as O.

A pattern where two arguments are indexed on the verb is also found in the AP language Abui. In contrast to the preceding cases, these are not transitive constructions involving an affix for A and for O, but rather constructions involving two affixes for O.

(43) a. *Sieng* *ma* *he-noo-maran-i.* [Abui, TAP]
rice cooked 3.III-1SG.V-come.up.COMPL-PFV
'I am satiated with the rice'
b. *Hen* *hee-na-minang.*
that 3.IV-1SG.I-remember
'I remembered that.' (Kratochvíl 2011: 615, 617)

In sum, across the Papuan languages of East Nusantara, free pronouns exist alongside verbal affixes that index person and number of verbal arguments. There is significant variation in the choice of participant that is indexed on the verb. The Timor-Alor-Pantar languages are typologically unusual in that they index O but not A, and some of them have rich inventories of prefixes differentiating different types of O. Split-S systems are found in AP, NH and the Bird's Head, but the historical trajectories and the semantic factors that play a role in the various systems are quite different between the three groups.

5.3.4. Nominal possession

The preposed possessor construction predominates throughout East Nusantara. The large majority of the languages discussed in this chapter distinguishes between alienable and inalienable possession, though this distinction is not robustly attested in the North Halmaheran languages. The manner in which the distinction is expressed varies widely.

In Puragi (SBH) alienable possession is achieved with free pronouns (44a), while inalienable possession is marked by a bound possessor pronoun (44b).

(44) a. *neʔi* *éino* b. *na-koʔiβi* [Puragi, SBH]
1SG house 1SG-head
'my house' 'my head' (de Vries 2004: 141)

The same pattern is found in Inanwatan.

(45) a. *naré-so* *suqére*
1SG-GEN sago
'my sago'

b. *ná-wiri* [Inanwatan, SBH]
1SG.M-belly
'my belly' (de Vries 2004: 29–30)

In the EBH languages and the Bird's Head isolates Mpur and Abun alienable possession is distinguished by a possessive linker morpheme. Abun employs a possessive 'linker' *bi* with alienable (46a) but not inalienable (46b) possessive constructions.

(46) a. *ji* *bi* *nggwe*
1SG POSS garden
'my garden'

b. *Ji* *(*bi)* *syim* [Abun]
1SG arm
'my arm' (Berry and Berry 1999: 81)

In Mpur the possessive linker morpheme signalling the alienable possession strategy is *tar* (or *–bi*, borrowed from Abun), which affixes to the pronoun preceding the possessed noun (47a). In the inalienable construction the possessive pronoun is prefixed directly to the possessed noun (47b).

(47) a. *a-bi* *jetenon*
3SG.M-POSS knife
'his knife'

b. *a-wom* [Mpur]
3SG.M-hand
'his hand' (Odé 2002: 62)

Sougb (EBH) uses a linker *an*/*en* for alienable possession (48a). In the inalienable construction the possessive pronoun is prefixed directly to the possessed noun (48b). In Hatam the linker is *de.*

(48) a. *(dan)* *ind-an* *tu* [Sougb, EBH]
1SG 1SG-POSS house
'my house'

b. *(dan)* *ind-ums*
1SG 1SG-ear
'my ear' (Reesink 2002a: 217–8)

The Bird's Head isolate Maibrat also makes use of a linker morpheme to distinguish alienable possession, but in addition the possessed noun precedes the possessor in the alienable construction (49a). In contrast, inalienable possession in Maibrat uses the preposed possessor construction that is canonical for the region, with a pronominal prefix indexing the possessor (49b).

(49) a. *fane* *ro* *Yan*
pig POSS Y.
'Yan's pig'

b. *Yan* *y-asoh* [Maibrat]
Y. 3SG-mouth
'Yan's mouth' (Dol 2007: 160)

Most of the WBH languages also use a linker morpheme to distinguish alienable possession. In Tehit the alienable possession construction is formed by affixing a possessive pronoun to the linker *efe* (50a). In the inalienable construction the possessive pronoun is affixed directly to the possessed noun (50b).

(50) a. *t-efe* *mbolm* b. *t-sa* [Tehit, WBH]
1SG-POSS house 1SG-head
'my house' 'my head'
(Flassy 1991: 13, 15)

The limited data available suggest that Moi (WBH) does not make use of a linker morpheme and thus does not distinguish between alienable and inalienable possession.

(51) a. *ta-keik* b. *tu-suwo* [Moi, WBH]
1SG-house 1SG-eye
'my house' 'my eye'
(Berry and Berry 1987a: 34)

Given the variation in the form of the linker morpheme, the use of a linker morpheme to distinguish alienable possession is likely to be an areal strategy.

All TAP languages have preposed possessors, and all of them distinguish alienable from inalienable possession. For example, Abui (52) and Western Pantar (53) employ distinct possessive prefixes for alienable and inalienable possession.

(52) a. *ne-fala* b. *na-min* [Abui, TAP]
1SG.AL.POSS-house 1SG.INAL.POSS-nose
'my house' 'my nose' (Kratochvíl 2007: 8)

(53) a. *wenang* *gai-bla* [Western Pantar, TAP]
man 3SG.AL.POSS-house
'the man's house'
b. *wenang* *ga-wasing*
man 3SG.INAL.POSS-tooth
'the man's tooth' (Holton 2014: 30)

In Teiwa, alienable prefixes are optional, and inalienable prefixes are obligatory, (54):

(54) a. *na-yaf* b. *yaf* [Teiwa, TAP]
1SG.POSS-house house
'my house' '(a) house, houses'
c. *na-tan* d **tan*
1SG.POSS-hand hand
'my hand' *'(a) hand, hands'
(Klamer 2010: 192)

In Bunaq, alienable possessives employ a free possessor pronoun inflected for the person of the possessor, (55a), while inalienable possessors are indexed on the possessed noun itself, (55b).

(55) a. *apa gi-e luhan*
cow 3-POSS stable
'(a) cow's stable'

b. *apa g-ipe* [Bunaq, TAP]
cow 3.ANIM-horn
'(a) cow's horn'
(Schapper 2010: 312)

Donohue and Schapper (2008: 322) propose an "alienable possessive morpheme" reflecting pTAP *e with a function similar to that of the linker morpheme in Abun, though in some languages (e. g., Western Pantar) the reflex of this morpheme is now frozen into a paradigm of alienable possessive prefixes.

The NH languages have a preposed possessor and index the person and number of the possessor via a pronominal prefix. However, the NH languages do not make a distinction between alienable and inalienable possession. In Tobelo (NH) the same construction is used for both optional (56a) and obligatory possession (56b). However, with third-person possessors inalienable possession may optionally be distinguished via the use of the relational noun marker prefix *ma-* as opposed to the masculine or feminine prefixes *ai-* or *ami-*, respectively (56c).

(56) a. *o-nyawa ai-tau* [Tobelo, NH]
NM-man 3M.POSS-house
'the man's house'

b. *o-nyawa ai-ingiri*
NM-man 3M.POSS-tooth
'the man's tooth'

c. *o-kaho ma-ingiri*
NM-man 3POSS-tooth
'the man's tooth' (Holton 2003: 49)

The prefix *ma-* is not limited to inalienable possession but is also used also used to denote property concepts.

(57) *o-ode ma-pako* [Tobelo, NH]
NM-pig3POSS-large
'a large pig' (Holton 1999: 352)

In Tabaru (NH) *ma-* is used when the possessor denotes a child, animal or inanimate (58a), as well as with third-person singular possessors when the possessed is a kinship noun (58b).

(58) a. *o-ngowaka ma-guguule* [Tabaru, NH]
NM-child 3POSS-toy
'the child's toy'

b. *o-Dowora ma-esa*
NM-D. 3POSS-mother
'Dowora's mother' (Fortgens 1928: 345)

5.3.5. Gender

Aikhenvald and Stebbins note that Papuan languages exhibit the world's most sophisticated systems of gender or noun classification (2007: 253); however, such complex noun class systems are not found in the Papuan languages of East Nusantara. Much more restricted gender systems are found in some regions. Gender systems are most robustly attested in the WBH and SBH languages.

Tehit (WBH) distinguishes masculine, feminine, plural, and neuter genders, marked on the noun via a suffix *–w*, *m, -y* or *–Ø*, respectively. For some nouns gender is lexically specified. Lexically masculine nouns include: *ndla-w* 'husband', *sna-w* 'moon', and *qliik-w* 'snake'. Lexically feminine nouns include:*–ene-m* 'mother', *tali-m* 'sun', and *mbol-m* 'house'. Lexically plural nouns include: *sinas-y* 'small mosquito', *sinaq-y* 'gravel', and *siray* 'salt'. For other nouns gender is flexible and may indicate semantic differences. Masculine gender is associated with small size, parts of wholes, and changing appearances; while feminine gender is associated with large size, wholeness, and stable appearances.

(59) a. *wet-m* b. *wet-w* [Tehit, WBH]
child-3F child-3M
'girl' 'boy'
c. *e'ren-m* d. *e'ren-w*
fish-3F fish-3M
'big fish' 'small fish' (Flassy 1991: 10–11)

All SBH languages except Konda and Yahadian distinguish gender on nouns. These gender systems are generally phonologically based and distinguish masculine and feminine gender via the quality of the final vowel. In Inanwatan masculine nouns end in a front vowel *i* or *e*; feminine nouns end in a non-front vowel *u*, *o,* or *a*. For most nouns gender is lexically determined, but for some nouns there is a semantic basis underlying choice of gender, yielding oppositions such as *áruqo* 'blood of a female' versus *áruqe* 'blood of a male' (de Vries 2004: 33).

Gender concord may be required with nominal modifiers. In Kemberano masculine nouns require a *–i* concord suffix (60a), and feminine nouns require a *o* concord suffix (60b).

(60) a. *pogi enat-i* [Kemberano, SBH]
pig one-M
'one pig'
b. *uroko enat-o*
stone one-F
'one stone' (Berry and Berry 1987b: 86)

In Puragi the masculine demonstratives contain a front vowel, while the feminine demonstratives contain a back vowel. Gender concord distinguishes masculine *to* (61a) and feminine *-ómo* (61b).

(61) a. *Rabíni dáiʔa nasi-to.* [Puragi, SBH]
man that.M good-M
'That man is good.'
b. *Ráwo dáuʔa nasi-ómo.*
woman that.F good-F
'That woman is good.' (de Vries 2004: 141)

The Bird's Head isolate Maibrat distinguishes masculine versus non-masculine gender in the third-person bound and free pronouns. The masculine form is used for semantically masculine nouns which are singular, while the non-masculine form is used for plural, inanimate, and feminine nouns.

(62) a. *Fane y-tien.* [Maibrat]
pig 3SG.M-sleep
'The boar (male pig) sleeps.'
b. *Rae m-amo aya.*
man 3NON.M-go water
'The men (*man) go to the river.'
c. *Ru m-amo Senopi.*
bird 3NON.M-go S.
'The airplane(s) goes to Senopi.' (Dol 2007: 63)

Tobelo (NH) distinguishes masculine, feminine and neuter gender via choice of third-person pronominal index. Neuter gender is used with non-human and inanimate referents and marked by the pronominal affix *i-*.

(63) a. *Wo-boa-oka.* b. *Mo-boa-oka.* [Tobelo, NH]
3SG.M.SBJ-come-PFV 3SG.F.SBJ-come-PFV
'He came.' 'She came.'
c. *Yo-boa-oka.* d. *I-boa-oka.*
3PL.SBJ-come-PFV 3NHUM.SBJ-come-PFV
'They came.' 'It came.' (Holton 2003: 38)

Tobelo may optionally indicate feminine gender on animate NPs via a prefix *ngo-*

(64) a. *ngo-ai-ayo* b. *o-ngo-Rian* [Tobelo, NH]
F-3M.POSS-mother NM-F-R.
'his mother' 'Rian' (Holton 2003: 32–33)

Gender systems are marginally present in some of the TAP languages. Bunaq makes a distinction between 'animate' and 'inanimate' noun classes. This is essentially a semantic distinction, though for some nouns it is lexically determined. For a certain subset of verbs inanimate noun objects are indexed via a different prefix (*hV-*) than that used to index nouns from the animate class (*gV-*) (Schapper 2010: 420). A similar phenomenon is found in Abui, though the remaining TAP languages do not exhibit gender contrasts.

5.3.6. Inclusive/exclusive distinction

Given that the distinction between inclusive and exclusive first person plural is not a typical Papuan feature, it is significant that this distinction is widespread across East Nusantara and the Bird's Head. The distinction is found in all three geographic sub-regions: Timor-Alor-Pantar, North Halmahera, and the Bird's Head; as well as in all major family groups: TAP, NH, WBH, EBH, and SBH. Notably, the distinction is absent in the Bird's Head isolates Abun, Maibrat, and Mpur. In Hatam the distinction is limited to prefixes, where the third person singular and plural prefixes are employed to signal first person exclusive and inclusive, respectively.

5.3.7. Number

The marking of plural number varies greatly across the region. In Hatam plural number can be optionally indicated via an NP enclitic *=nya*. A collective human plural can be signalled with the enclitic *=bat.*

(65) a. *Krau misien ni-de=nya.* [Hatam, EBH]
grab dog 3SG-POSS=PL
'(He) grabbed his dogs.'
b. *ni-kwohop=bat i-de minyei*
3SG-sister-COLL 3PL-POSS water
'his sisters' water' (Reesink 1999: 50–51)

In Sougb (EBH) the marking of plurality, signalled by the suffix *–r*, is restricted to kinship nouns and nouns referring to social relations.

In Inanwatan (SBH) plurality is marked by a suffix *–o*, which replaces the last vowel of the noun. Since the majority of nouns end in this vowel, there is rarely a formal distinction between singular and plural.

In Tehit (WBH) plural marking interacts with gender and animacy. For inanimate nouns plural may be indicated with a suffix which is formally identical to the third-person plural bound pronoun. Alternately, plurality of inanimate nouns may be indicated using the masculine gender suffix *–w*, thus conflating the meanings 'small', associated with masculine gender, and 'plural'. The masculine gender suffix can also be used to indicate plurality for non-human animates, though in this

case the meaning 'plural' is conflated with 'male'. Finally, with human nouns the feminine gender suffix *–m* may be used to indicate plurality.

(66) a. *mbol-y* b. *mbol-w* [Tehit, WBH]
house-3PL house-3M
'houses' 'small house' / 'houses'
c. *sika-w*
cat-3M
'male cat' / 'cats'
d. *guru-m m-aa ndla-m m-aa roq*
teacher-3F 3F-REL male-3F 3F-REL many
'many male teachers' (Flassy 1991: 11–12)

Moskona (EBH) has a limited ability to mark plural for nouns denoting humans using the suffix *–ir*.

(67) *amóka-ir* [Moskona, EBH]
friend-PL
'friends' (Gravelle 2011: 68)

In the NH languages nominal plural is not explicitly marked on the noun, though it may be indexed via pronominal prefixes on the verb.

(68) a. *O-nauru wo-boa.* [Tobelo, NH]
NM-man 3SG.M.SBJ-arrive
'A man is coming.'
b. *O-nauru yo-boa.*
NM-man 3PL.SBJ-arrive
'Men are coming.' (Holton 2003: 13)

The Alor-Pantar languages exhibit a typologically unusual pattern whereby nominal plurality is indicated via a separate number word. In Teiwa (TAP) nouns which are followed by the plural word *non* are explicitly plural, while those which lack the plural word are unspecified for number, compare (69a–b).

(69) a. *Qavif ita'a ma gi?* [Teiwa, TAP]
goat where come go
'Where did the **goat**/**goats** go?'
b. *Qavif non ita'a ma gi?*
goat PL where come go
'Where did the (**several**) goat**s** go?' (Klamer et al. 2014)

Cognates of Teiwa *non* are found in Klon and Kamang (Klamer et al. 2014). In Sawila the plural word is *du* (70), and in Western Pantar the plural word is *marung* (71). Neither of these is cognate with the Teiwa plural word.

(70) a. *Aning du presiden iluluno.* [Sawila, TAP]
person PL president choose
'The people are electing the president.'
b. *Annu noo dara du dara?*
2SG which song PL sing
'Which songs will you sing?' (Kratochvíl 2014: 375)

(71) *Wenang marung ging pia.* [Western Pantar, TAP]
old.man PL 3PL.ACT descend
'The old men went down.' (Holton 2014b: 54)

Number words are absent in the Timor languages.

5.3.8. Negation

Post-predicate final negation predominates throughout the region (Klamer et al. 2008: 130). In Tehit (WBH) this is achieved via a negative word *nggait*.

(72) *M-aq mbol fo m-syoq hnyo fot* [Tehit, WBH]
3F-at house when 3F-make good also
ni nggait.
thing NEG
'At home, she also is not good in doing things.' (Flassy 1991: 76)

A similar structure is found in Moskona (EBH), where the negation marker is *éra*. Note the presence of the irrealis marker.

(73) *Bua bi-em-et mar éra.* [Moskona, EBH]
2SG 2SG.SBJ-IRR-eat thing NEG
'You didn't eat (anything).' (Gravelle 2011: 395)

Post-predicate negation is also found among all three Bird's Head isolates. In Mpur the negator is *jan*, while in Maibrat the negator is *fe.*

(74) *Ni ka muk-i in-unot jan.* [Mpur]
wood that name-CL 1SG-know NEG
'I don't know the name of that wood.' (Odé 2002: 54)

(75) *Om m-ais fe.* [Maibrat]
rain 3NON.M-descend NEG
'It is not raining.' (Dol 2007: 167)

The isolate Abun has bipartite negation which makes use of both a pre-predicate negator *yo* and a post-predicate negator *nde*. Both are obligatory.

(76) *Án yo ma mo nu nde.* [Abun]
wood NEG come to house NEG
'They didn't come to the house.' (Berry and Berry 1999: 131)

In Moi (SBH) the negator *dau* generally follows the verb (77a) but can sometimes occur preceding the verb (77b).

(77) a. *Tit dadi dau.* [Moi, SBH]
1SG can NEG
'I can not.'
b. *Tit dau t-ewa ku.*
1SG NEG 1SG-allow that
'I can not allow that.' (Menick 1995: 69)

The negative morpheme in Sougb (EBH) is clearly cognate to that in Moskona, but in Sougb the negative is suffixed to the verb (78).

(78) *Dam d-em-ecinag-ero.* [Sougb, EBH]
1SG 1SG-IRR-know-NEG
'I don't know it.' (Reesink 2002a: 204)

A negative suffix, *aigo*, is also found in Inanwatan (79). The verb may be optionally preceded by the negative adverb *náwo*.

(79) *(Náwo) né-se-aigo.* [Inanwatan, SBH]
1SG 1SG.SBJ-walk-NON3.SBJ.FUT-NEG
'I am not going to walk.' (de Vries 2004: 40)

In most NH languages the negator is suffixed to the verb, which itself usually occurs clause finally. Morphological constraints may intervene so that the negator is not actually the final morpheme in the verb string, as in the following Tobelo example (80), where the negator precedes the imperfective marker.

(80) *Ho-ma-hi-adono-ua-ahi* [Tobelo, NH]
1INCL.PL.SBJ-REFL-APPL-reach-NEG-IPFV
ho-ma-togu~togumu.
1INCL.PL.SBJ-REFL-RED~rest
'Before we arrived we rested.' (Holton 2003: 40)

Even in NH languages which have shifted to AVO word order the negator still follows the predicate.

(81) *Mina mo-oro nyao ua.* [Tidore, NH]
3SG.F 3SG.F-take fish NEG
'She did not take (steal) the fish.' (van Staden 2000: 41)

In most of the TAP languages the negator also occurs in post-predicate position, as in (82).

(82) *Gang* *ga-ume* *banang* *kauwa.* [Western Pantar, TAP]
3SG.A 3SG-inside like NEG
'He doesn't like it.' (Holton 2014b: 51)

However, the Timor languages Makalero and Makasae are exceptional in that they combine AOV word order with a negator that precedes the verb (83).

(83) *... pipirusa* *kiloo* *nomo* *ena=ni ...* [Makalero, TAP]
deer 3SG NEG see=LNK
'… the deer, he doesn't see (it)…' (Huber 2011: 56)

Some languages are even more restrictive regarding final placement of the negative. The Hatam negative marker *big* occurs sentence-finally, not just clause-finally. This has the effect of introducing ambiguity regarding the scope of negation, since there is no way to distinguish more restricted scope of negation. Thus (84) thus has two distinct readings.

(84) *Dani* *di-ngat* *nab* *yem* *dit-de* *bikau* [Hatam, EBH]
1SG 1SG-see pig eat 1SG-POSS sweet.potato
big.
NEG
'I didn't see that the pig ate my sweet potatoes' /
'I saw that the pig didn't eat my sweet potatoes.'
(Reesink 1999: 107)

5.3.9. Serial verb constructions

Serial verb constructions (SVCs) are found in most Papuan languages (Aikhenvald and Stebbins 2007) and also found throughout the Papuan languages of East Nusantara (van Staden and Reesink 2008). SVCs are analysed as two or more verbs that occur together in a single clause, which share minimally one argument, and whose shared arguments are each expressed maximally once. SVCs are distinguished from biclausal constructions by the presence of a clause boundary marker in between the clauses in the latter (a conjunction-like element, an intonational break, or a pause). The verbs in a SVC share tense and aspect marking and occur under a single intonation contour without such a boundary marker.

The semantic contrast between a monoclausal construction with an SVC and a biclausal construction is illustrated by the minimally contrasting pair of Teiwa sentences in (85). Monoclausal (85a) expresses through an SVC the intransitive event of someone who died because he fell down (e. g. from a coconut tree). The biclausal construction in (85b) describes two events in clauses that are linked by

the conjunction *ba*: someone is dying (e. g. because of a heart attack) and is falling down (e. g. out of a tree) as a result of this. No such conjunction-like element would occur between the verbs constituting an SVC. The verbs participating in SVCs are highlighted in the following examples.

(85) a. *A* *ta* ***min-an*** ***ba'***. [Teiwa, TAP]
3SG TOP die-REAL fall.down
'He died falling down.'

b. *A* *ta* *min-an* *ba* *ba'*.
3SG TOP die-REAL CONJ fall.down
'He died then fell down.' (Klamer 2010: 305)

In languages with obligatory person-marking on the verb, each verb in the SVC may separately index the shared argument, though the argument NP is only expressed once.

(86) *Eri* ***i-ecira*** ***i-er-omnin*** *dif.* [Moskona, EBH]
3PL 3PL.SBJ-walk 3PL.SBJ-CAUS-aim.at 1SG
'They walked aiming at me.' (Gravelle 2011: 288)

The shared argument need not have the same syntactic role in each verb. Such "co-dependent" SVCs are more widely attested in the Papuan languages of East Nusantara and the Bird's Head than in the Austronesian languages of the region (van Staden and Reesink 2008: 26). In the Tobelo (NH) example (87) the single argument is indexed as an undergoer on the first verb in the SVC and as an actor in the second verb.

(87) *Ngohi-o* ***i-hi-ahoko*** ***to-karajanga***. [Tobelo, NH]
1SG-also 3NHUM.SBJ-1SG.OBJ-call 1SG.SBJ-work
'I was also called to work.' (Holton 2003: 61)

SVCs are frequently attested in all TAP languages, and they express a wide range of notions, including manner (88), direction (89)–(90). SVCs in TAP languages also serve to introduce participants, for example in clauses that express a 'give' event (section 3.10). Some participant-introducing verbs in proto-Timor-Alor-Pantar have grammaticalized into postpositions and verbal affixes in the modern languages; examples include *mi 'be in, at', *ma 'come', and *med 'take' (Klamer, in press).

(88) *Habbang* *mau* *aname* ***horang*** [Western Pantar, TAP]
village there person make.noise
sauke-yabe.
dance-lego.lego
'Over there in the village people are making noise dancing lego-lego.' (Holton 2014b: 82)

(89) a. *Baal* ***sita*** ***te.*** [Kamang, TAP]
ball bounce go.up.DIRECT
'The ball bounces up.' (Schapper 2014: 347)

b. *Nal* ***duuh*** ***fe.***
1SG squat go.down.DIRECT
'I squat down.' (Schapper 2014: 348)

(90) *Wori* *ni* *oma* *mata* *mutu* ***ria*** ***misa*** [Makasae, TAP]
DEM FOC house child inside run go.up
la'a.
go
'She ran up inside her hut.' (Huber 2005: 67)

SVCs may serve to mark aspectual distinctions, especially completive aspect (91) and continuous aspect (92).

(91) *A* *bir-an* *gi* *awan* *awan* [Teiwa, TAP]
3SG run-REAL go far.away far.away
tas-an ***gula'*** ...
stand-REAL finish
'She ran far away [and] stood [still] …' (Klamer 2010: 358)

(92) *Una* *wo-maleko* *wo-reke.* [Tidore, NH]
3SG.M 3SG.M-continuous 3SG.M-cry
'He cried continuously.' (van Staden 2000: 309)

Subtle aspectual distinctions may be signalled by structural properties of the SVC. In Maibrat the verb *akus* 'leave behind' is one of a closed class of verbs which may occur without a person prefix in serial construction. When it occurs with a person prefix a permanent state is implied (93a); without a person prefix a temporary state is implied (93b).

(93) a. *T-se* *sasu* *m-akus.* [Maibrat]
1SG-place sweet.potato 3NON.M-leave.behind
'I left the sweet potato (permanently).'

b. *T-se* *sasu* *akus.*
1SG-place sweet.potato leave.behind
'I left the sweet potato (temporarily).' (Dol 2007: 193)

Many of the languages which have SVCs also have constructions which, though similar to SVCs in many respects, are defective or atypical in that they do not meet all of the criteria for serial verb constructions. For example, while prototypical SVCs share a single intonation contour, in the Bird's Head isolate Maibrat verb sequences may be optionally broken by a pause, with no apparent semantic difference.

(94) ***Y-po*** *pam (...)* ***y-fat*** *arà.* [Maibrat]
3SG.M-hold axe 3SG.M-fell tree
'He holds the axe and fells the tree.' (Dol 2007: 214)

In Tobelo (NH) verb sequences uttered under a single intonation contour and sharing an argument may be inflected for different aspects.

(95) *Ho-olyomo-oka* *ho-sobo-oli.* [Tobelo, NH]
1INCL.PL.SBJ-eat-PFV 1INCL.PL.SBJ-depart-REP
'After eating we departed again.' (Holton 2003: 61)

These constructions can be considered SVCs under the looser criteria proposed by van Staden and Reesink (2008: 22), since they consist of a single clause in which neither verb is formally subordinated.

SVCs are not found in the SBH languages. Constructions similar to SVCs may be achieved via verb compounding in Inanwatan (96).

(96) *Mé-de-wo-re.* [Inanwatan, SBH]
3-go.across-come-NON3SG.M.SBJ.PST
'They came across.' (de Vries 2004: 57)

5.3.10. 'Give' constructions

The TAP languages other than Bunaq lack a class of simple ditransitive root verbs: the root verb 'give' is mono-transitive and has a recipient as its object. 'Give' events that involve three participants (ACTOR, RECIPIENT, and displaced THEME) are expressed by means of biclausal or serial verb constructions with 'take' (introducing the displaced theme) and 'give' (introducing the recipient), in the order [THEME *take* RECIPIENT *give*]. All AP languages exhibit secundative alignment, where the O argument indexed on the verb 'give' is the recipient, and is encoded in the same manner as a transitive patient (Malchukov et al. 2010).

Illustrations of AP 'give' constructions are (97): in the biclausal construction (97a) the theme is flagged in the first clause by *mi* 'take' and the recipient in the second clause by *-l ~ -r* 'give' (the consonant alternation encodes an aspectual distinction which need not concern us here). In (97b), the construction is mono-clausal: note the fronting of the NP encoding the recipient to a position before both 'give' and 'take' verbs. This would not be possible in the biclausal structure (97a).

(97) a. *Hen mi ba Lius la he-l-e.* [Abui, TAP]
3 take CONJ Lius PART 3-give-IPFV
'Just give that one to Lius.'

b. *Nei yo la mi ne-r te ya!*
1SG.POSS DEM PART take 1SG-give first DEM
'Give me mine!' (Klamer and Schapper 2012: 186–187)

In some of the TAP languages, e. g., Kamang (Alor) and Makasae (Timor), the verb 'take' has been semantically bleached and syntactically reduced to a light verb or a postposition-like element that marks obliques.

The Bunaq 'give' construction is unique within the TAP family in terms of both verbal etymology and constituent order. In Bunaq, the synchronic verb *–ege* 'give' does not reflect pTAP *en(a/i) 'give'. All three arguments of *-ege* are realised as simple NPs, and the unmarked constituent order is [RECIPIENT give THEME], as shown in (98). Bunaq is the only TAP language in which the displaced theme occurs in postverbal position.

(98) *Neto* *Markus* *g-ege* *paqol.* [Bunaq, TAP]
1SG Markus 3ANIM-give corn
'I gave Markus corn.' (Schapper 2010a: 358)

Outside TAP, languages with a distinct class of ditransitive verbs can be found. The behaviour of these verbs depends on whether the language has the ability to index O on the verb. In those NH languages which index O arguments on the verb, such as Pagu (99), 'give' constructions exhibit secundative alignment, indexing recipients as patient or undergoer O arguments. The path of transfer may be additionally marked with a directional suffix.

(99) *O-ngo-Sarah* *o-gula* *mo-ki-kula* [Pagu, NH]
NM-F-S. NM-sugar 3SG.F-3PL-give
ma-ngoa~ngoak-ika.
NM-PL~child-DIR
'Sarah gave sugar to the children.' (Wimbish 1991: 32)

Secundative alignment is also in Inanwatan, (100).

(100) *Ao* *úto* *úra* [Inanwatan, SBH]
their fish DEM
me-rí-we-be.
3-1PL.EXCL.OBJ-give-NON3SG.M.SBJ.PRS
'They gave us their fish.' (de Vries 2004: 53)

In those NH languages which lack O indexing on verbs, such as Sahu (101), the recipient in a 'give' construction is coded with a preposition as an oblique constituent.

(101) *No-pula'a* *ma-buku* *ne* *re* *om* *Leo*. [Sahu, NH]
NM-give NM-book this to uncle L.
'You give the book to uncle Leo.'
(Visser and Voorhoeve 1987: 55)

Nearly identical 'give' constructions are found in the Bird's Head isolate Abun, (102), which also lacks verbal indexing of O.

(102) *Nggon ne syo suk-ne nai an bi im.* [Abun]
girl that give thing-DET to 3SG POSS mother
'That girl gave those things to her mother.' (Berry and Berry 1999: 52)

Similarly, in WBH languages such as Moi (103) recipients are marked with an adposition which precedes the recipient NP and is inflected with a prefix indexing the person and number of the recipient.

(103) *Te-su sebak w-osu lagi m-awi.* [Moi, WBH]
1SG-give tobacco 3SG-to woman 3SG.F-at
'I give tobacco to the woman.' (Menick 1995: 66)

5.3.11. Morphological typology

Morphologically, verbs are the most complex word class in many Papuan languages, such as the major groupings of Trans New Guinea, Sepik, and Trans-Fly languages. In contrast, in the Papuan languages of East Nusantara affixation to index arguments on verbs is very common (see section 3.3), while other verbal inflections (such as tense, aspect, mood) generally remain fairly limited, and elaborate derivational morphology on verbs is uncommon. The most elaborate verb structures are found in the North Halmaheran languages, where verbal prefixes include person markers, reflexive markers, intensifiers, and suffixes marking tense-aspect, direction, and negation, as shown in (104)–(105).

(104) *Ahi-tau neng-oka dau moi ka* [Tobelo, NH]
1POSS-house there-LOC down one thus
i-ma-hido-le~letongo-úku.
3NHUM.SBJ-REFL-INTENS-RED~shine-DOWN[12]
'One bolt of lightning came down on my house.'
(Holton 2003: 42)

(105) *Ai-ngoak to-mi-olik-oka-ou.* [Pagu, NH]
1POSS-child 1SG-3SG.F-bath-NFUT-PFV
'I already bathed my daughter.' (Wimbish 1991: 43)

In Moskona (EBH) verbal morphology includes inflection for person and mood, and causative derivation:

(106) *(Mif) mi-em-er-etka mergej.* [Moskona, EBH]
(1PL) 1PL.SBJ-IRR-CAUS-split firewood
'We will split firewood (with s.t.).' (Gravelle 2011: 110)

[12] Reduplication here derives noun 'lightning' from verb 'shine'.

In the Western Bird's Head, verbal inflection is more restricted. In Tehit verbal morphology is limited to the indexing of persons.

(107) *T-sot-w.* [Tehit, WBH]
1SG-see-3M
'I see him.' (Flassy 1991: 10)

In the SBH languages verbs are inflected for tense, aspect, mood and negation via verbal affixes. In Inanwatan the aspectual suffix follows the verb root and precedes the tense suffix (108a). The counterfactual mood is marked by a prefix *d-* which follows the verb root and requires its own paradigm of person marking suffixes, which follow rather than precede the verb root (108b). The negative suffix occurs in final position, following the tense marker (108c).

(108) a. *Mó-uwu-rita-i.* [Inanwatan, SBH]
3-sit-HAB-3SG.M.SBJ.PST
'He used to sit.'

b. *Mó-d-eqo.*
come-COUNTERFACT-1SG.SBJ
'I would have come.'

c. *Né-se-s-aigo.*
1SG.SBJ-walk-NON3.SBJ.FUT-NEG
'I am not going to walk.' (de Vries 2004: 38–40)

The most isolating languages of the region are found in the genealogical isolates of the northern Bird's Head, such as Abun, where the correspondence between word and morpheme is often one-to-one.

(109) *Men ben suk mo nggwe yo, men ben* [Abun]
1PL do thing LOC garden then 1PL do
suk sino.
thing together
'If we do things at the garden, then we do them together.'
(Berry and Berry 1999)

Languages with an isolating profile are also found in Timor; the Timor languages are the most analytic languages of the TAP family. Within the TAP family, languages show significant contrasts in their morphological profile. Broadly speaking, the languages of Central and East Alor are more agglutinative than those of Pantar and Timor. For example, Makalero (Timor) lacks pronominal indexing altogether, Teiwa (Pantar) has one pronominal prefix paradigm, while Western Pantar (Alor-Pantar) allows two arguments to be indexed on the verb (see 5.3.3 above).

Inflections for aspect and mood are found in the Alor-Pantar languages, but not in Timor. Tense inflections are generally lacking in TAP languages. Even within a single inflectional category, there is much variation in the forms employed, and the

values expressed. For example, (110) shows that aspect in Western Pantar is prefixing while in Kaera and Kamang it is suffixing; and that morphemes with overlapping values have different shapes (compare Kaera and Kamang (im)perfective).

(110)	a.	Western Pantar:	*i-*	Progressive
			a-	Inceptive
	b.	Kaera:	*-it, -t*	Imperfective
			-i	Perfective
			-ang	Continuative
	c.	Kamang:	*-si*	Imperfective
			-ma	Perfective
			-ta	Stative

5.3.12. Summary of language structure

In terms of their structure, the Papuan languages of East Nusantara and the Bird's Head show a tremendous amount of variation. Some of their structural features conform to what is considered as typically Papuan (Aikhenvald and Stebbins 2007, Foley 2000), but at the same time, they also have characteristics that are unusual for Papuan languages. Typically Papuan is their overall syntactically right-headed structures, with clause-final verbs and negators (NH, TAP), though AVO word order is also found in the Bird's Head and NH languages. The preposed possessor construction predominates throughout East Nusantara, and the large majority of the languages discussed here make a formal distinction between alienable and inalienable possession. Serial verb constructions are also found across the groups. In TAP, SVCs are the base for 'give' constructions with three participants, as these languages generally lack a class of ditransitive verbs. In the other groups, ditransitive verb classes are found, but all across the groups, secundative alignment causes recipients to be indexed on the verb with patient affixes.

The languages also have features that are less usual for Papuan languages. Their consonant inventories are on average more complex than those of the languages on the Papuan mainland, and all the East Nusantara Papuan languages have a phonemic distinction between /l/ and /r/. Complex noun classification systems, which are often said to be typical for Papuan, are not found in the languages discussed here. Much more restricted gender systems, such as masculine-feminine gender marking, are pervasive in the Bird's Head, but in TAP such a gender distinction is completely lacking. On the other hand, the distinction between inclusive and exclusive first person plural, which is not typical for Papuan, is found in all four regions, as well as in all the family groups. Overall, the morphological profile of verbs in the groups discussed here is simple compared to Papuan standards, though individual exceptions exist. The most elaborate verbal morphology is found in NH, and the most simple in the isolates of the Bird's Head and in the

Timor languages, while the AP languages generally take a middle position. All the groups index arguments on verbs, but the alignment patterns vary dramatically. The A of a transitive verb can be prefixed (SBH, WBH, NH), suffixed (EBH), or be a free form (TAP). The O is prefixed (NH, TAP), or suffixed (WBH). The encoding of the single argument of an intransitive verb shows most variation. S is encoded as an A prefix in SBH, WBH, NH, as an A suffix in EBH, and as an A free from in a subset of the TAP languages. Languages in NH and AP also encode S with an O prefix, thereby showing Split-S alignment. The marking of plural number on nouns also varies greatly across the region: in the Bird's Head, nouns are morphologically marked for plural, in NH and TAP nouns are not so marked. Instead, nominal plurality is indicated in TAP via a separate number word. The plural number word is one of the typologically unusual features found in TAP. Another rare feature of that family is that O is indexed on the verb, but not A.

5.4. Lexicon

This section presents some data to illustrate the lexical diversity found across the Papuan families in East Nusantara (section 2). We include vocabularies of two proto languages: pAP (Table 18) and pNH (Table 19), to facilitate research on possible higher level connections of these groups. To date, no reconstructed lexicon exists for any of the Bird's Head families. We include a set of lexical comparisons of Bird's Head languages to show the lexical variation found within and across these groups.

5.4.1. Reconstructed vocabulary

The lexicon of pAP is presented in Table 18. Work on the vocabulary of the larger pTAP group is currently in progress. (See also Holton and Robinson 2014, Schapper et al. 2014).

Table 18: Reconstructed pAP vocabulary (Holton et al. 2012)

**-ain{,u}*	'name'	**jari*	'laugh'	**pVr*	'scorpion'
**aman*	'thatch'	**jasi*	'bad'	**qaba(k)*	'spear'
**aqana*	'black'	**jib(V)*	'star'	**qar-*	'tens'
**-ar*	'vagina'	**jira*	'water'	**qin*	'mosquito'
**araqu*	'two'	**jira(n)*	'to fly'	**siba*	'new'
**asi*	'bite'	**jiwesin*	'five'	**talam*	'six'
**bagai*	'crocodile'	**kusin*	'fingernail'	**tam*	'saltwater'
**balin*	'axe'	**kVt*	'flea'	**tama*	'fat'
**baj*	'pig'	**-leb(ur)*	'tongue'	**-tan*	'hand/arm'
**bis*	'mat'	**luk(V)*	'crouch'	**tapai*	'pierce'

**bob*	'wave'	**lVsi*	'goanna'	**tas*	'stand'
**bui*	'betel nut'	**madel*	'bat' (n.)	**tei*	'tree'
**bukan*	'guard'	**mai*	'come'	**temVk*	'bedbug'
**bunaq*	'smoke'	**mait*	'betel vine'	**ten*	'ripe'
**dar(a)*	'sing'	**mari*	'bamboo'	**tia*	'recline'
**dul(a)*	'slippery'	**mi*	'(be) in/on'	**tiara*	'expel'
**dumV*	'thick'	**mid*	'climb'	**-tiari(n)*	'to close'
**dur*	'rat'	**-mim*	'nose'	**-tok*	'stomach'
**dVl*	'bird'	**minV*	'die'	**tukV*	'short'
**-ena*	'give'	**mis*	'sit'	**u:b*	'sugarcane'
**hab(i)*	'fish'	**mogol*	'banana'	**-uaqal*	'child'
**haban*	'village'	**mudi*	'body hair'	**-uar(i)*	'ear'
**had(a)*	'fire'	**mudin*	'to plant'	**uas*	'teeth'
**hami*	'breast'	**-muk*	'horn'	**uku*	'knee'
**has*	'excrement'	**nai*	'eat/drink'	**Vde*	'burn'
**hasak*	'empty'	**naN(a)*	'sibling'	**wad(i)*	'sun'
**hawar*	'lime'	**nuk*	'one'	**wai*	'blood'
**hipar*	'dream'	**od*	'throw'	**war*	'stone'
**is(i)*	'fruit'	**-or(a)*	'tail'	**wat(a)*	'coconut'
**jari*	'laugh'	**p{i,u}nV*	'hold'	**weli*	'bathe'
		**purVN*	'spit'	**wur*	'moon'

All of these reconstructed pAP vocabulary items are widely dispersed, having reflexes in at least one language in each of the three main geographic regions: Pantar, Western Alor, and Eastern Alor.

The task of reconstructing proto-North Halmaheran vocabulary is relatively straight-forward, as the correspondences are quite regular. The following list of nearly two hundred reconstructed proto-North Halmaheran vocabulary items is derived from Wada (1980), but the size of this list could easily be increased upon examination of additional extant lexical data. This list does not include pronouns, which are readily reconstructable. It also excludes numerous Austronesian loans which obey regular correspondences and thus must be of ancient origin (see Voorhoeve 1994b).

Table 19: Reconstructed pNH vocabulary

**aho*	'take, hold'	**hobir*	'spit'	**pego*	'tail'
**aho*	'take, hold'	**hutu*	'hair'	**peneto*	'narrow'
**aker*	'water'	**ihat*	'four'	**pepeke*	'dirty'
**aker*	'water'	**ijo*	'green'	**pesa*	'wet'
**akir*	'tongue'	**iŋir*	'tooth'	**piki*	'wipe'
**akir*	'tongue'	**isen*	'hear'	**piriku*	'tie'
**alo*	'cold$_1$'	**kahi*	'bark'	**poŋan*	'woods'
**alo*	'cold$_1$'	**kahi*	'skin'	**puait*	'dig'
**ares*	'white'	**kalubati*	'worm'	**puku*	'knee'
**ares*	'white'	**kamanu*	'spear'	**pululun*	'round'
**aun*	'blood'	**kaso*	'dog'	**putu*	'night'
**aun*	'blood'	**kelelo*	'see'	**raca*	'split'
**awa*	'mother'	**kiau*	'young'	**rago*	'scratch'
**baba*	'father'	**kiolok*	'sleep'	**rasa*	'fog'
**baka*	'rotten'	**kipirin*	'thick'	**rokat*	'husband'
**bawo*	'float'	**koboŋ*	'bone'	**roŋa*	'name'
**bicara*	'speak'	**kuɗubu*	'fight'	**saaŋe*	'three'
**biraŋ*	'sister'	**kurut*	'far'	**sahek*	'head'
**bisi*	'blue'	**kurut*	'long$_1$'	**sahuk*	'hot'
**boka*	'wash'	**lake*	'meat'	**sakahi*	'boil'
**bola*	'come'	**lako*	'eye'	**saki*	'fat, grease'
**bolowo*	'straight'	**lamok*	'big'	**sakuk*	'warm'
**boŋo*	'dull'	**leru*	'flower'	**sariwi*	'throw'
**boro*	'egg'	**lia*	'pull'	**sawala*	'red'
**butaŋa*	'six'	**lobi*	'cloud'	**selera*	'river'
**ɗaɗu*	'lie'	**loha*	'good'	**selo*	'dance'
**ɗala*	'many'	**luit*	'cut'	**siniŋa*	'heart'
**ɗipaŋ*	'sky'	**maahi*	'smooth'	**sinoto*	'two'
**ɗobo*	'swell'	**malat*	'cold$_2$'	**siwo*	'nine'
**ɗohe*	'laugh'	**moɗoŋ*	'fear'	**so(ŋa)ra*	'burn'
**ɗohu*	'leg/foot'	**mogiowok*	'ten'	**soka*	'leaf'
**ɗopo*	'smoke'	**moi*	'one'	**soneŋ*	'die '
**ɗota*	'fall'	**momuane*	'new'	**sopok*	'fruit'
**ɗoto*	'sharp'	**monohalok*	'twenty'	**sosor*	'fly'
**ɗowoŋi*	'sand'	**motoha*	'five'	**suyu*	'suck'
**ɗuɗun*	'back'	**muura*	'rain'	**taɗu*	'horn'
**ɗuɗuŋ*	'to dry'	**nako*	'know'	**tagi*	'walk'
**ɗumu*	'near'	**naur*	'male'	**tala*	'mountain'
**ɗupu*	'shoot'	**nawok*	'fish'	**talaga*	'lake'
**ece*	'small'	**ɲaɲi*	'sing'	**tamie*	'sit'
**ese*	'rub'	**ɲawa*	'person'	**tarom*	'black'
**etoŋ*	'count'	**ŋaŋaru*	'grass'	**teka*	'long$_2$'
**fikiri*	'think'	**ŋapo*	'hit'	**temo*	'say'
**gani*	'louse/flea'	**ŋauk*	'ear'	**tero*	'true'
**gasi*	'salt'	**ŋekom*	'way'	**teto*	'stone'
**gate*	'liver'	**ŋihia*	'snake'	**timisi*	'short'

**giam*	'hand'	**ŋohat*	'wide'	**toboŋ*	'swim'
**girinak*	'right'	**ŋolot*	'sea'	**toko*	'neck'
**gisisi*	'seed'	**ŋoma*	'star'	**tonak*	'earth'
**gitipir*	'nail'	**ŋoosa*	'moon'	**tooma*	'kill'
**gogo*	'feather'	**ŋopak*	'child'	**topok*	'pierce'
**goli*	'bite'	**ŋopeɗeka*	'female'	**torou*	'bad'
**golipupu*	'wing'	**ŋowo*	'old'	**toto*	'guts'
**gota*	'tree'	**ŋunaŋ*	'vomit'	**tubuso*	'heavy'
**gubali*	'left'	**ŋunuŋ*	'nose'	**tumuɗiŋi*	'seven'
**gumin*	'rope'	**ŋutuk*	'root'	**tupaaŋe*	'eight'
**hame*	'smell'	**oɗom*	'eat'	**tupu*	'roast'
**hike*	'give'	**oho*	'live'	**ucu*	'few'
**hina*	'thin'	**oko*	'stand'	**uhis*	'flow'
**hiraŋ*	'brother'	**ores*	'cry'	**uku*	'fire'
**hito(si)*	'push'	**paro*	'wind'	**urit*	'sew'
**hoa*	'blow'	**peɗakat*	'wife'	**uru*	'mouth'

The fact that no reconstructed lexicon exists for any of the Bird's Head families may be due to the wildly divergent vocabularies of these languages (Reesink 2004: 35). The tables below illustrate the divergent vocabularies of EBH (Table 20), WBH and the Bird's Head isolates (Table 21), and the SBH family (Table 22). In the EBH we see clear lexical similarity between Meyah and Moskona, while Hatam and Sougb are divergent. Note that dogs, pigs and chickens are not endemic in the Bird's Head or New Guinea, so that these words must originate from elsewhere.

Table 20: Vocabulary items in the East Bird's Head languages (after Miedema and Reesink 2004: 34, Reesink 2005: 202)[13]

	Meyah	Moskona	Hatam	Sougb
arm/hand	*etma*	*etma*	*ndab*	*s(i)ra*
leg/foot	*aki*	*egak/oko*	*mig*	*ohora*
house	*mod*	*mod*	*ig*	*tu*
good	*oufa*	*ojfa*	*kei*	*eigouh*
dog	*mes*	*mes*	*nsien*	*mihi*
pig	*mek*	*mek*	*nab*	*hwej*
chicken	*mongkukar*	*memkoar*	*guri*	*berougb*
louse	*mej*	*mej*	*mem*	*mem*
water/river	*mei*	*mij*	*nyei*	*uhu*
banana		*meni*	*wida*	*nej*

[13] Moskona data from Gravelle (2011). Terms for 'banana' from original sources (see section 2).

Further divergence is evidenced in the WBH languages and the Bird's Head isolates. Similarities between the isolates are likely due to lexical diffusion.

Table 21: Vocabulary items in West Bird's Head and Bird's Head isolates (after Miedema and Reesink 2004: 34, Reesink 2005: 202)

	Moi (WBH)	Tehit (WBH)	Mpur	Abun	Maibrat
arm/hand	*nin*	*naa*	*wom*	*cim*	*atem*
leg/foot	*eelik*	*deit*	*pet*	*wis*	*ao*
house	*keik*	*mbol*	*jan*	*nu*	*amah*
good	*bok*	*hnjo*	*mafun*	*ndo*	*mof*
dog	*oofun*	*mqaan*	*per*	*ndar*	*mtah*
pig	*baik*	*qorik*	*dwaw*	*nok*	*fane*
chicken	*kelem tole*	*kokok*	*kokor*	*dam kukur*	*kok*
louse	*-jam*	*hain*	*im*	*im*	*sruom*
water/river	*kla*	*kla*	*war*		*aja*
banana	*o*	*ogo*	*fa*	*weu*	*apit*

Table 22: Vocabulary items in South Bird's Head languages (after de Vries 2004)

	Yahadian	Inanwatan	Kokoda	Puragi
arm/hand	*re*	*ewó*	*obora*	*nebɔru*
leg/foot	*dɛbɛ*		*ɔtɔra*	*neʔɔru*
house	*ɔ*	*meʔáro*	*kɛnia*	*einɔ*
good	*hɔbɔre*	*sówato*	*nigeja*	*nai/najɔ*
dog	*ɟia*	*méwoʔo*	*dawɔra*	*rɔga*
pig	*mɔmɔ*	*bidó*	*tabai*	*βuʔi*
chicken	*kokoro*	*ádiro*	*koko*	*korau*
louse	*nɔ*	*ʔóto*	*kɔnɔ*	*kɔnɔ*
water/river	*hɛdɛ/mu*	*tó/múro*	*tai/tɔiria*	*adɔna/ɔwedi*
banana	*huŋgunɔn*	*ɸúgi(do)*	*udi*	*amimi*

5.4.2. Numerals and numeral systems

Many Papuan languages in East Nusantara mix quinary (base-5) with either decimal or vigesmal (base-20) numeral systems. Quinary systems predominate in the Bird's Head, being found in WBH (Tehit, Moi); EBH (Moskona); SBH (Inanwatan); and the Bird's Head isolates Mpur and Maibrat. For numerals above five, hands and feet are used for counting, resulting in base-5 (one hand), base10 (both hands), and base-20 (one body). In addition, Inanwatan employs base-2 for numerals less than five (3 = 2+1, 4 = 2+2).

The numeral systems in TAP mix quinary and decimal forms, with '7' expressed as [5 2], '8' as [5 3], '9' as [5 4], and '10' as [10 1]. A typologically interesting

feature of the numeral system reconstructed for proto-TAP is that it has a monomorphemic '6' instead of a base-5 form [5 1] (Schapper and Klamer 2014). The languages spoken in the straits between Alor and Pantar have innovated a subtractive numeral system where '9' is expressed as "[10] *less* 1" and '8' as "[10] *less* 2" (Schapper and Klamer 2014: 299–301). In contrast, the Papuan languages of Timor are all decimal and have borrowed much from Austronesian. For example, Makalero *fat* '4', *lima* '5', *fitu* '7', *siua* '9' (Huber 2011: 172), and Bunaq *hitu* '7', *walu* '8', *siwe* '9' (Schapper 2010a: 99) are Austronesian lexemes.

Although the North Halmaheran numeral systems are synchronically decimal, the numerals '7' and '8' reveal traces of a former quinary system. Sahu *tumding* '7' and *tu'angere* '8' both contain the root *tu-*, which compares to *romto'a* '5', while the remainder of these forms compares to *romdidi* '2' and *ro'ange* '3', respectively (Visser and Voorhoeve 1987).

5.5. Contact

All of the Papuan languages of East Nusantara and the Bird's Head show traces of contact with Austronesian languages. For instance, the numeral classifiers in North Halmahera, the Bird's Head and Timor-Alor-Pantar are suggested to have developed under contact with Austronesian (Klamer 2014d). None of the languages discussed in this chapter serves today as a language of wider communication. Rather, speakers of Papuan languages employ Austronesian languages—usually Indonesian and/or a local variety of Malay, though increasingly Tetun Dili in East Timor—on a regular basis for trade, education, and governmental business.

One result of this language contact is on-going language shift from vernacular languages to languages of wider communication. None but the very largest languages in this survey can be considered "safe," and most are definitely endangered, in that children are not learning the language in the home. Language shift is often accelerated by urbanization and the practice of schooling children in urban centres away from vernacular language areas. Language attitudes play an additional role, as many smaller languages lack prestige value. De Vries (2004: 10) reports that while Inanwatan people realize that their language is dying, the young people do not seem to care too much.

5.5.1. North Halmahera

The North Halmaheran languages show evidence of extensive contact with neighbouring Austronesian languages. On Halmahera island, the south is Austronesian and the north is non-Austronesian, and on Makian island the east coast is Austronesian Taba (East Makian) while the west coast has Papuan Moi (West Makian). Contact influence is most pronounced in the languages spoken on the islands off

the west coast of Halmahera which have had extensive contact with the Malay sultanates of Ternate and Tidore. Here word order has shifted from SOV to SVO, and prepositions have replaced postpositions. However, the presence of very old Austronesian loans throughout the family suggests a much longer period of contact dating to the original settlement of the area by Papuan speakers (Voorhoeve 1994b).[14]

For a time during the spice trade, beginning in the 16th century, the NH language Ternate exerted some lexical influence on neighbouring Papuan languages, particularly Sahu, but this influence was much less than the effect resulting from contact with Austronesian languages, including Ternate Malay, a regional Malay variety.

5.5.2. Timor-Alor-Pantar

The Papuan languages of Timor also show evidence of extensive contact with neighbouring Austronesian languages. Items borrowed from Austronesian languages dominate basic semantic domains such as kin, governance, material culture, agriculture and numerals (see, e. g., Huber 2011: 16–19, McWilliam 2007, Schapper 2010a: 98, Schapper 2011). For instance, in a Swadesh 200-item list for Bunaq, 40 items can be identified as borrowed from neighbouring Austronesian languages (Schapper 2010a).

In Alor and Pantar, borrowing from Austronesian has been less intense. Contact with Malay and Indonesian is a relatively recent phenomenon in most Alor-Pantar languages, and started only after the 1960's, roughly correlating with the increasing number of Indonesian primary schools established in rural areas. Prior to the present-day use of Indonesian/Malay, the local contact language used by speakers on Pantar and the Straits (Blagar) was the Austronesian language Alorese (Klamer 2011, 2012a). Comparing ~160 vocabulary items in 13 AP languages, Robinson (2012) found Austronesian loan percentages to range between 3.8 % (in Kamang and Western Pantar) and 11.3 % (in Blagar), and the majority of AP languages has only 5–7 % of Austronesian loans. Reflexes of the Austronesian numeral *ḷibu 'thousands' have been borrowed across the TAP family; possible donor languages are Malay, Kedang or Lamaholot, which all have *ribu* 'thousands' (Schapper and Klamer 2014: 310).

Lexical borrowing within the TAP languages occurs as well. Examples of borrowings across TAP languages include Western Pantar *bagis* 'to wail', which has

[14] On the basis of linguistic, archaeological and oral history evidence, current NH speakers appear to represent a back migration from New Guinea, rather than direct descendants of an original pre-Austronesian population (which dates to at least 30k BP). It is not clear at this stage whether the current NH population pre-dated Austronesians, but if they did do so, it is likely they did not predate them by much.

been borrowed from Teiwa *bagis* 'to cry'; and Kabola *moop* and Klon *mopo* 'to sleep' which were borrowed from Abui *mook* 'to close one's eyes'. As the attestation of borrowings between TAP languages presumes detailed knowledge about TAP subgroupings and phonological innovations, they are less easily detected than the borrowing of Austronesian words into TAP.

5.5.3 Bird's Head

In addition to contact with Malay and Indonesian, the languages of the Bird's Head have had extensive contact with the Austronesian language Biak and other Cenderawasih Bay Austronesian languages as a language of wider communication. Abun has adopted both maritime technology and terminology from Biak. Verbs of foreign origin, such as Biak *win* 'sail' are explicitly indicated with the prefix *bi-*.

(111) *Men* *bi-win* *mu* *mo* *ef.* [Abun]
1PL BI-sail go LOC island
'Let's sail to the island.' (Berry and Berry 1999)

Words of Austronesian origin are not just limited to coastal languages such as Abun but are found throughout the Bird's Head (Voorhoeve 1989).[15] Forms similar to Biak *koko* 'chicken' are found in WBH (Tehit *kokok*), SBH (Arandai *kokoro*), EBH (Mansim *(mung)kokou*, Meyah *mongkukar*, Moskona *memkokar*), and the Bird's Head isolates (Mpur *kokor*, Abun *kukur*, Maibrat *kok(ok)*). Some of these forms are also compounds containing a reflex of Proto-Austronesian *manuk 'bird'. Given both the onomatopoetic nature of this term and its possible recent introduction, this correspondence set is perhaps not so surprising. But correspondences in more basic vocabulary can also be found, though perhaps less widespread. For example, Biak *war* 'water' is found in both Mansim and Mpur.

The WBH languages show so many Austronesian elements that Cowan (1953) initially hesitated as to whether to classify them as Austronesian or not. Austronesian influence is reflected in the SVO word order, pronouns, numerals, and many other lexical items.

5.6. Summary

This chapter has shown the diversity of the Papuan languages of East Nusantara and the Bird's Head in terms of their documentation, historical affiliations, language structure and vocabularies.

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[15] Abun speakers traditionally lived inland, away from the coast; however, the Abun territory does extend to the coast and is arguably less isolated than the inland territories of languages such as Maibrat and Moskona.

The Papuan languages of East Nusantara comprise at least five distinct language families plus three language isolates. The language families are Timor-Alor-Pantar, North Halmahera, West Bird's Head, East Bird's Head, and South Bird's Head. The language isolates are Abun, Mpur, and Maibrat on the Bird's Head. The relationship of Inanwatan to South Bird's Head is questionable, as is the relationship of Hatam to East Bird's Head.

Several proposals for wider genealogical affiliations both within the East Nusantara languages and with other Papuan languages have been suggested. The most promising of these is the West Papuan hypothesis linking the NH and WBH families, as well as the Papuan languages of Yapen Island in Cenderawasih Bay (see Foley this volume chapter 4). This putative family is more circumscribed than Cowan's (1953) original West Papuan Phylum, which included not only NH and the Bird's Head but also West Bomberai. The similarities which motivate Cowan's proposal are more likely to be a result of shared areal features in what Reesink (1998) has called the Bird's Head Sprachbund. Reesink (2005: 187) finds the evidence for large genealogical groupings within the Bird's Head to be "rather flimsy." Tentative lexical correspondences between NH and WBH have been proposed. Cowan (1957: 87) identifies eight possible "agreements" between WBH and NH languages, citing data from the WBH languages Kalabra, Moraid, and Moi; and the NH languages, Tobelo, Pagu, Tabaru, Galela, Sahu, Ternate and Tidore. Voorhoeve (1988: 194) adds to this list two further correspondences ('egg' and 'drink'), citing data from the NH languages Galela and Pagu, and the WBH languages Moi and Tehit (Table 23).

Table 23: Lexical comparisons between NH and WBH languages (after Voorhoeve 1988: 194)

Galela (NH)	Pagu (NH)	Moi (WBH)	Tehit (WBH)	
sahe	*saek*	*sawa*	*safakos*	'head'
sopo	*sowok*	*suwo*	*sfuon*	'fruit', 'eye'
gosi	–	–	*esyen*	'egg'
ya-nau	*naul*	*ne*	*nau*	'man'
lake	*lakem*	*kem*	*qan*	'meat'
gota	–	–	*kot*	'tree'
ake	*akel*	*kala*	*kla*	'water'[16]
oke	*okel*	*ook*	*ooqo*	'drink'
saka	*sakal*	*saa*	*sqaa*	'stab'

[16] Voorhoeve's (1994a) subsequent reconstruction of pNH *gala, rather than Wada's (1980: 513) *aker, corresponding to WBH forms for 'water' is based the occurrence of the sequence *gala- is NH words meaning 'perspire', e. g., Tobelo *gahauku*, Sahu *galasau'u*, Tabaru *golongoit*, Tidore *gariou*.

Voorhoeve (1994a: 78) expands this list to 75 correspondences between proto-NH and the WBH languages Moi and Tehit, though only 24 of these are considered "promising looking" correspondences. Even the more promising of the proposed correspondences are extremely problematic. For example, Voorhoeve (1994a: 79) cites the correspondence pNH *goto: Tehit (WBH) *kot* 'tree' as evidence of a *g : *k* correspondence. But this putative correspondence is immediately contradicted by pNH *golu: Tehit (WBH) *ooli* 'wing', cited on the same page. Although the lexical similarities between the NH and WBH languages are intriguing, they remain just that: similarities. Regular phonological correspondences between the families have not been identified.

Several of the language families in East Nusantara have been included within various versions of the Trans-New Guinea (TNG) family. West Bomberai, Mairasi-Tanah Merah, and Mor were included as core members of Wurm et al.'s (1975) formulation of TNG, while South Bird's Head and Timor-Alor-Pantar were included as marginal members of TNG. The evidence for a genealogical link between Tanah Merah and the Mairasi languages is unconvincing, so their inclusion as TNG languages should be evaluated independently. As we saw in section 4.1, very little lexical data is available for any of these languages; TAP being the exception due to the outcomes of research projects that took place during the last decade. Hence, assessments of genealogical relationship have been based almost entirely on comparisons of pronominal forms. In the absence of detailed documentation the inclusion of these languages within TNG must be considered speculative. Ross (2005) includes West Bomberai and Timor-Alor-Pantar as part of his West Trans-New Guinea linkage. Robinson and Holton (2012b) evaluate several proposals for the wider genealogical affiliations of TAP languages, and while none of the proposals is entirely convincing they find the most support for a connection between TAP and West Bomberai.

The genealogical diversity of the Papuan languages of East Nusantara is further reflected in their structural variation, though some points of commonality can be found. Many of the features of the languages of this region are not typically Papuan. In terms of morphology the languages are less rich than many other Papuan languages. Indexing of verbal arguments is very common (see section 3.3), verbal inflections are limited, but elaborate derivational morphology on verbs is uncommon. Consonant inventories tend to be more complex than those found in Papuan languages elsewhere, and elaborate noun classifications systems are not found in East Nusantara. A distinction between inclusive and exclusive first person plural, though unusual for Papuan languages, is found across the Papuan languages of East Nusantara. More typically Papuan features include a preposed possessor construction and the widespread use of serial verb constructions.

Lexical documentation is widely available for NH and TAP. Reconstructions of more than one hundred lexical items have been posited for both Proto-North Halmaheran and Proto-Alor-Pantar, while reconstruction of the larger

Timor-Alor-Pantar family is in progress. Beyond these two families no bottom-up reconstructions are available, and a comparison of vocabulary items shows much divergence, perhaps due to wide-scale lexical replacement in the Bird's Head languages. In addition, wide-scale lexical diffusion complicates the process of distinguishing between borrowings and true cognates. Within the lexical domain of numerals there is significant structural, if not lexical, similarity across the languages. Quinary systems predominate throughout the Papuan languages of East Nusantara, with Timor being a notable exception. In the Bird' Head and Bird's Neck hands and feet are often used for counting beyond the numeral five, resulting in additional base-10 and base-20 numerals. An unusual base-2 system is found in Inanwatan for numerals below five.

Contact both between the Papuan languages of East Nusantara and between these languages and their Austronesian neighbours is widespread. This is especially true for the outlier families NH and TAP, which are entirely surrounded by Austronesian languages. Voorhoeve (1988) notes that the extent of Austronesian influence on the NH languages has always been underestimated, and many of the loan words must be of ancient origin, as they participate in regular sound shifts. This is also true for TAP, where forms for clearly introduced items such as 'maize' obey regular sound correspondences, but borrowing has been most intense among the Timor subgroup. However, contact influence is not limited to the outlier languages. Austronesian loans can be found even among the languages of the interior of the Bird's Head.

5.7. Challenges for future research

One of the greatest impediments to future research is the lack of adequate documentation in the Bird's Neck region. Two of the languages of this region appear on Hammarström's (2010) list of the least documented language families in the world; these are isolates Mor and Tanah Merah, for which only short word lists and scanty grammatical documentation are available. Hammarström has recently begun documentation of Mor. Hammaström (2010) reports that enough data has been collected for a rudimentary grammar sketch of Konda-Yahadian (SBH) (Berry and Berry 1987). Donohue (p.c.) has recently conducted survey work with the West Bomberai languages, resulting in some wordlists and grammatical notes. An unpublished lexical database for Mairasi likely exists but was not available to the authors. Clearly a more concerted documentation effort in this region is warranted. The need for documentation is all the more urgent given that only three of the languages here (Iha, Baham, Mairasi) have more than 1000 speakers. Indeed, the eight Papuan languages of the Bird's Neck altogether have fewer than 12,000 speakers.

East Nusantara can be characterised as showing evidence of multiple Papuan-Austronesian interfaces and many layers of contacts between various groups

exist (see Wellfelt 2016 for contacts between groups in Alor, Pantar and Timor). However, to date, there is no integrated account of the history of the region. To reveal more of its history, we need more fine-grained bottom up research of targeted parts of the region, where linguistic research is combined with ethnography, archaeology, geography and musicology.

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