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The linguistic position of the Inanwatan language of West Papua

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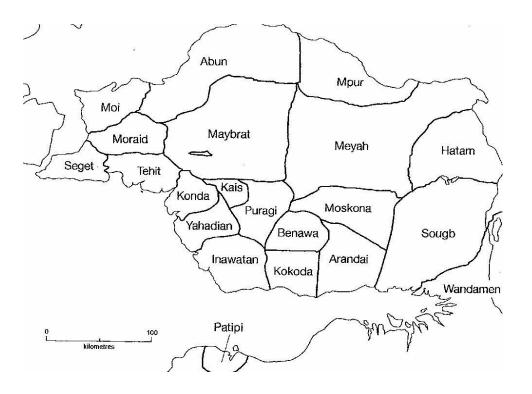===

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1. *Introduction*

Voorhoeve (1975a) proposed a South Bird's Head stock of Papuan languages spoken north of the Teluk Berau (MacCluer Gulf) along the south coast of the Bird's Head peninsula of Indonesian West Papua (see Map). Voorhoeve used lexicostatistic methods to posit tentative genetic groups at phylum, stock and family level. His South Bird's Head stock was considered part of the Trans New Guinea phylum (TNG) and consisted of three families, Konda-Yahadian, Duriankari-Inanwatan (Suabo family) and the core South Bird's Head's family, all of them critically endangered, if not moribund at present.

Berry and Berry (1987) also applied lexical similarity percentages in their survey of the South Bird's Head stock. They confirmed the existence of three language families in the stock, the Yabin family (=Konda and Yahadian), the Suabo family (Duriankari and Inanwatan) and the South Bird's Head family. Within the South Bird's Head family, they distinguished an East Subfamily consisting of Kokoda, Dombano and Kemberano in the east and three separate languages towards the west, Kais, Puragi and Kaburi.

The term Arandai on the map covers Dombano and Kemberano. Voorhoeve (1985) used the term Arandai for both dialects. Dombano is Voorhoeve's Sebyar dialect of Arandai. It is spoken in the villages Kecap, Arandai and Tomoi. Kemberano (a.k.a. Kalitami) denotes the Weriagar dialect of Arandai in Voorhoeve 1985. It is spoken in the villages Weriagar, Kalitami, with a variety called Barau spoken in Tomage, a village of Kalitami migrants across Bintuni Bay on the Bomberai Peninsula.

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The goal of this article is to establish the linguistic position of Inanwatan (de Vries 2004) by applying the method of bottom-up comparative reconstruction, as far as it will take us given the scarcity and the unbalanced nature of the data, as is clear from table 1.[1]

I will argue that the Suabo family is a subfamily of the South Bird's Head family. The lexical evidence is presented in §2 and the evidence from closed classes in §3. I could profit from the database constructed by Kamholz, van Schie, Verdizade, Zielenbach, and Schapper (2023), called the *OutOfPapua database: Lexicons of the West Papuan language area.* Table 1 presents the sources which were accessed through this database.

Table 1 Sources[2]

	abbreviation	source	# entries
Duriankari	Du	Kabera & Verdizade (2023)	35
		Voorhoeve (1975b)	38
		Beck (in J.C. Anceaux Collection, Smits and Voorhoeve1998)	116
Inanwatan	In	de Vries (2004)	868
Kais	Ka	Berry & Berry (1987)	166
Puragi	Pu	Berry & Berry (1987)	28
		de Vries (2004)	217
Kaburi Kambor	Kb	Berry & Berry (1987)	150
Kaburi Benawa	Be	Van Oosterhout (p.c.) in de Vries (2004)	82
Kokoda Negeri Besar	Kn	Berry & Berry (1987)	153
Kokoda Kasueri	Kk	Berry & Berry (1987)	45
		Voorhoeve (1985)	101
		de Vries (2004)	214
Kokoda Tarof	Kt	Voorhoeve (1985)	84
Arandai Weriagar (a.k.a. Kemberamo Kalitami)	We	Berry & Berry (1987)	160
		Voorhoeve (1985)	404
Arandai Barau (a.k.a Kemberamo Barau)	Ba	Voorhoeve (1985)	174
Arandai Dombano (a.k.a.Sebyar)	Do	Voorhoeve (1985)	227
South Bird's Head family	SBH	Voorhoeve (1975a) Berry and Berry (1987)	

2. *Lexical evidence*

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[1] I would like to thank Wilco van den Heuvel, Anne van Schie, Antoinette Schapper, Allahverdi Verdizade and Maria Zielenbach for comments and discussion.

[2] Where data in the tables come from several sources (e.g. Kokoda Kasueri), this is indicated only when I viewed that as relevant. Full credits per lexical or grammatical item would clutter the article with footnotes.

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2.1 *Introduction*

The south coast of the Bird's Head was already in pre-colonial times integrated in regional networks such as the monsoonal Seramese inter island *sosolot* network that connected areas along the south coast (including Inanwatan) through Onin middle men with Seram that in turn was connected to Asian trade routes (Goodman 1998: 440). [3]Sandal wood and slaves were *sosolot* exchange goods par excellence. (Goodman 1998: 445).

Another pre-colonial network involving the Bird's Head south coast centered on the Moluccan Sultanate of Tidore (van Oosterhout 2002: 249). The middle men of the sultan had the grand title *raja* 'king'. According to Vink (1932: 41) the middle men of the Sultan in Bomberai had their bases in the villages Rumbati, Patipi, Ati-Ati and Fatagar. Each *raja* had his own area along the Bird's Head south coast, where they sent their representatives who settled near river mouths (see Vink 1932:41). The raja of Patipi sent his men to the Siganoi river mouth where the Inanwatan people lived. They settled there and married local Inanwatan women. Forest products and slaves, captured in the interior as well as from their coastal neighbors such as Konda-Yahadian communities, were delivered by the Inanwatan to these Austronesian speaking middle men in exchange for iron tools and weapons, cloth, and rifles.

The Inanwatan were far from merely passive suppliers at the bottom end of these networks (van Oosterhout 2002: 249). They possessed extraordinary large outrigger praos, of a size unusual in the area, allowing 22 warriors, with which they certainly travelled as far as the Kokas and Fak-Fak, and likely to Seram, Banda, the Kei and Aru islands (Vlekke 1955: 197, Seijne Kok 1992: 61, van Oosterhout 2002: 249). The purposes of these marine enterprises varied, to obtain slaves, to obtain heads to bring home victoriously, to trade and later in alliances with the Tidorese to fight the Portuguese (van Oosterhout 2002: 249).

Malay and Onin bilingualism (of various forms) made inroads in coastal South Bird's Head communities long before the Dutch colonial administration set up its outposts along the south coast of Dutch New Guinea, the first station being Inanwatan in 1908. The Dutch initially tried to govern the Inanwatan district by appointing Onin Patipi representatives in Inanwatan. They gave them the title *raja-commissie* (a combination of a Malay word *raja* 'king, ruler' and a Dutch one meaning 'official representative' abbreviated to *kówisi* in the Inanwatan language). (De Vries 2004: 1). The first evangelists in the Inanwatan area preached in a mix of local Malay and Onin Patipi.[4] But soon after the Dutch entered the area the role of Onin varieties was taken over by Malay, and the political and social status of Inanwatan clans with Patipi founding fathers (such as the Nawora clan) eroded (van Oosterhout 2004).

Culturally, the Inanwatan stood out from their neighbors. The anthropologist van Oosterhout characterized Inanwatan pre-colonial cultural practices of headhunting-fertility as setting them apart from their Bird's Head neighbors, many of whom were victims and she links these Inanwatan cultural practices to groups of the south coast New Guinea such as the Marind-Anim (Van Oosterhout 2002). The headhunting raids were a part of an Anim cultural and ritual fertility-headhunting complex (Knauft 1993). "Connected to the fertility complex, male initiation centered on the transfer of semen, which causes them to resemble south coast New Guinea initiation cults rather than other Bird's Head secret societies. In addition, the central role in the past of head-hunting and the representation of Inanwatan as a seafaring people, both for the purpose of obtaining life-force from elsewhere, makes them stand out among their neighbors." (van Oosterhout 2002: 372).

The colonial Dutch government made Inanwatan their base station for the coastal region, with offices, schools, clinics, a prison and harbor, attracting Malay speaking traders with

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[3]§2.1 is based on chapter one of de Vries 2004 and van Oosterhout (2002).

[4] See the first chapter of de Vries 2004 for more details on the interaction between Austronesian Onin dialects and the Papuan SBH languages.

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seafaring mercantile traditions, especially Buginese. Malay bilingualism replaced pre-colonial Onin Patipi bilingualism (Vink 1932). The vocabulary of Inanwatan became one of the most diversified in the region, with cross-border loans within the South Bird's Head family, with loans from Seramese, Onin, Malay, Dutch, neighboring West Papuan languages, and languages of the Konda-Yahadian family.

The Indonesian government continued and expanded the central regional role of Inanwatan, concentrating health care and education facilities there, including secondary education. Berry and Berry (1987: 92) observed that "Inanwatan has a mixture of language groups including Kokoda, Kais, Puragi and Suabo..." and relate that specifically to the presence of a high school in Inanwatan.

These historical and modern sociolinguistic contexts explain the sharp contrast between high grammatical and low lexical cognacy, especially for Inanwatan, but much more broadly for the whole SBH. The SBH languages are lexically very diverse, but show a remarkable grammatical unity centered around, but not restricted to, the elaborate system of lexical and referent-based gender, expressed throughout the SBH with cognate morphology. This cognate morphology sets the SBH languages, including Inanwatan, sharply apart from all its neighbors.

The lexical diversity includes loans in the 'basic' vocabulary of SBH languages. Compare table 2 (data written phonetically):

Table 2 Lexical diversity

gloss	In	Ka	Pu	Kb	Kk	Do	Ke
1 female breast, milk	dido	riro	ˈdido	dʒizo	didu	duˈdo	dido
2 leaf	dado	runu	ˈɾɔni	erona	nonia	ˈbaŋgo	rono
3 mountain, hill	tirido	faitike	sirio	uturo/Be	ɕiri'omɔ	keini	keni, tiwi/Ba
4 rain	paˈɾato	ɸote	paˈɾatɔ	hamana-haʔ[5]	manino	uraŋgɛ[6]	urange

Row 1 and 2 show only loans for breast/milk, from Indonesian *susu* in row 1, cf. proto Austronesian *susu, to the words for leaf in row 2. The words *dado* and *runu, rono* go back to the same Austronesian word, through different routes. *Dado* is probably a modern loan from Indonesian (*daun*) while *runu, rono* and so on are seen in the literature as older loans from pMalayo-Polynesian *dahun (McElhanon and Voorhoeve 1970). Row 3 has Onin loans in Kemberano and Dombano, *keini* and *keni* from Onin Patipi. Row 4 shows the loans in Dombano and Kemberano for rain, probably borrowed this word from Seramese traders, cf. Geser-Gorom *uran* (Collins 1986), cf. Proto-Malayo-Polynesian *quzan 'rain' (source: Blust & Trussel (ongoing b) in OutofPapua Database).

Table 3 presents a list of potential cognates from SBH, with all data written phonetically.

Table 3 Potential Lexical Cognates[7]

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[5]Compound: sky-water

[6] Dombano and Kemberano probably borrowed this word from Seramese traders, cf. Geser-Gorom *uran* (Collins 1986), cf. Proto-Malayo-Polynesian *quzan 'rain' (source: Blust & Trussel (ongoing b) in OutofPapua Database).

[7] The blank spaces in Table 3 do not indicate gaps but the presence of non-cognate words in the sources.

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gloss	In/Du	Ka	Pu	Kb[8]	Kk[9]	Do	Ke[10]
1 water	ˈsaa, tsaa/sa	sau, so	a-ˈdɔna[11]	ha-ʔati	tai	taˈjɛ	tai:
2 name	nɛri/nje	ɲiɔ	ˈnaidi	neʔi	nanai	anaidɛ	anade
3 egg	guʔɔ/ aguo	uku	wuˈkɔ	uˈkɔ	uku	ˈkuo	oku
4 ear	ʔéro	kidabu	naɛrawu	kerawa	kera	nakɛˈra	kɛra
5 bone	ˈtɔʔɔ/	toko	kɔˈtɔma	toʔah	tɔka	toˈkɛ	toke
6 to vomit	i'ʔɔra	ikona	βiˈɔβɛ	iʔope	ikoi		ikoi
7 hair	areri	kararo	kararu	nazini	ka'raumu	karar	kararo
8 thorn	bibo	ɸiɸo	biabani	piaha	βiˈtaja	biˈgobo	mbita/Ba
9 to	ɔpɔ	ukaɠe	raiɾariaβɛ	uape	upape		uwka[12]
11 blood	aruʔo/aru[13]	ama-so	aˈpaʔa	ama-ha[14]	a'pato/ ɾarɔ	aˈpato	apate
12 land	ˈbodo		bɔˈdɔna		ˈbɔdɔnɔ	boð	obore
13 head	abo	kabo	naˈkɔiβi	waʔaβa	kaba	naakabe	ˈnakaβɛ
14 all	tɛtɛwo	iɸo	ʔɛˈʔɛmu	ataʔatu	ebeumo		tɛtɛˈmɛ
15 hand	ne-we/ ne-wo/me, mo/ mewo	eᵐbiko	nɛbɔ		nobora	noᵐboɾo	naᵐbore
16 flesh	ta-búqɔ	ɸuko	ama-buʔi[15]	hama	ba-buki-a[16]	iᵑgi-bukɛ[17]	ɛβuˈku
17 to hear	tɔbɔ	ɔˈbɔ	obo	toβo	tobo		toβo
18 heart	bidaɾaɛ	ɸirare	biˈjauɾi	biraidʒi	ˈβiɾadi		biˈɾaɾɛ
19 person	mesi-dae[18]		danɛˈʔi	daneta	danesia	ˈdanɛt	danetu
20 stand	ide	ire	iˈdɛ	idʒe	idɛ	idɛ	hiɾɛ/Ba
21 left	ɛˈduduɾi	doduru	ˈdidɔra	zezora	ˈdɛdɔɾaɛ		tadore

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[8]The data are from the Kambor dialect, except when there is a gap in the Kambor data which could be filled with data from the Benawa dialect, indicated by /Be.

[9]The Kokoda data are from the Kasueri dialect, unless marked otherwise.

[10]The data are from the Weriagar dialect, unless marked by /Ba (Barau).

[11]*Dona* in Puragi and *ʔati* in Kaburi probably mean 'fresh' in contrast to 'salt/sea water'.

[12] Onin Tibatibananam has *áwka* 'to bathe' (Donohue 2019). Kemberano has the loan *uwka* in the Weriagar variety (Voorhoeve 1985), with the same /wk/ cluster which is adapted in Kais and in Kemberano Kalitami to *uka* (Berry and Berry 1987). The suffixes -*ge, βɛ* and -*pe* are imperative markers. The Kaburi stem *ua* has solved the CC cluster by deleting the whole cluster. The Kokoda stem *upa* and the Inanwatan *opo* may well be other forms of the Onin loan rather than cognates.

[13]Inanwatan, Duriankare and Kokoda Kasueri borrowed *aruʔɔ/aru/ˈɾarɔ* via Onin Patipi ˈɾaɾa 'blood' (cf. Indonesian *darah*).

[14]The Kais and Kaburi words are compounds of the word *ama* 'flesh' and *so* (<*taa 'water, fluid') and *ha* (<*taa 'water, fluid').

[15]Compound of *ama* 'flesh' and *buqi* 'meat'. Kokoda *hama* is a cognate of *ama*.

[16]Kokoda varieties have =*a* as a NP boundary marker (Berry and Berry 1987: 86).

[17]Compound with *ingi* 'body'.

[18]Compound *mesi-dae* consisting of the Onin Patipi loan *mənˈcia* (cf. Indonesian *manusia*) and *dae* 'person' (>pSBH *danetV).

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gloss	In/Du	Ka	Pu	Kb[8]	Kk[9]	Do	Ke[10]
22 four	eri-eri-idare			idʒati	iˈdaca	iˈdati	idate
23 cough	noʔoʔau	ⁿdoⁿdono		dodonege	dɔdɔna	doⁿdona	doⁿdone
24 feces	ʔa	ka	ka		ka		kato
25 hold	ge	gu	giˈnɔ	gen			goˈno
26 to give	me	mi	ˈmɛi		me	mɛ	mi
27 to come	mo	ma	ˈmo	ma	mo	mo	ma
28 to sit	uˈwu		aˈmu	amu	ˈamu		
29 thick	aˈwɔtɔ /amoto/	amɔtɔ-sɔmɔ	aˈmɔuwi	omotate	amɔtɔ-sɔmɔ amɔtɔti		amototo
30 child	áwaɾɛ /amare/	amari	ˈaβaɾa	aβara	akota	aˈkot	akote
31 road	úwo /umo/	aumu	aomi	aumi/Be	amia		ame
32 one	mutɛri /mut-eni/	onate	mɔˈʔɔnada	maʔadʒa	onati	onate	anatɛ
33 to eat[19]	ni	ni	ni		ˈni	ni	ni
34 to lie (down)	na	rai	naru		ˈnaipɛ		na
35 night	ˈniɾo		ˈmua-ɾɛni	e-rini	patiɛ-ɾɛa		pati-re
36 afraid	ˈaɾɛ			ariʔe	ˈaɾɛaja	aɾɛj	aˈɾoy
37 to cry	na				nare	raa	raria
38 shell nail	siʔɔ	siko	nɛˈgɛ-ɕianu		ku	no-mˈbo-mɛ-ti[20]	ti
39 elbow	mébutɔ		nɛˈtubɔni		mɛˈtugɛu		nɛtugɛdo
40 filth	ʔaʔapirɔ	ikikak	kakapiɾi		kakapirumo		kato[21]
41 true	tɔ		tu-teʔi	ta-wum	'ta-ɕia		
42 finger	gɛʔaɾɛ	ne-gainu	gigiaɾu				
43 nose	ˈmitobi	mitubu	miobi	witofa	ɛˈɟaɾa	naindaɾɛ	dara
44 vein	ˈusuʔɔ				tutuko	amaˈtuo	tuˈtue
45 sago	sɔʔowɔ					toˈjɛ	ˈtowo[22]

[19]The verb *ni-* has a broader meaning in Inanwatan: eat, drink, smoke, ingest.
[20]The Puragi, Dombano and Kaburi words are compounds with the words for finger or hand/arm. The Kokoda word is a loan from Indonesian (*kuku* 'nail').
[21]The nouns in row 40 are all compounds containing the pSBH root *ka (>*ʔa* 'faeces' in Inanwatan). The Kemberano noun *kaka* contains a reduplication of this root and means 'diarrhea' (Voorhoeve 1985).
[22]The Kemberano word refers to sago as a tree ('sagopalm') (Voorhoeve 1985).

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gloss	In/Du	Ka	Pu	Kb[8]	Kk[9]	Do	Ke[10]
47 new	ʔíʔo	iso	ˈitɔ	bohi[23]	ʻbɔiɕia		boite
48 mountain	tirido		sirio		ɕiriˈomɔ		tiwi/Ba
49	/ama-i/	amagode	amagodi				
50 wife	/ama-o/	amago	aˈmagɔ	amagu/Be			
51 sun	ʔégedi		ɛˈgɛdi		ɛgɛdi		
52 butterfly	siwowaʔo /si-momaʔo/				mokakaɾo	ˈmumuo	mokako
53 head	abo	kabo	naˈkɔiβi	waʔaβa	kaba	naakabe	ˈnakaβɛ

2. 2 *Sound correspondences*

2.2.1 *Introduction*

South Bird's Head languages have five vowel systems (i/e/a/o/u). They allow vowel clusters, with up to three vowels. Three-vowels clusters almost always contain one non-syllabic vowel, but clusters with three syllabic vowels have been observed (Voorhoeve 1985: 7).

Consonant clusters are as a rule avoided and all words must end in a vowel (Berry & Berry 1987: 89). Some languages do allow consonant clusters across morpheme boundaries, but rarely so (e.g. Kemberano, Voorhoeve 1985: 7). The only language where final vowel deletion has made some inroads is Dombano (a.k.a Sebyar). This seems to have affected so far only a minority of nouns in the Sebyar list of Voorhoeve (1985), e.g *karar* 'hair', boð 'land', *danet* 'person', *nun* 'tongue', turning them into nouns with covert gender. The cognate nouns in the other South Bird's Head languages still maintain the final vowels,, e.g. Sebyar *boð* 'land', Inanwatan *bodo,* Kokoda Kasueri *bodono* 'land'.

The rather restrictive phonotaxis of South Bird's Head languages helps to detect loans which often violate these constraints. For example, the language name Inanwatan is an exonym that violates these constraints. Older speakers resolve these violations by pronouncing the name as [Írarowataro]. The name was given by the Onin Patipi (Sekar) speaking settlers in Inanwatan and means '(it's all) sago' because of the exceptionally vast acreages of sago palms (de Vries 2004: 2). Bira and Suabo are older names for Inanwatan, no longer in use.

Stress is unpredictable in Inanwatan (de Vries 2004: 26) and in Kemberano (Voorhoeve 1985: 7), but we have no information on stress in the other South Bird's Head languages. When the word final vowel is unstressed, reduction phenomena may occur. Voorhoeve (1985: 6) reports for Kemberano (Weriagar) not only reduction to schwa but also reduction to voiceless vowels while for the Sebyar dialect of Dombano this tendency seems to have led to words ending in nasals, rhotics and unreleased voiceless stops in the speech of language consultants (Voorhoeve 1985: 17).

Apart from Inanwatan, Kemberano and Dombano, there are no descriptions of phoneme inventories for SBH languages. Inanwatan has ten consonant phonemes, table 4.

Table 4 Inanwatan consonant phonemes[24]

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[23] The Kamburi, Kokoda and Kemberano words were glossed in the sources as 'new (house)'.
[24] This section is based on De Vries (2004: 20-26).

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	bilabial	alveolar	velar	glottal
voiceless stops	p [p]	t [t]		ʔ [ʔ]
voiced stops	b [b]	d [d]	g[g]	
fricatives	ɸ [ɸ, pɸ]	s [s, ʦ]		
nasals	m [m, β, w]	n [n, r, ɾ]		

Affricate allophones of /ɸ/ and /s/ freely vary with their fricative counterparts in Inanwatan, but only in the strong, word initial position.The nasal phoneme /m/ has three allophones [m], [w] and [β] in complementary distribution. The allophone [m] occurs word initially, [w] intervocalically adjacent to back vowels (i.e. followed and/or preceded by [o], [u] or [ɑ]), and [β] elsewhere. The nasal /n/ has rhotic allophones in intervocalic condition, with flap and trill realizations in free variation. Examples:

(1) /néni/   [´nɛɾi] 'name (male referent)'
     /néno/   [´nɛɾɔ] 'name (female referent)'
     /á-neno/ [´a-rɛɾɔ] 'your name (female addressee)'

Duriankari did not participate in the Inanwatan merger of oral and nasal phonemes. The [n] and [r, ɾ] sounds in Duriankari are not in complementary distribution, as they occur both initially and intervocalically, for example [ini] 'you (sg)' and [eri] 'two', [rino] 'night' and [ni] 'eat'. This is also true for [m] and [w], [mi:mo] 'dog' and [we:ko] 'fire'. The difference between Inanwatan [ˈniɾo] 'night' and Duriankari [rino] 'night' follows from the merger: the merged Inanwatan phoneme /n/ has [n] word initially and [r/ɾ] intervocalically as allophones, resulting in [ˈniɾo], /nino/.

   Voorhoeve (1985: 5) presents this system of consonant phonemes of the Weriagar dialect of the Kemberano language, table 5.

Table 5 Kemberano consonant phonemes (after Voorhoeve 1985: 5[25])

	bilabial	interdental	alveolar	velar
voiceless stops	p [p, pɸ]	t [t̪]		k [k, kˣ]
voiced stops	b [b, ᵐb]	d [d̪, ⁿd̪]		g [g, ᵑg, ŋ]
voiced fricatives	β [β, b̞]	ð [ð, d̞]		ɣ [ɣ, g̞]
nasals	m [m]		n [n]	
vibrants			ɾ [ɾ]	

The voiceless stop phonemes, except /t/, have plain and affricate allophones in free variation. Voiced fricative phonemes have free variation of voiced fricative and voiced weak stop allophones [b̞ d̞ g̞] in intervocalic position in Kemberano (Voorhoeve 1985: 5). The voiced stops have prenasalized allophones in word initial position (Voorhoeve 1985: 5).

   Voorhoeve (1985: 17) presents this (partial) system of consonant phonemes for Dombano (Sebyar dialect):

Table 6 *Dombano consonant phonemes*

p	t	k
b [b,β]	d [d, z]	g [g, ɣ]
m	n	
	r	

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[25] I did not include the uncertain sounds, bracketed by Voorhoeve (1985: 5).

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Dombano (a.k.a. Sebyar, Arandai) voiced stops have voiced fricative allophones between vowels (Voorhoeve 1985: 17), a very common type of lenition in TNG languages (Cottet 2015). The sound [s] seems to be lacking in Kemberano and Domberano, whether as a phoneme or as an allophone. They tend to adapt most loans with an initial [s] to [t], for example Kemberano *tikorao* 'school' (<Ind. sekolah< Dutch school), *tira* 'salt'(<Onin *síra* (Donohue 2019)<proto-Austronesian *qasiRa (Blust and Trussel 2019)), *garate* 'drinking glass'(<Dutch *glas*) [26], compare Inanwatan *sikorao* 'school', Kokoda Negeri Besar *sira* 'salt', Inanwatan *garasaqoro* 'drinking glass'. The presence of [s] in a Domberano or Kemberano word is a good diagnostic to detect loans, e.g. *pasare* 'market' (Indonesian *pasar*).

Cottet (2015: 244) writes: "Phoneme inventories may be revised in light of the present analysis of Mbahám. For instance, de Vries' (2004) analysis of the phoneme inventory in Kokoda and Puragi should be re-examined (de Vries 2004: 130)". However, the phone inventories presented for Kokoda and Puragi (de Vries 2004: 130, 137) are explicitly introduced as phone inventories ordered in a phonetic IPA chart, not as phoneme inventories. there is to my knowlegde no phoneme inventory of Kokoda published in the literature.

Cottet (2015: 244) observed that the coronal /t/ is sensitive to assibilation before [i] in (at least some) Kokoda dialects (see table 7). The data show assibilation of /t/ [ɕ, tɕ, s] in Kokoda Kasueri and Kokoda Negeri Besar but only before [i].

Table 7 Assibilated realizations of /t/ in Kokoda dialects

# gloss	Kokoda Tarof	Kokoda Kasuweri	Kokoda Negeri Besar
to see	ɛtɛ	ɛtɕaβɛ/ɛtɛ	etiaga
teeth	ɛɾɛtinu	ɛˈɾɛɕinu/nɛɾɛsinu	retinu
big	tinania	ˈɕinani/ tinani	tinania
mountain	tiɾo	ɕiɾiˈomɔ/tiɾo	tsrio
one	onati	oˈnaɕia, onati	onatia
sharp		aˈgitɔmɔ, agisia	

Kokoda Kasuari shows intervocalic spirantization of its voiced plosives to voiced fricatives in the case of /b/ and /g/, allowing both plosive and fricative realization in that position, (2)-(3). The /d/ may weaken to [r/ɾ] between vowels (4), again in free variation with the plosive pronunciation. Examples:

(2)   [turuβi] 'star' (Kokoda Kasueri)
       [turubi] 'star' (Kokoda Kasueri)
       [turubi] 'star' (Kokoda Negeri Besar)

(3)   [toɣɔja] 'old'(Kokoda Kasueri)
       [togoia] 'old'(Kokoda Kasueri)
       [togoia] 'old'(Kokoda Negeri Besar)

(4)   [tamɛɾidi] 'snake' (Kokoda Kasueri)
       [tamɛdidi] 'snake' (Kokoda Kasueri)

Assibilation of voiced stops also occurs in Kokoda dialects, leading to palatalized allophones of these consonants before high vocoids [i] and [j] (see §2.2.2)

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[26] The wordlists in Voorhoeve 1985 are the source for these loans.

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Table 8 presents a preliminary sketch of the Kokoda consonant system.

Table 8 Kokoda consonants (Kasueri dialect)

p [p]	t [t, ɕ, tɕ, s]	k[k]
b [b, β]	d [d, ɟ, r, ɾ]	g [g, ɣ, ɟ]
m[m]	n[n]	
	r [r, ɾ]	
w[w]	j[j,ɟ]	

Some evidence for contrasts in identical or analogous environments:

(5) /p/ vs /b/
[ˈɔbɛ] ' scratch!'
[ɔˈpɛ] 'pierce!'
[piˈɛβɛ] 'smoke!'
[biewe] 'pull!

(6) /t/ vs /d/
[ɔtɔɾa] 'foot, leg'
[ɔdɔ(mɔ)] 'leech'
[kote] 'belly
[kɔdi] 'stick'

(7) /k/ vs /g/
[ɛˈkɛɾa] 'your ear'
[igera] '(s)he'

(8) /n/ vs /d/:
[ina] 'to sleep'
[idaca] 'four'

(9) /d/ vs /r/:
[bora] 'hand'
[ˈbɔdɔnɔ] 'clay; soil; land'
[uˈdɛɾia] 'hot'
[ˈuɾɛkɔ] 'stone'
[ˈudɛβi] 'ashes'

(10) /b/ vs /m/:
[ˈmɔɛ] 'come'
[boiti] 'net'

(11) /r/ vs /n/
['turubi] 'star'
['tunu] 'wing'
[riβi-riβini] 'black
[ˈniβɛ] 'eat
[tiriria] 'wet'

==
[tinania] 'big'

Kokoda (Negeri Besar):
(12) /r/ vs /n/
tunu 'hair'
turubi 'star'

(13) /w/ vs /m/
[ewama] 'not'
[amanaia] 'sky'`

(14) /p/vs /b/
idepe 'stand'
debe 'swim'

2.2.2 *Assibilation, debuccalization and spirantization*

Cottet (2014, 2015) describes assibilation[27] phenomena in Mbahám (Greater West Bomberai family) and in the SBH family. Above we saw that Kokoda shows assibilation, with free variation of assibilated and non-assibilated realizations of /t/ before [i]. Puragi has assibilated allophones in complementary distribution with non-assibilated ones. The [ɕ] for example occurs only before [i] in Puragi ([ɾɛɾɛˈɕi], 'thin', [ɕiˈakɛni] 'leaf', [ɕiwɔni] 'grass', [nɛˈgɛɕianu], 'my fingernail', [ˈdɛɕi] 'bad') and is in complementary distribution with [t] that occurs before all other vowels, cf. [taˈpanɔ] 'fog', [ˈitɔ] 'new', [nɛˈtubɔni] 'my elbow'. In Kais, assibilation of /t/ occurs sporadically before [i], e.g. [ugetʃia] 'few', [ʃiage] 'to hit'.

Assibilation of /t/ is absent in Kaburi Benawa and Kaburi Kambor, just as in the Kemberano, Dombano and Barau dialects of Arandai. Inanwatan, Duriankari and Kais seem to have undergone assibilation in the past, and this historic process resulted in the split of *t in /t/ and a separate sibilant /s/ in Inanwatan, and possibly in Duriankari and Kais as well. Compare Cottet (2015): "In Duriankere, Kais and Inanwatan, I hypothesize a diachronic assibilation *t >/s/."

It looks like assibilation occurs in the western SBH languages and not in the eastern SBH languages, Kaburi, Kemberano, and Dombano. But it does occur in Kokoda dialects, not just affecting voiceless stops but also (some) other voiced consonants (Cottet 2014: 174), causing (synchronic) palatalization before high vocoids ([i],[j]) e.g. Kokoda Kasueri [oˊɟa] 'two', varying with Kokoda Kasueri[oˊgia] 'two' , Kokoda Tarof [oɟa] (cf. proto SBH *ugV 'two', Dombano [og'i] 'two', Kaburi Benawa [uge] 'two', Kais [uge] 'two',Weriagar [oge] 'two', Puragi [ou'ge] 'two'). Inanwatan and Duriankari have [eri] and [eiri], probably borrowed from Yahadian [ire-ge]. Kokoda Kasueri has [jɛ-] 'to fly' (Voorhoeve 1985) and [ˈɟɛ-] 'to fly'(de Vries 2004).

Historic debuccalization took place in Inanwatan where /ʔ/ is the reflex of *k. Synchronic debuccalisation is playing a role in Kaburi and Puragi, the only two other languages with glottal stops in their word-listst of our sources. These glottal stops tend to occur where the other SBH cognates have voiceless stops. Perhaps debuccalisation led to an additional phoneme /ʔ/ contrasting with these voiceless stops, for example in Puragi [ʔɛˈʔɛmu] 'all' and [kɛˈkɛʔu]

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[27]Cottet (2014: 1): "Hall & Hamann [3] and Hall, Hamann & Zygis [4] define assibilation as a process 'which convert[s] a (coronal) stop to a sibilant affricate or fricative before high vocoids'. Assibilation covers palatalization, sibilant affrication and sibilantization in a [_i] context; similar aerodynamic, articulatory and perceptual conditions are involved in these three processes. Coronal is the place of articulation the most affected by assibilation [3]."

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'little, few'. The Puragi word lists als show occasional variation of the voiced stop [d] with [ʔ], e.g *nedi* 'I' in Berry and Berry (1987: 107) and [neʔi] 'I' in de Vries (2004: 139)).

Kaburi stands out within the SBH languages for the high number of [h] sounds in the word-lists of de Vries (2004) for the Benawa dialect and Berry and Berry (1987) for the Kambor dialect. All other SBH languages either lack [h] (e.g. Inanwatan, except in loans) or have just a couple of [h] in their lists, e.g. Kais two words, Puragi one word, Kokoda one and Kemberano Kalitami four (with at least one in a loan). Debuccalization of *t to [h] plays a role in Kaburi. Compare *tiriri* 'wet' in Kemberano, Dombano and Kokoda Negeri Besar and *hiriri* 'wet' in Kaburi Kambor, *hɛɾiɾi* 'wet'in Kaburi Benawa. Kokoda and Kemberano *kotena* 'belly', Kaburi Kambor *koheʔa* and Kaburi Benawa *akoˈhɛa* 'belly'.

Spirantization occurs throughout the SBH family but it affects the sound systems in various ways. Kokoda Kasueri has synchronic intervocalic spirantization of /b/ and /g/, but its /d/ lenites to rhotics [r,ɾ]. Dombano lenites all its voiced stops to voiced fricative allophones between vowels. Historic spirantization may have caused the split between voiced stop phonemes and voiced fricative phonemes in Kemberano (see table 3), with [b, d and g] and their prenasalized counterparts in initial position subsumed under /b/, /d/ and /g/, and the weak voiced stops and voiced fricative sounds subsumed under the fricative phonemes.The next sections are devoted to the reconstruction of a number of proto SBH consonants for which there is enough credible evidence The tables have a separate column for the languages Kaburi, Kais and Puragi for which there are no phoneme inventories available.

2.2.3 *Voiceless stops*

Proto SBH *t is reflected in Inanwatan and Kais in some words as /s/ and others as /t/, caused by historic assibilation that led to a split. Dombano and Kemberano do not have /s/. Kokoda also does not have an /s/, but allows assibilation of /t/ to voiceless fricative and affricate allophones [s, ʦ, ʨ, ɕ] in free variation with the stop [t]. Table 9 presents reflexes of *t written phonemically unless bracketed.

Table 9 *t

	In	Kk	Do	Ke	pSBH	other SBH
*t/#—	/t/, /s/	/t/	/t/	/t/	*t	
1.water	saa	tai	taje	tai	*taV	Du [sa] Ka [sau]
2. bone	toka	toke	toke	toke	*tokV	Kb [toʔah] Ka [toko] Du
3. hear	tobo-	tobo-ra		tobo-be	*tobo	Ka [ɔˈbɔβɛ] Pu [obo'ani]
4. vein	susu-go	tutu-ko	ama-tuo	tutue	*tutuV	Ka [tutu] [susuro] Pu [tutui]
5. hill	tirido	tirio [ɕirio]		tiwi (Ba)	*tiri	Pu [sirio] Kt [tiro]
6. sago	so(qo-mo)		toje	towo toe (W)	*to	Du [so]
7. shell, nail	si-qo		ti	ti	*ti	Du [asi] Ka [siko]
*t/V—	t/s	t	t	t		
vein	susu-go	tutu-ko	ama-tuo	tutue	*tutuV	Ka [tutu] [susuro] Pu [tutui]
all	tete-mo			teteme	*tete-mV	Pu [ʔeˈʔemu] Kb [ataʔatu]
thick	amoto	amoto-somo		amoto-to	*amotV	Ka [amɔtɔsɔmɔ] Pu [amɔuwi]

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| person | mesi-dae | danetia | danet | danetu | *danetV | Pu [danɛʔi] Kb [daneta] |

PSBH *k has /k/ reflexes throughout the SBH family with the exception of Inanwatan where *k is consistently reflected as the glottal stop phoneme /q/. The most likely background of this shift in Inanwatan is highly frequent debuccalisation of [k] in the past which in the end led to the replacement of /k/ by /ʔ/ in the phoneme system. Notice that this weakening process in some cases progressed toward deletion of the glottal stop (*k>ʔ> Ø, e.g. *kararV>qararV>areri 'hair'; *kabV>abV 'head').

The [ʔ] occurs elsewhere only in the phonetic data of Puragi and Kaburi (Kambor dialect), and quite frequently so (e.g. Kaburi [iʔo-] 'to vomit', proto SBH *iko-). But Puragi and Kaburi also have [k] (e.g. Kaburi [uˈkɔ] 'egg') and we have too little data to establish the relation between the two sounds within the sound systems of these languages.

The shift *k> ʔ/ Ø of Inanwatan implies that [k] should nowhere appear in any Inanwatan data. And indeed there is no [k] in the 868 words listed by de Vries (2004), with one major exception, in loans. For example *kopórida* denotes Dutch colonial rule (via Moluccan Malay *kompeni* from Dutch *compagnie* 'company', shorthand for the East Indies Company), *kompasi* 'compass' (Dutch *kompas*), *sikorao* 'school'(via Indonesian *sekolah* from Dutch *school*), *káaparo* 'boat' (Indonesian *kapal*), *kábaso* 'thread, yarn' (Indonesian *kapas* '(cotton) yarn'), *kéraro* 'sea turtle' (Indonesian *kura-kura*), *mokáqoro* 'cup' (Indonesian *mangkok), káromato* 'glasses' (Indonesian *kacamata*).

Inanwatan did replace the [k] sound by a glottal stop in a few older loans, *toqo* 'palmwine' (proto-Malayo-Polynesian *tuak*) and *qoto* 'louse' (proto-Malayo-Polynesian *kutu*). The sound shift (*k>ʔ/ Ø) turns out to be a good diagnostic for loans in Inanwatan and /k/ is best viewed as a loan phoneme in Inanwatan. Table 10 presents the reflexes of *k with the data written phonemically unless bracketed.

Table 10 *k

	In	Kk	Do	We	pSBH	other SBH
*k/#—	q	k	k	k	*k	
1. ear	qeno [ʔɛrɔ]	kera	na-kera	kera	*kera	Pu [naɛrawu] Kb [kerawa]
2. hair	[areri] /aneni/	karau-mu	karar	kararo	*kararV	Ka [kararo] Pu [kararu]
3. feces	qa	kaka	kato	kaka	*ka	Ka [kato] Pu [kaeo]
*k/V—V						
4. egg	guqo	uku	kuo	oku	*uko	Ka [uku] Pu [wuˈkɔ] Kb [uˈkɔ]
5. bone	toqo	toka	toke	toke	*tokV	
6. vomit	iqo-na [iʔɔra]	iko-i		iko-i	*iko-	Ka [iko-na] Kb [iʔo-pe]
7. head	abo	kaba	kabe	kabe	*kabV	Ka [kabo]

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8. flesh	ta-buqo	ba-buki-	iⁿgi-buke	e-buku	*bukV	
9. butterfly	simo-maqo	moka-kaɾo	mumuo	moka-ko	*moka-kV	
10. dirty	qaqa-piro	kaka-pirumo	ka-moi	ka-to	*kaka-piro	
11. moon	moqo [mɔʔɔ]	puru-no	purino	moko, puruno[29]	*moko	Ka [mokwo]

It is interesting that Duriankari retained pSBH *k (e.g. *toko 'bone', Inanwatan *toqo*, Duriankari *atoko*, Inanwatan *qepo* 'foot', Duriankari *kepo,* Inanwatan *qero* 'ear', Duriankari *kero*, Inanwatan *qaqo* 'female child', Duriankari *akoro*). This implies that the Duriankari speakers moved westward to the Sele Strait entrance at a time before the *k>ʔ shift. The oral tradition of the Inanwatan regards the Duriankari speakers as Inanwatan people who in ancient times were carried off to the Sele Strait area by a flood (see the flood myth published in de Vries 2004, Texts, Part A, no.4)). Duriankari did also not participate in another striking innovation of Inanwatan, the merger of nasal and oral phonemes.

2.2.4 *Nasals*

Proto SBH *m has /m/ reflexes throughout the SBH family. Intervocalically, /m/ is realized as [w] or [β] in Inanwatan. Table 11 presents the reflexes of *m with the data written phonemically unless bracketed.

Table 11*m

pSBH *m	In	Kk	Dom	We	pSBH	other SBH
*m/#—	m	m	m	m	*m	
1.butterfly	simomaqo	mokakaɾo	mumuo	mokako	*mokakV	
2. to give	me-	me-	me	mi-	*me	Du [mei-] Ka [mi-]
3. to come	mo-	mo-	mo-	ma-	*mo-	Du [mo-] Ka [ma-] Pu [ma-] Kb [ma-]
4. moon	moqo [mɔʔɔ]	puruno	purino	moko, puruno	*moko	Ka [mokwo]
*m/V_V						
5. thick	amoto [awɔtɔ]	amototi		amoto-to	*amotV	Du [amota-] Ka [amɔtɔ-]
6. to sit	umu-	amu-	romu-	orom-	*amu-	Pu [amu-] Kb [amu-]

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[28]Kokoda varieties have =a as a NP boundary marker (Berry and Berry 1987: 86).

[29]*Puruno* and *purino* in Kokoda, Dombano and Kemberano are Austronesian loans (Voorhoeve 1985: 39), cf. pMalayo-Polynesian *bulan. This loan is quite widespread in the area, cf. Kamoro *purà* (Drabbe (nd): Kamoro, accessed through *Lexicons of the West Papuan language area*. (https://database.outofpapua.com/. (15-12-2023))‚Yahadian *huro* and Kamrau *burara* (Voorhoeve n.d (b): Kamrau-Ubia Sermuku, accessed through *Lexicons of the West Papuan language area*. (https://database.outofpapua.com/. (15-12-2023)). Many Austronesian loans reached the SBH languages via the middle men (called *raja* 'ruler') of Moluccan traders and sultans, the *raja-raja* along the Bomberai coast across the MacCluer Gulf, speaking Patipi, Erokwanas and Arguni.

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7. butterfly	simo-maqo	moka-kaɾo	mumuo	moka-ko	*mokakV	
8. road	umo [uwɔ]	amia		ame	*amV-	
9. who?	amete-ma		nimare	nemai		Pu [iˈmaɛɾo] Kb [imah]

Proto SBH *n has reflexes throughout the SBH family. Inanwatan has merged /n/ and /r/. Tables 12-16 presents the reflexes of *n, *b, *d, *g en *r with the data written phonemically unless bracketed.

Table 12 *n

	In	Kk	Do	We	pSBH	other SBH
*n/#—	n	n	n	n	*n	
1.to eat	ni-	ni-	ni-	ni	*ni-	Du [ni-] Ka [ni-] Kb [ni-]
2. to lie	na-	nai-		na-	*na-	Pu [na-]
3. 1SG.S	nani [nari]	nedi	nendi	nedi	*nedi	Ka [neri] Kb [neri]
4. 1SG.O	na-		na-	na-	*na-	
5. 1PL.EX	ni-ti	ni-gara	ni-ndi	ni-di	*ni-di	
*n/V_V	/n/	/n/	/n/	/n/		
6. name	neni [neri]	nanai	anaide	anade	*nadi	Pu [ˈnaidi] Kb [neʔi]
7. canoe	eno [ero]		eŋg-	engg-	*eno	Du [eno] Ka [eg-eno]
8. person	mesi-dae	daneti	danet	danetu	*danetV	Pu [danɛʔi] Kb [daneta]

2.2.5 *Voiced stops*

Table 13 *b

	In	Kk	Do	We	pSBH	other SBH
* b/#—	b	b	b	b	*b	
1. heart	bidana-ne	biradi		birare		Kb [biraidʒi] Ka [ɸirare]
2. thorn (bush)	bi-bo	bi-taja	bi-gobo	ᵐbita	*bi	Pu [bi-abani] Ka [ɸi-ɸo]
3. land, clay, soil	bodo	bodo-no	bod /boð/	obore	*bodo	Pu [bɔˈdɔna]
*b/V_V						
4. to hear	tobo-	tobo-		tobo-	*tobo-	Ka [ɔˈbɔ-] Pu [obo-]Kb [toβo-]
5. flesh	ta-buqo	ba-bukia	iⁿgi-buke	e-buku	*bukV	Ka [ɸuko] Pu [ama-buʔi][30]
6. buttocks	ibo	ebi	ibi		*ibV	Du [ibo] Ka [ibabo] Pu [ibubui]
7. head	abo	kaba	kabe	kabe	*kabV	Ka [kabo] Kb [wa-ʔaβa]

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[30]Compound of *ama* 'flesh' and *buʔi* 'meat'. Kokoda *hama* is a cognate of *ama*.

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Table 14 *d

	Ina	Kok	Dom	Kem	pSBH	other SBH
* d/#—	d	d	d	d	*d	
1. to stand	ide	ide	ide	ide [hire]	*ide	
2. person	mesi-dae	daneti	danet	danetu	*danetV	Pu [danɛʔi] Kb [daneta]
3. 1SG.	nani [nari]	nedi	nendi	nedi	*nedi	Ka [neri] Kb [neri]
*d/V_V						
4. land, clay, soil	bodo	bodo-no	bod	obore	*bodo	Pu [bɔˈdɔna]
5. left (side)	edudu-ri	dedo-rae		tadore	*dedorV	Ka [doduru] Pu [ˈdidɔra] Kb [zezora]
6. four	eni-en-idane	iˈdata	iˈdati	idate	*ida	
7. name	neni [neri]	nanai	naide	nade	*nadV	Pu [ˈnaidi] Kb [neʔi]

Table 15 *g

	In	Kk	Do	We	pSBH	other SBH
*g/#—	g	g	g	g	*g	
1. mouth, face	gane[31]	gania	gane	gane	*gane	
2. to hold	ge-			go-		Ka [gu-] Pu [gi-] Kb [ge-]
3. where?	agawo		gadi	gadi		
*g/V_V						
4.two	suge-ni	ogia	ogi	oge	*ogV	Pu [ouˈgɛ] Kb [uge]

2.2.6 *Rhotics*

Table 16 *r

	Ina[32]	Kok	Dom	Kem	pSBH	other SBH
*r/#—	/n/	/r/	/r/	/r/	*r	
1.ear	qeno [ʔɛrɔ]	kera	na-kera	kera	*kerV	Pu [naɛrawu] Kb [kerawa]
2. to cry	na-	na-	raa-	ra-	*ra	
*r/V_V						
3. hair	aneni [areri]	karau-mu	karar	kararo	*kararV	Ka [kararo] Pu [kararu]
4. afraid	ane [arɛ]	ˈare-aja	arei	aroi	*areV	Kb [ariʔe]
5. left (side)	edudu-ri	dedo-rae		tadore	*dedorV	Ka [doduru] Pu [ˈdidɔra] Kb [zezora]

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[31] Irarutu has *gane* 'mouth' (Voorhoeve 1995). The direction of the borrowing is not clear, but most likely from eastern SBH languages to Irarutu

[32] See de Vries (2004 :27-28) for Inanwatan personal pronouns.

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Inanwatan has merged /n/ and /r/, with rhotic allophones realizing /n/ between vowels. Where proto SBH has word initial *r, this corresponds to Inanwatan word initial /n /, e.g. row 2 of table 16, Inanwatan /na/, proto SBH *ra. Duriankari probably retained the contrast and Voorhoeve (1985) posits /n/ and /r/ as contrastive sounds in Kemberano and Domberano.

3. *Evidence for grammatical cognates*

South Bird's Head languages have phonological gender systems, with lexical gender assignment based on the root final vowel of nouns (Berry and Berry 1987, Voorhoeve 1985, de Vries 2004). Konda-Yahadian does not have lexical gender. The gender system is the same throughout the South Bird's Head family. Nouns ending in a back vowel (/u/ or /o/) are feminine, and nouns with a front final vowel (/i/, /e/) are masculine. Nouns ending in /a/ are feminine in Inanwatan, but masculine in Kais, Puragi, Kokoda, Domberano and Kemberano.

   Loan words ending in a vowel are assigned a gender based on the vowel in the donor language. When loans end in a consonant, a vowel is added. This is done for two reasons. First, the phonotactic constraints of South Bird's Head family do not allow words to end in a consonant and second, without gender assignment a word cannot function in the morphology and syntax of these South Bird's Head languages.

   Gender assignment to borrowed nouns by vowel additions is not semantically motivated, for example the loans *potlood* 'pencil' and *kompas* 'compass' from Dutch are assigned masculine gender by adding an /i/, *potoroti* and *kompasi*. But the Indonesian noun *kapal* 'boat' on the other hand is assigned feminine gender (*káaparo*). Notice the optional but frequent insertions of /o/ in loans with CC clusters, as in the Dutch CC cluster /tl/ of *potlood* (but not in *kompasi*). Loans which are felt to require referent-based gender assignment are either left unchanged (e.g. *mantri* ('(male or female) nurse) or adapted to reflect a male and a female form, e.g. Indonesian *guru* 'teacher', itself a Sanskrit loan, becomes *gurui* 'male teacher' or *gurugo* 'female teacher'. Since the subclass of nouns with non-lexical gender has an alternating root final vowel, lexically unspecified, this is represented as V, e.g. *kerV* 'ear'.

3.1 *Free personal pronouns*

Inanwatan has a closed class of twenty six personal pronouns, based on distinctions in number, person, gender, and case. Four cases are distinguished, resulting in subject pronouns, object pronouns, oblique pronouns and emphatic/focal subject pronouns. Since our sources of the other languages are mostly wordlists and sketchy notes, the only relatively complete South Bird's Head sets are the first and second person subject pronouns. The free personal pronouns consist of a pronominal base and (obligatory) case markers, *-di for subject, *-me for object, *-wa for emphatic subject and *-ga for oblique.

Table 17 South Bird's Head free personal pronouns

personal pronouns	In	Pu	Kk	We	Do	Proto SBH
1SG.S[33]	/na-ni/ [nari] /na-iti/	[nɛ-ʔi] [ne-di]	/ne-di/	/ne-di/ [neri, nedi]	/né-ndi/	*ne-di (*-di: S)
1SG.O	/ná-me/ [´nawɛ]		/ná-me/			na- (-me: O)
1SG.OBL	/ná-ga/		/nei-ga/			*na-/ni- (*-ga: OBL)
1SG.S.EMP	/né-ma/		/nai-wa/			*ne-wa (*-wa: EMP)
2SG.S	/á-iti/ /á-ni/[ari]	[ɛ-ʔi]	/e-di/	/a-di/ [ari, adi]	/á-ndi/	*a-di (*-di:S)
2SG.O	/á-me/		/á-me/			*a-me (*-me: O)

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[33] Abbreviations: S=subject, O=object, OBL=oblique, EMP=emphatic, IN=inclusive, EX=exclusive.

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2SG.OBL	/á-ga/		/ai-ga/			*a-ga (*-ga: OBL)
2SG S.EMP	/é-ma/		/ai-wa/			*a-wa (*-wa: EMP))
3SG.♂ 3SG.♀	/itig-e /[itig-i] /itig-o/	[nid-e] [nid-o]	/ig-e(-ra)/ /ig-o(-mo)/		/uma/ (='that')	*-e *-o
1PL.EX.S	/ní-iti/	[ni-didi]	/ni-di/	/ni-di/	/ni-ndi/	*ní-(*-di: S)
1PL.IN.S	/dá-iti/		/ni-gi/	/je-di/		
1PL.O	/ní-me/		[na-me] /ni-ame/			*ni*(-me: O)
1PL.OBL	/ní-ga/		/ni-ga(ra)/			*ni-ga (*-ga: OBL)
2PL.S	/í-iti/	[i-didi]		e-di	je-ndi	*i-di (*-di: S)
2PL.O	/í-me/					*i-me
2PL.OBL	/i-ga(dana)/		/i-ga/			*i-ga
2PL.EMP	/de-mawano/ [de-wawaro]		/i-wa/			
3 PL	/ítig-a/	[nidau]	/nigaumo/			

The first and second singular forms of proto South Bird's Head personal pronouns in table 8 continue proto Trans New Guinea forms[34] and so do the first and second person possessive forms and (indirect) object prefixes. But the proto SBH forms of the pronouns *o '3SG.♀' and *e '3 SG.♂' form a striking shared innovation with respect to proto TNG that Inanwatan shares with other SBH languages, table 3.

Table 18 Proto TNG and proto SBH base forms of personal pronouns

	proto TNG [35]	Proto SBH base forms	Inanwatan
1SG	*na	*ne, na	na-
2SG	*ŋga	*a	a-
3SG.M	*ya/*ua	*e	-e
3SG.F	*ya/*ua	*o, *u	-o
1PL	*ni/*nu	*ni	ni-
2PL	*ŋgi	*i	i-
3PL	*i	?	-a

Inanwatan also shares some bound inflectional verb morphology with other SBH languages, e.g. the Past suffix *-re* (*-de* after i-stems), object cross-referential suffixes of first and second person singular and third person singular male subject suffix *-i*, table 19.

Table 19 Cognacy in bound inflectional verb morphology of South Bird's Head family (SBH)

	Inanwatan	Kokoda	Dombano	Kemberano	Other SBH	*SBH
Past tense	-re ~ -de	-re ~ -de		-ra ~ -da	Puragi -ra ~ -	*-ra~
1SG.O	na-		na-	na-		*na-

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[34] But note that Pawley and Hammarström (2017: 72) discuss South Bird's Head as one of the groups with "weaker or disputed claims to membership in TNG".

[35] From Ross (2005).

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2SG.O	a-		a-	a-		*a-
3SG.♀.S.PRES	unmarked for gender	-o			Puragi -o-mo	*-o
3SG.♂. S.PRES	-b-i				Puragi: -e-do	*-e,i
3SG.♀. S.PAST	unmarked for gender				Puragi-o-mo	*-o
3SG.♂.S.PAST	-b-i				Puragi -e-do	*-e
3SG.♂.S.FUT	-b-i	-ni-e			Puragi: -ma-i	*e,i

The possessive affixes of table 20 express inalienable possession. Alienable possession is expressed by free possessive pronouns (de Vries 2004: 29).

Table 20 Possessive affixes

	In	Kk[36]	Pu	We	Ka	pSBH
1SG	na-	néri-	na-	na-	nai-	*na-
2SG	a-	ádi-	a-	a-		*a-
3SG.♀	-o	nig-o	nid-o			*-o
3SG.♂	-e	nig-e	nid-e			*-e

Table 21 presents the proto SBH agreement suffixes of targets within noun phrases. Examples (15)-(19) give the few available data for Kemberano Weriagar, and (6)-(7) for Kokoda.

Table 21 Agreement suffixes of modifiers in NP

	In	Kk	We	proto SBH
Masculine SG	-e	-e/-i	-e/-i	*-e/-i
Feminine SG		-o	-o	*-o
Common SG	-o			
Plural	-o	-u	-u	*-o/-u

The common gender of Inanwatan was originally a feminine gender until it absorbed neuter nouns, creating the common gender. They at least are consistent with the patterns found in the only better documented SBH language, Inanwatan, (20)-(21).

(15) *pogi*   *enat-i*
      boar.♂.M   one-M
      'one boar'
(16) *ureko*   *enat-o*
      stone.F   one-F
      'one stone'
(17) *dabor-u*   *tinan-u*   *ogia*
      dog-PL   big-PL   two
      'two big dogs

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[36] Kokoda uses the free forms of the personal pronouns as possessive prefixes with inalienable nouns.

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(18) *titáre*　　　　　　　*tinán-e*
　　　house.M　　　　　　large-M
　　　'a large house'

(19) *titáre*　　　　　　　*enat-i*
　　　'one house
　　　(Kemberano Weriagar, Voorhoeve 1985: 11, 15-16)

(20) *údi*　　　　　　　　*nige-i=a*
　　　banana.M　　　　　　good-M=BDR.M
　　　'a good banana'

(21) *daworo*　　　　　　　*nige-o=mo*
　　　dog.♀.F　　　　　　good-F= BDR.F
　　　'a good dog'
　　　(Kokoda Kasueri, de Vries 2004: 134)

(22) *méqaro*　　　　　　　*sówat-o*
　　　house. C　　　　　　good-C
　　　'a good house'

(23) *mésidae*　　　　　*esái*　　　　*tétew-i*　*sowat-e=so*
　　　person.♂.M　　　PRX.SG.M　　all-M　　good-M= be.3SG.M
　　　'This man is very good'.

(24) *N-íragiro*　　　　　*nó-ura-re*
　　　my-body.♀. C　　　1SG.S-see-PAST
　　　'I saw myself.'
　　　(Inanwatan, de Vries 2004: 45, 30)

There is evidence that the system of reference-based gender marked with ablaut /e,i/ 'male referent' and /o,u/ 'female referent' (table 22) which is highly productive in Inanwatan is also found in other SBH languages (25).

Table 22 Noun root-final ablaut in nouns with referent-based gender

ablaut V	In	Kk	We	proto SBH
Male referent SG	/ e/	/e/	/e/	*/e/
Female referent SG	/ o/	/o/	/o/	*/o/
Plural referents	/o/	/u/, /o/	/u/, /o/	*/o/,*/u/

However, since the elicited word lists of surveys asked people to translate Indonesian items there is often only one of a pair of nouns with referential gender in the data of table 8. The presence of a system of referential gender marked on nouns can be established if we have additional data from sketchy descriptions based on more extensive surveys, e.g. Kemberano Weriagar (Voorhoeve 1985: 10):

(25)

	male referent	gloss	female referent	gloss
Kemberano	ˈnɛnanɛki	elder brother	nɛnaˈniko	elder sister
(Weriagar)	dɛˈaotɛ	grandson	dɛˈaotɔ	granddaughter
	mamene	old man	mameno	old woman
	markene	male sibling-in-law	markeno	female sibling-in-law

Table 23 SBH noun cognates with referent-based gender

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gloss	In	Kk	Do	We	Ka	Pu	pSBH
hair (on body), feather	[areri] ♂ [arero] ♀ /aneni/	/karaumu /♀	/karare/♂ /karáro/♀	/kararo/♀	[kararo] ♀	[kararu] ♀	*kararV
bone	[toʔo]♀ [toʔe]♂ /toko/ /toke/	/toka/	/toke/	/toke/			*-tokV
head	/abo/♀ /abe/ ♂	/kaba/	kabe	/kabe/	[kabo]		*-kabV
buttocks	/ibo/ ♀/ibi♂	/ebi/♂	/ibi/♂		[ibabo]♀	[ibubui] ♂	*-ibV
parent	[ʔidɛ] ♂ [ʔido]♀	[ajɛ]♂ [ajɔ]♀	/ae/♂	[aɟo]♀	[ae]♂	[adɛˈʔɛ] ♂/	*-adV
vein	/susu-go/ ♀	/tutu-ko/♀	/ama-tuo/♀	/tutue/♂	[susuro] ♀	[tutui]♂	*-tutuV
person	/mesi-dae/♂ /mési-dao/	[danesi] ♂ /daneto/	/danet/	/danetu/		[danɛʔi] ♂ [danɛʔo]	*danetV
man/ woman	/qówewi/♂ [37]/órewo/ ♀	/nabini/♂ / awao♀	[ˈrabini] ♂	[raβinɛ]♂	[rabine]♂ / [rapo]♀	[raˈbini] ♂ [ˈrawɔ]♀	*rabini/ rawo

We may conclude that the systematic and paradigmatic correspondences from the tables in this section give strong evidence for inclusion of the Suabo languages Inanwatan and Duriankari as a subfamily of the South Bird's Head family. The evidence comes from case suffixes, gender suffixes and ablaut, pronouns, bound inflectional verb morphology (tense, subject and object cross-referencing affixes, gender). The pronoun paradigms of all SBH languages share reflexes of 3SG male and female pronouns that form a innovation in the proto SBH paradigm with respect to proto TNG.

4. *Inanwatan and proto SBH*
The eastern subgroup of Kokoda, Kemberano and Dombano (Voorhoeve 1985, Berry and Berry 1987) and the western Suabo subgroup (Inanwatan and Duriankari) are coherent units in terms of lexical similarity. Puragi, Kais and Kaburi seems to stand on their own (Berry and Berry 1987). Berry and Berry (1987) distinguish within the eastern subgroup the Arandai Dombano and Kemberano from Kokoda.
    Notice that the eastern subgroup (Kemberano, Dombano and Kokoda) did not share the innovations related to historical assibilation processes which led to splits of *t in /t/ and /s/ in Inanwatan, Duriankari and Kais. Kokoda shows extensive synchronic assibilation in both voiceless and voiced stop phonemes leading to free allophonic variation, but this has not led to phonemic innovations. The eastern subgroup also shares the absence of debuccalization.

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[37] Inanwatan uses nouns with the derivational suffix *-ewi* (for males)/*-ewo* for females, derived from *qówe* 'penis' (*qowewi* 'man') and *óro* 'vagina' (*orewo* 'woman') (de Vries 2004: 34).

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Extensive debuccalization led to a historical innovation in Inanwatan with the replacement of the velar voiceless stop *k in all positions of Inanwatan by the glottal stop phoneme, and to debuccalization of in Puragi and Kaburi as well, but in Puragi and Kaburi the [ʔ] appears alongside the [k] in the data. Kaburi also shows debuccalization of the alveolar and velar voiceless stops to [h] but its impact on the phoneme system is not clear due to lack of data.

In terms of grammatical cognates of the closed classes, Inanwatan is clearly a member of the SBH family, showing strong systematic and paradimatic correspondences in words and affixes and clitics with the other SBH languages, in multiple domains of grammar (tense, gendered ablaut in nouns, pronouns subject and object suffixes of verbs). Inanwatan shares with SBH the key innovation of *e and *o gendered pronouns of the third person singular with respect to proto TNG. The shape of the shared suffixes and closed class words follow from the regular sound changes established on the basis of lexical cognacy, e.g. the Inanwatan Past verb suffix/ -ne/ [-re] corresponds to the proto SBH *-re via the sound change that merged *n and *r in Inanwatan.

The consonant phonemes of Inanwatan can be derived from proto SBH by regular sound correspondences, with the sound change *k>/ʔ/ having a diagnostic value to detect loans and the *t> /t/, /s/ split based on historical assibilation processes also found in the other western SBH language Kais and possible Duriankari also. The merger of the nasals *n and *r to Inanwatan /n/>[r,ɾ] /V_V & [n]/#- enables to derive Inanwatan cognates correctly from proto SBH, e.g. *reni>Inanwatan /nini/ [niro], *ra>Inánwatan *na* 'to cry, and so on. Similarly, the merger of *m and *w explains *amu 'to sit'> Inanwatan /umu/ [uwu].

Summarizing, the data from lexical and grammatical cognacy can best be explained when we posit Inanwatan as a member of the SBH family. That family consist of a lexically coherent eastern subfamily (Kokoda and Dombano/Kemberano) plus a number of western SBH languages Kais, Inanwatan, Puragi, Kaburi that stand on their own in terms of lexical continuity. Puragi for example shares 28% vocabulary with Kais (Berry and Berry 1987: 84) and 25% with Inanwatan (de Vries 2004: 129). The fact that the western SBH languages show considerably less lexical coherence than the eastern subfamily can be explained by their diverging histories of contact, the eastern subfamily being relatively less integrated in the dynamic sociolinguistic and historical contexts sketched above than the western ones.

However, all of the SBH languages strongly cohere in terms of closed classes of words and suffixes, a coherence that strikes the ear of the observer because of same gendered vocalics that show up as final ablaut vowel or as vocalic suffixes in all open word classes in every sentence.

Abbreviations

1	first person
2	second person
3	third person
♀	female referent
♂	male referent
BDR	boundary marker
C	common gender
EMP	emphatic
EX	exclusive
IN	inclusive
O	object
PL	plural
OBL	oblique
SBH	South Bird's Head family
S	subject

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SG   singular
TNG   Trans New Guinea
PRES   Present
FUT   Future

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