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A Grammar of Tukang Besi



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Conventions

Transcriptions of the *Tukang Besi* sentences will be given in an orthography that is as close to the spoken language as possible; where segments are deleted, they are indicated by appearing in round brackets; the ‘careful speech’ pronunciation of the word or sentence would be expected to include the bracketed sounds. For more information on the orthography employed, see section 2.6

Morpheme boundaries will be indicated by a hyphen (-), for both affixal and clitic junctures, except for the subject focus infix which will be set off from the rest of the morpheme in which it is manifested by angle brackets ([]).

The translations of the example sentences are given in as close to natural English as possible; where necessary a more literal translation is also given in order to make a point more transparent.

Translations of sentences in *Tukang Besi* are indicated as ungrammatical by the use of an asterisk (*) before the sentence; a sentence that is grammatical, but is either contextually inappropriate, or requiring a special context in order to be judged acceptable, are glossed with a cross-hatch (#) before the sentence.

Intonational breaks are indicated by the use of standard punctuation symbols. A non-final break is shown with a comma (,); other intonational endpoints are indicated by devices such as a full stop (.) for an utterance-final break, and a colon (:). See Chapter 2, section 6 for a brief discussion of these symbols.

The following abbreviations are used to gloss morphemes:

1	first person	(portmanteau)
2	second person	(portmanteau)
3	third person	(portmanteau)
ACC.PASS	accidental passive	<i>te-</i>
ALL	allative	<i>kua</i>
ANA	anaphoric reference	<i>ai</i>
ANTICAUS	anticausative	<i>mo-</i>
APPL	general applicative	<i>-ako</i>
BEN	benefactive	<i>ako</i>
BREAK	breaking verbaliser	<i>ban-</i>
CAUS	causative	<i>pa₁-</i>
CASUAL	casual conversation marker	<i>i</i>
CLASS	classifier	(many)
COM	comitative	<i>-ngkene, kene</i>
COMP	complementiser	<i>ako</i>
CORE	non-nominative core article	<i>te</i>
DAT.OBJ	dative object	(portmanteau)
DIR	locative applicative	<i>-(VC)i</i>

DO	verbalising prefix	<i>he-</i>
DUR	durative	<i>heme-</i>
EMPH	emphatic, current	<i>-do</i>
ENDPOINT	final destination preposition	<i>apa</i>
FACT	factitive	<i>hoko-</i>
FREQ	frequentive	<i>me-</i>
from	ablative, 'ever'	<i>mina</i>
GEN	genitive particle	<i>nu, u, no</i>
have	possessing	<i>hoto-</i>
I	irrealis	(portmanteau)
ILL.FORCE	illocutionary force marker	<i>la, wa, ka, da,</i> <i>ga</i>
INAL	inalienable / plural marker	<i>mai, meai</i>
INFEST	infestation, adverse abundance	<i>-'o, -ko</i>
INSTR	instrumental	<i>ako</i>
INTENS	intensifier	<i>heka-</i>
ITER	iterative prefix	<i>para-</i>
MULT	multiple subject	<i>pada-</i>
NL	nominaliser	<i>-'a</i>
NOM	nominative core article	<i>na</i>
OBJ	object	(portmanteau)
OBL	general oblique article	<i>i, di</i>
OCC	occupational	<i>pa₂-</i>
OP	object prefix	<i>i-, di-, ni-</i>
PA	paucal	(portmanteau)
PASS	general passive	<i>to-</i>
PF	perfective marker	<i>-mo</i>
PL	plural	(portmanteau)
POSS	possesive	(portmanteau)
PRES	presentative	<i>ka- -'e</i>
PREV	previous reference marker	<i>ba'i</i>
PURP	purposive	<i>-ako</i>
R	realis	(portmanteau)
REC	reciprocal	<i>po-</i>
RED	reduplication	(various)
REF	referential demonstrative	<i>me- -'e</i>
REQ	requestive; indirect causative	<i>hepe-</i>
SF	subject focus	<i>-[um]-</i>
SG	singular	(portmanteau)
SOC	social activity prefix	<i>hopo-</i>
SW:COMP	switch complementiser	<i>kua</i>
VOC	vocative suffix	<i>-o</i>
VRB	purposeful verbaliser	<i>hoN-</i>
VRB/NOM	verbaliser/nominaliser	<i>wo-</i>
yet	(not) yet, still	<i>-ho</i>

In the explication of grammatical functions-changing processes, abbreviations are made

using argument structures. These can be taken to be space-saving equivalents of functional structures representing the same process. Thus, for instance, in chapter 9 the notation

$$'pa- \langle [], [Pt] \text{ PRED } \langle [Ag], [] \rangle \rangle'$$

is used; this can be taken as shorthand for the following f-structure representation (after Andrews 1996):

$$\left[\begin{array}{l} \text{LCS} \quad \text{CAUS} \langle [], [], \text{ARG} \rangle \\ \text{TERMS} \quad \langle [], [], [] \rangle \\ \text{ARG} \quad \left[\begin{array}{l} \text{LCS} \quad \text{'verb'} \langle [], [] \rangle \\ \text{TERMS} \quad \langle [], [] \rangle \end{array} \right] \end{array} \right]$$

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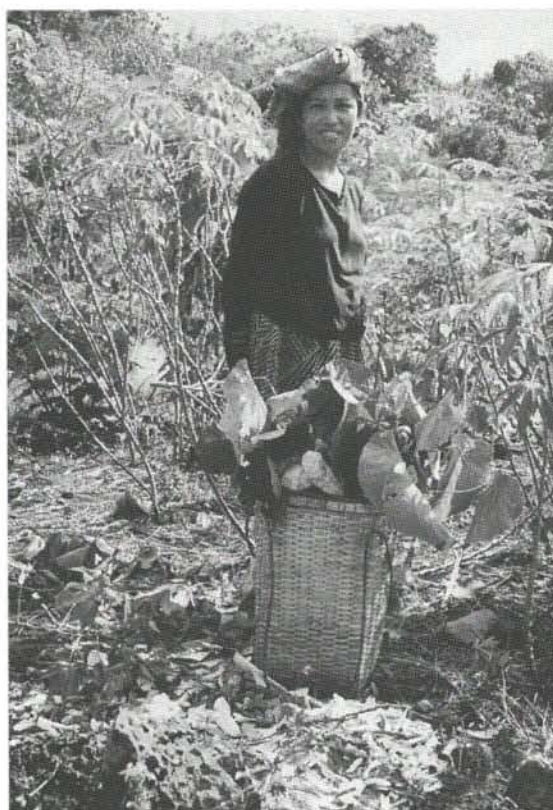
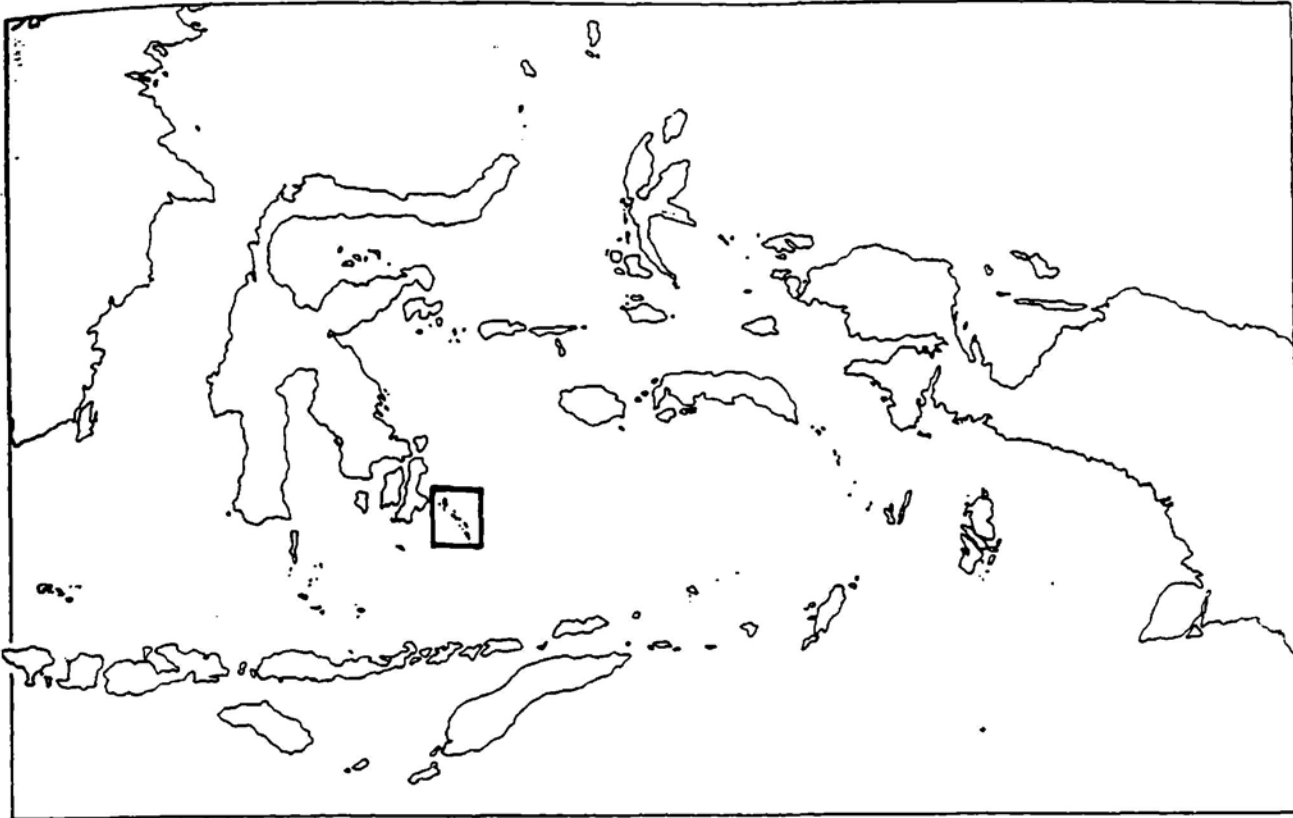
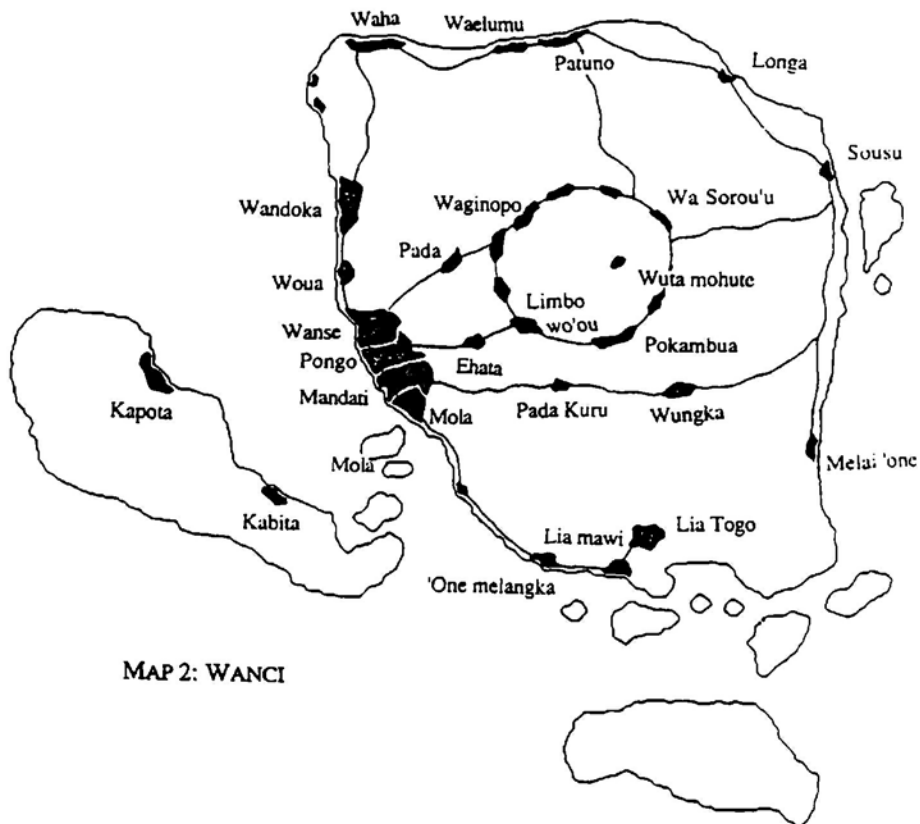


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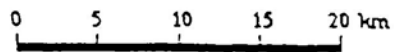
MAP 1: THE POSITION OF THE TUKANG BESI ISLANDS IN EASTERN INDONESIA
(see map 3 for details of the islands)



MAP 2: WANCI



MAP 3: THE TUKANG BESI ISLANDS



Chapter 1

Introduction

1.1 Setting

The *Tukang Besi* language is spoken in the archipelago that bears the same name, the *Kepulauan Tukang Besi*, east of the island of Buton in the province of Southeast Sulawesi. In this area it is the main (and almost sole) language of everyday communication. Administratively the archipelago is made up of four *kecamatan* (sub-districts), Wanci, Kaledupa, Tomea and Binongko, each consisting of one main island, and each except Binongko having a cluster of smaller islands, some inhabited, in addition to the main island. These four *kecamatan* (sub-districts) are all located in the *Kabupaten* (district) of Buton.

In addition to these primary islands where the language is unchallenged there are many monolingual and bilingual settlements of *Tukang Besi* speakers on other islands in Sulawesi, Maluku, Nusa Tenggara and Irian Jaya, and large populations of speakers in trading centres such as Baubau, Ujung Pandang, Surabaya, Jakarta, Banjarmasin, Singapore, Ambon, Taliabu, Obi, Fakfak, Manokwari and Darwin. As well as the members of the communities who are actively involved in trading many *Tukang Besi* have become market gardeners (especially in the east), or construction workers (more in the west), and producers of raw goods for their trading cousins. An account of a typical one of these communities comes from Anceaux (1958: 112), writing about the linguistic situation in the city of Fakfak on the Bomberai peninsula of Irian Jaya:

Fakfak, the principal town of the whole peninsula and its direct environs are inhabited by people from the adjacent language-areas but also by an important number of original Indonesians, mainly from the Moluccas (Ambonese, Ceramese, Keiese and a great number of Butonese), who for the greater part have given up the use of their original language and taken up Malay. Only amongst the Butonese groups one can still hear the original languages regularly used,...

The extent and numbers of speakers in these settlements and cities is rich ground for further sociolinguistic investigation. The *Tukang Besi* traders that I have visited have all been very active in their use of the language, but there is evidence that the youngest generation is losing its active command of the language when raised in a multilingual environment. This is probably due to the demise of the previously wide-spread pidgin varieties of *Tukang Besi*, as a result of the spread of local Malay dialects, and so the narrowing social environment in which *Tukang Besi* functions in these far-flung trading posts. In the home archipelago itself *Tukang Besi* is the main language spoken by all people, of all ages and occupations. In the coastal areas near to government centres most people can understand Malay or Indonesian, but do not use it, even when speaking to outsiders, who are expected to learn the local language.

There are only two significant groups of non-Tukang Besi peoples in the area. The first of these is a widely scattered group of Bajau villages, on Kaledupa (Mantigola, Sepela and LaHoa), Tomea (LaManggau) and Wanci (Mola, founded in the main in 1957 by refugees from Mantigola, though there was a small settlement in Mola Utara before 1957), where Bajau is the first language of all, but most of whom can also speak Tukang Besi bilingually. The only other significant presence of non-Tukang Besi peoples is in the southern part of Binongko, which is home to about 3,000 Cia-Cia speakers, descendants of soldiers sent there in the 1700s by the sultan of Wolio to quell an uprising on the island. Apart from these areas, there are various government officials in the *kecamatan* capitals who come from other islands, many from Baubau or other places in Sulawesi, typically Bugis or Toraja people, but with some Javanese as well. These people are usually forced by circumstance to learn enough Tukang Besi to communicate in the market. In many coastal villages there are people from other language areas who have married Tukang Besi women, and have moved to the islands; these people too become Tukang Besi speakers, as their numbers are not great enough to form a significant community.

1.1.1 Geography

The islands that are the homeland to the Tukang Besi people are all coral islands, with no hills higher than 300m, and no permanent water except in sinkholes and caves, which abound in the karst environment created by the coral. The staple food crops are cassava and corn, with sweet potatoes occasionally consumed. Additionally, kangkung, young bamboo shoots, beans, tomatoes, eggplant and jackfruit are occasionally grown as vegetables, and the islands produce bananas, custard apples, pineapples, watermelons, and a glut of mangoes at the end of the rainy season. Fishing forms an important part of the diet, and on Wanci the fish are also farmed in or pens by the shore, thus providing a regular food supply. There is little animal husbandry, restricted to some sporadic keeping of buffaloes, goats, chickens, and very many ducks. Wildlife is in the main scarce on the islands due to overpopulation by humans, the only wild land animals being lizards, rats and mice. In the sword grass flats of the east and south west there are in addition to these also countless insects (spiders, centipedes, grasshoppers, beetles, etc.). In the more extensive forested areas of the north-west and the south-east there are still cuscus to be found in the trees, but they are scarce these days, and nowhere near as abundant as they are in, for example, the heavily forested vicinity of Lasalimu on the Butonese mainland.

1.1.2 Demography and population

A count of the total population of Tukang Besi speakers will probably never be made accurately, with many communities in eastern Indonesia being listed in local censuses as Bajau or Bugis communities. When asked about their ethnic origins, most of those people will say that they are from Sulawesi, and if pressed specify Buton. An outright admission of coming from the Tukang Besi islands is not easy to extract, this location being thought to be too insignificant to merit any mention. Approximate figures for the number of people on the four islands in Southeast Sulawesi are:

Wanci:	± 35,000
Kaledupa:	± 20,000
Tomea:	± 15,000
Binongko:	± 20,000

These figures reflect almost exclusively native speakers of *Tukang Besi*, since there are no other ethnic groups in this island chain apart from the *Bajau*, who number about 4,000 in the *Wanci* subdistrict, and 1,500 in the *Kaledupa* subdistrict, and the *Cia-Cia* speakers on *Binongko*, about 3,000. This leaves a total of approximately 80,000 people. The addition of the communities that are scattered throughout Indonesia is likely to double this total (in *Fakfak* alone there are approximately 10,000 speakers, for instance).

The original *Tukang Besi* culture of the islands is a matrilineal one, with husbands usually moving to their bride's village area, but without becoming part of that family. Marriage is described as being an alliance of families, rather than the husband entering the bride's family, or vice versa, and the bridewealth payments are correspondingly low (when compared to, for instance, patrilineal areas in eastern Indonesia), a marriage costing about Rp 2,000,000. Despite this matrilineal residence pattern, there is a system of patrilineal inheritance; this leads to men working in separate garden locations scattered about the island, in some instances extending to cover more than one island. Most of the gardening work on *Wanci* is done by men, all except the final harvesting and transportation home of the cassava that is ready for eating, which is carried out by women with a male guard. Some inland gardens, far from other villages in the north and north-east, are also the domain of women, but this is considered exceptional by most *Wanci* people. Women are also responsible for harvesting the tidal flats, searching in the shallow water, or more commonly on the flats when the tide has receded (which can create an area up to a kilometre wide along some parts of the coast), digging up crabs, molluscs and starfish, which are eaten. Men conduct the fishing and trading that involves traversing the deep water beyond the coral drop-off that mars the end of the shallows, but do not engage in any productive work in the tidal flats. This movement of people to different areas on a regular basis adds to the cohesion that the whole society has, with constant interaction for most villages. The only exceptions to this overall cohesion are the more secluded areas of *Wungka*, occupying the central-southern jungle area, and *Melai* 'one on the south-east coast.

The people of these islands cannot be characterised in simple socio-economic or ethnic terms, as there is a large degree of variation from island to island, in terms of both socio-economic habits and ethnic composition. Trading communities away from the main islands intermarry with local people whilst preserving a strong sense of a *Tukang Besi* identity, making the ethnic composition of a *Tukang Besi* community independent from its linguistic status. Culturally, it can be said that the *Tukang Besi* people fall within the cultural dominion of *Baubau* and the Sultanate of *Wolio*, having had their local ruler (the *Meantu'u* of *Lia*, on *Wanci*) appointed by a Sultan 400 years ago, and generally giving obedience to and having pride in the sultan, though noticeably less so than the mainland peoples on *Buton*. Many of the traditional stories are identical to those told by *Wolio* speakers, and indeed those in other areas further west in the *Wolio* cultural area, such as on the island of *Muna* (René van den Berg, personal communication), or indeed even north in the Philippines (Walrod 1979 presents a tale of a monkey and a tortoise in *Ga'dang* (Philippines) which is almost identical to the sixth text presented in the appendices to this

volume). Island by island, the following stereotypes emerge:

The Wanci islanders are the most oriented towards trade, with fleets of up to 40 vessels regularly smuggling second hand clothes and karaoke stereos from Singapore to most of Indonesia, as well as more mundane trade in plastics and agricultural tools. They have the greatest number of people living in cities elsewhere, typically staying for up to a year away from the islands, working in odd jobs and helping family in business ventures, before returning to their villages for half a year to help with harvesting and ceremonies. Trading voyages conducted by Wanci people tend to be along fixed trade routes, with representatives waiting in the overseas ports to organise a cargo to be ready when the ships arrive, so there is a roughly set route and schedule to the trade.

On Kaledupa, the emphasis is on education, as the island has a tradition, since its conquest by Tidore in the 1600s, of sending sons to centres of learning, and even more important there is a tradition of well-educated teachers returning to Kaledupa. The Kaledupa people are not particularly known for their seafaring abilities, riding when necessary with cousins from Wanci or on motor-powered vessels, and are well known for their lack of business acumen. Kaledupa is the one island in the group without shops, and only in 1991 was a market area built by the government to promote commerce on the island.

Tomea is regarded as the most culturally intact of the islands, with the least impact from other cultures and regions. Tomea speech is thought of as being the most refined of the dialects, and Tomea considered to have the finest dancers and musicians. Tomea has the lowest population, due to a very low number of expatriates and poor conditions on the island itself. Not known for their trade, there are but a few natives of Tomea in the Maluku region, scattered around Ambon, Banda and a few other islands.

Binongko has a smaller population than Tomea, but has probably the highest number of emigrants to other regions of any of the islands. The *Tukang Besi* communities with permanent residents on islands in eastern Indonesia tend to be descended from Binongko traders, and the island of Kapota west of Wanci is largely populated by Binongko people. The island of Binongko is very poor, with little fresh water, and none close to the villages, which are all located on the coast, so agriculture is less effective on this island than elsewhere. Binongko is also situated in an area poor for fish (the best area being just east of Kaledupa), so many of the people of Binongko have taken to craft to earn their livings: the name of the island chain, *Tukang Besi* ('blacksmith' in Malay), comes from the Binongko blacksmiths whose wares predominate as far afield as Ujung Pandang in South Sulawesi. The blacksmiths of Binongko are largely credited with secret powers (*ilmu gaib*) that enables them to pull glowing iron from the hearth without tongs, and to beat metal into machetes with their hands if necessary. Trade conducted by the Binongko people tends to be less organised than that carried out by the Wanci traders, and is more of an individual family affair, with whole family units taking to the boat for up to ten months at a time, sailing to gardens and potential trade opportunities in

other islands.

The Tukang Besi people are nearly 100% Muslim (as is most of the Butonese population; I have met exactly one non-Muslim Tukang Besi person, Roy from Laha on Ambon island, who is a recent convert to Christianity), and practice their faith fervently, whilst incorporating many elements of the pre-Islamic beliefs that are common in the area. These animistic beliefs take the form of offerings to male and female spirit shrines in certain locations, and the widespread use of shamanism to guarantee success in agriculture or fishing. A detailed spirit world is accepted as existing in the same space as the normally accessible world, but is invisible and immaterial to most people; only those with the rare ability to see the other world are capable of manipulating it and its denizens, which include many varieties of spirit and demon beings, both sentient and non-sentient, benign and malevolent. Many unusual landscape features, such as protruding rocks or unusual trees are thought to be inhabited by spirits that dwell there either voluntarily or through having been bound there against their will by another spirit or person. In the event of a storm in which such a tree collapses, the spirit is released, and can pose quite a problem to a nearby settlement or garden. Skilled shamans (*mia pande*, 'clever person' in Tukang Besi) can interact with this world to combat the effects of the spirits, and some become entwined with the beings of that world to the extent of marrying a spirit there, or retrieving weapons and wealth from some of the other world's cities. A full treatment of these aspects of the Tukang Besi world view is beyond the scope of this short introduction, but it is hoped that it can be expanded on in the future.

1.1.3 History

The Tukang Besi people do not claim to be native to their area. The origin myths from Wanci relate that the ancestors of the modern Tukang Besi population arrived from across the ocean from the area of *Palakarang* to the south-west coast of Wanci. On arrival they found the island to be already inhabited by the people who built the stoneworks that can still be seen on the summit of Tindoi. The stories tell that there was originally a village of these pre-Tukang Besi people on the top of Tindoi, but all that remains of this now are the ruins of stone walls; the area is now the site of a primary rainforest (the only one still on the island).

After the arrival of the Tukang Besi peoples on Wanci there followed a period of fighting which saw Lia and Mandati emerge as rival powers in the region. Refugees fleeing from this fighting colonised the north coast, via Tindoi (the people known nowadays as *Rupu*), and up the west coast to Wanse. These divisions are preserved today in the different dialect areas, and the different occupations that people from different areas tend to carry out, with (for instance) persons from the west coast more likely to be involved in trading syndicates conducting business with ports to the west, those on the north coast more likely to be individual traders with a route stretching east to Irian Jaya, and people from the south east of the island simple farmers. Certain villages have a strong reputation for criminal activities, and other areas are more renowned for their shamans.

1.2 The region

1.2.1 Surrounding languages

The immediate area about the Tukang Besi islands in Southeast Sulawesi is the waters of the Banda Sea and the Flores Sea. The islands form an extension of insular Southeast Sulawesi into the Banda sea, so there are no immediate neighbours of any size. The closest other languages of contact are Bajau, spoken in two communities in the archipelago itself and in numerous small communities along the east Buton coast, the Desa Wali dialect of Cia-Cia on Binongko, and Lasalimu, spoken in the village of the same name on the coast of east Buton, a village into which many Tukang Besi people have married, and now comprise about 25% of the total population of 2,000 in the village. The Lasalimu language is only spoken in Lasalimu and the *kampong* of Malaoge, about 4km away from Lasalimu proper. Other languages of East Buton include (from north to south) Kulisusu, Pancana (east), Kamaru, Cia-Cia (main), Cia-Cia (Pasarwajo), and Cia-Cia (Wabula). Other languages in the rest of Buton include Cia-Cia (Sampolawa), Kaimbulawa, Busoa, Muna and Wolio. Further details can be found in Donohue and van den Berg (forthcoming).

1.2.2 Previous studies in the region

The Muna-Buton region is still virtually unknown, linguistically. The Dutch government linguist E. J. van den Berg did deep studies on Wolio, the sultanate language and first language of most of the inhabitants of Baubau, but he was killed and all his notes lost during the Japanese occupation in World War II before much of this work was published. J. C. Anceaux conducted research in Wolio, culminating in his description of Wolio (1952) and dictionary (1987). René van den Berg is conducting ongoing research into Muna, spoken all over the large island of the same name, which has resulted in a grammar of the language, a dictionary, and several other publications on historical and syntactic issues (see bibliography). Apart from these works, however, the approximately 15 languages of insular Southeast Sulawesi remain unknown and undocumented (though extensive work has been carried out by members of the Summer Institute of Linguistics on the Moronene and Tolaki languages of the Southeast Sulawesi mainland). Survey work has been conducted by this author in conjunction with René van den Berg, but is yet to be published.

1.3 The language

1.3.1 Previous (and other) work on the language

There have been very few references to the Tukang Besi language in print. The language appears on language maps, such as Esser (1938), Salzner (1960), without any substantive work having been done on the language. Anceaux (1978) is the first treatment of the language situation on the islands off mainland Southeast Sulawesi, with the publication of a list of about 30 words from the language and a tentative (but largely accurate) subgrouping hypothesis. This study represents the first time that any language data had appeared in print. This improvement of the detail on the language was repeated in Sneddon (1987). Two other linguistic surveys of the area, Bhurhanuddin (1979) and Kaseng

(1987), also include mention of *Tukang Besi*, as well as wordlists based on the Swadesh 200-item wordlist, but fail to consistently note vowel length, and do not record glottal stops or implosion at all.

Information about the structure of language did not appear until Collins (1983b: 32-33, and endnote 35, p. 139) who, with accurate data, speculated on the possible connection of the article *te* (described by Collins as a prefix) to a Central Maluku suffix **-tə*. In Blust (1993: 251), brief reference is made to *Tukang Besi*, where *kaɖola* ‘chicken’, from Popalia (a large village on Binongko) is listed (incorrectly) as a possible cognate with the putative proto Central Malayo-Polynesian **kandoRa* ‘rat’ (proto Austronesian **R* becomes \emptyset (adjacent to /u/ and sometimes /i/) or /h/ (elsewhere) in *Tukang Besi*, but never /l/). Pawley and Pawley (1994: 358) correctly list *hena?u* as a *Tukang Besi* word meaning ‘descend, go seawards, go west’ in a discussion of Austronesian canoe and seafaring terminology. The Pusat Bahasa in Jakarta has produced *Morfologi dan sintaksis Bahasa Binongko* (published in a less complete form as Manyambeang et al 1985), a monograph purporting to describe morphological and syntactic processes in the language (as represented by the southern dialect spoken in Binongko), but misses many crucial points, such as word breaks, morphological divisions and phonemic principles. Since then various studies on some aspect of the language (phonetic, morphological, syntactic, dialectal) have appeared by the present author (see bibliography for a full listing), and Klamer (1997) has presented an insightful study on certain complementation types.

1.3.2 Alternative names

The name *Tukang Besi* is an exonym, from Malay *tukang besi* ‘blacksmith’. The local word for a blacksmith is *Pande tutu* or *Tuka kabali*, but these terms are never used as a means of reference for the island chain or its language. The closest the *Tukang Besi* come to an endonym is to change the pronunciation to fit their phonological system, making it [tuka^mbɛsi]. Note that this is distinct from the loan form of the word ‘*tukang besi*’, meaning blacksmith, which has been borrowed into the language (alongside *Pande tutu* and *Tuka kabali*) as [tuka^mbasi]. Other names used by the people to refer to themselves and their language varieties include:

Wakatobi	(Wanci, Kaledupa, Tomea, Binongko)
Bahasa Pulo	(island language)
Pogau Ka'umbeda	(from the folk etymology of the proto-word for ‘fact’)
Pogau Wanse	(for Wanci)
Pogau Kahedupa	(for Kaledupa)
Pogau Tomia	(for Tomea)
Pogau Binongko	(for Binongko)
Pogau Daoa	(trade language used in the market between people from different dialect groups)

The word for ‘speech, language’, *pogau*, has the additional connotation that is not official, proper, or refined (*halus* in Malay), while the loanword *bahasa* has no such connotations. The two terms are interchangeable in the speech of most speakers, even those with no knowledge of Malay, but the difference becomes apparent with the following example:

Bahasa Malau	‘the language of Malaysia and east Sumatera’ ‘the national language of Indonesia’ (though ‘Bahasa Indonesia’ is preferred for this latter)
Pogau Malau	‘the language of, for example, Ambon, Bacan, and the trade language of Irian Jaya and Kupang’ ‘the national language, if referring to the Dutch or Sultanate times’

The term *Wakatobi* has been avoided here since, although it neatly includes all the speech varieties in the home island area, it excludes the language as spoken by the inhabitants of areas such as Bonerate in South Sulawesi, where *Tukang Besi* is spoken to the exclusion of any other languages. I have chosen to continue to refer to the language and ethnic group with the label ‘*Tukang Besi*’ since it is neither offensive nor unknown to the people themselves, and because it is already and unambiguously established in the literature.

1.3.3 Attitudes to their language

Despite the fact that *Tukang Besi* is a language that is only rarely written there are strong feelings about what is ‘correct’ use of the language, many of which are at strong variance with what the speakers themselves use. Principal amongst these, for the purposes of this description, include the following:

- Genitive marking on stative verbs: speakers seem universal in their non-acceptance of this, yet nearly everyone employs it (chapter 7).
- Co-occurrence of *-[um]-* and object suffixes. In elicited sentences speakers are reluctant to accept verb forms that display both the *-[um]-* infix and an object suffix, yet in real (unguarded) speech this is common (chapter 7).
- Derivation of verbs without the verbalising prefix *he-*. Whilst many cases of verbs derived from an associated noun through prefixing with *he-* are common, there are many cases in normal speech of ‘nouns’ being used as verbs simply by the addition of subject prefixes (chapters 4 and 11).

As this grammar is descriptive, rather than prescriptive, the forms treated here represent what was actually heard. Native speaker intuitions have been followed and consulted as much as possible, but not to the extent of denying data.

The language is spoken by all age groups in almost all settlements visited, even those communities away from the main islands in which there was a mix of different languages, of which *Tukang Besi* was not the main language. Such settlements include Laha on Ambon island, where Ambonese Malay is the dominant language of communication between groups, or many small settlements in eastern Nusa Tenggara, where Lamaholot and Malay compete as trade languages, and even further east in Irian Jaya, where local Malay and in some cases New Guinea languages (such as Onin and Iha in the vicinity of Fakfak) are used between members of different linguistic communities. In such

communities even the younger speakers spoke *Tukang Besi*, though often without the understanding of the different dialectal words that a child growing up in a purer *Tukang Besi* environment would have learned, and with lexical reduction. For instance, children on Pantar were observed to use *kaluku* 'old coconut' to refer to all stages of coconuts, including drinking coconuts, for which the lexeme *osimpu* 'young coconut' exists. Adults in the same community (originally settled from Binongko possessed a full command of their language, but were unable to recognise many of the northern *Tukang Besi* words that I used. These words posed no problems to the elders of the same community, people who had grown up on the *Tukang Besi* islands, and so learned many northern dialect words along with their own dialect words when still children.

1.3.4 Dialects

There are many dialect differences in the *Tukang Besi* language, probably enough to warrant separating the speech of Wanci and Kaledupa from that of Tomea and Binongko, and establishing a northern *Tukang Besi* and southern *Tukang Besi* as separate, though very closely related languages (a conclusion also reached by E. J. van den Berg - see Cense 1954). The differences appear to be mainly in the area of the lexicon and allophonic variation (see Donohue forthcoming a); grammatical differences are minimal. The lexical differences are small (typically no more than 20% of a 200-item list being different), but this is enough to make intelligibility very difficult, unless both parties are already experienced in dealing with speakers of the other speech variety. This is because the divergent vocabulary is all very common lexical items, such as (contrasting Wanci and Binongko dialects) *ika / kenta* 'fish', *poda / soka* 'knife', *moro'u / motindo'u* 'drink', *'oloo / moina* 'day', *morondo / uutu* 'night', *mo'aro / mo'omuru* 'hungry', etc. See Donohue (forthcoming a) for further details.

Within these two broad divisions each island has its own distinct speech, again distinguished lexically and allophonically. Each island has in addition to this several sub-dialects – on Wanci, where my personal experience is greatest, there are at least five broad linguistic areas with distinctive speech. These areas are:

Rupu	used in the coastal areas north from Wandoka around the island to Longa, and the hill areas of Tindoi;
Wanse	Spoken on the west coast from Pongo to Woua, and inland as far as 'Ehata;
Kapota	spoken on the island of the same name, a mixture of Binongko and Wanci;
Mandati	The west coast of the island south from Pongo and Mandati to include Mola and the neighbouring hamlets down almost to Lia, and inland across the island through Pada Kuru and Wungka to Melai 'one and north to Sousu;
Lia	Very similar to Mandati, centred around the old palace in Lia, including the coastal villages of 'One melangka and Lia Mawi. It is characterised by the high frequency of borrowings from Wolio, the language of government in the Sultanate days.

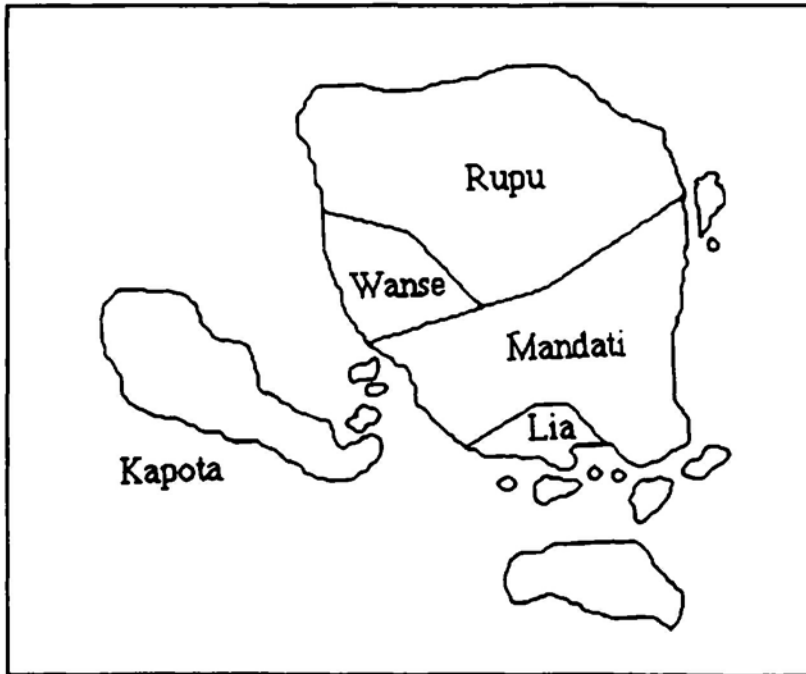
The greatest difference lies between the Lia-Mandati complex and the rest. Several lexical

items, and the [d] allophone for /dʒ/ (pronounced [dʒ] in the other sub-dialects, and sometimes [z] on the north coast) set the Lia-Mandati dialects apart from the rest. The differences between Rupu and Wanse speech are minimal, being restricted mainly to vocabulary items, and there are few difficulties in comprehension between the two. Some diagnostic lexical items for the different areas are given below (Kaledupa is included for comparison as an example of the next large dialect area):

	Rupu	Wanse	Kapota	Mandati	Lia	Kaledupa
banana	<i>loka</i>	<i>loka</i>	<i>loka</i>	<i>pida</i>	<i>pida</i>	<i>pida</i>
bucket	<i>timba</i>	<i>timba</i>	<i>gue</i>	<i>timba</i>	<i>timba</i>	<i>timba</i>
chicken	<i>kadola</i>	<i>kadola</i>	<i>manu</i>	<i>manu</i>	<i>manu</i>	<i>manu</i>
corn	<i>kaitela</i>	<i>kaitela</i>	<i>gandu</i>	<i>gandu</i>	<i>gandu</i>	<i>gandu</i>
crowbar	<i>kali</i>	<i>kali</i>	<i>'ua</i>	<i>'ua</i>	<i>'ua</i>	<i>'ua</i>
descend	<i>tuhu</i>	<i>tuhu</i>	<i>tuhu</i>	<i>tuhu</i>	<i>tuhu</i>	<i>sabu</i>
fish	<i>ika</i>	<i>ika</i>	<i>kenta</i>	<i>ika</i>	<i>ika</i>	<i>kenta</i>
go	<i>wila</i>	<i>wila</i>	<i>'inte</i>	<i>wila</i>	<i>'inte</i>	<i>'inte</i>
knife	<i>poda</i>	<i>poda</i>	<i>soka/pod</i>	<i>poda</i>	<i>poda</i>	<i>soka</i>
			<i>a</i>			
night	<i>morondo</i>	<i>morondo</i>	<i>uutu</i>	<i>morondo</i>	<i>morondo</i>	<i>uutu</i>
rain	<i>wande</i>	<i>wande</i>	<i>wande</i>	<i>wande</i>	<i>wande</i>	<i>monda</i>
return	<i>waliako</i>	<i>waliako</i>	<i>mbule</i>	<i>mbule</i>	<i>mbule</i>	<i>mbule</i>
sarong	<i>worai</i>	<i>wurai</i>	<i>wurai</i>	<i>gendi</i>	<i>gendi</i>	<i>wurai</i>
shelter	<i>walewale</i>	<i>walewale</i>	<i>laiga</i>	<i>laiga</i>	<i>laiga</i>	<i>laiga</i>
sit	<i>kede</i>	<i>kede</i>	<i>mpunda</i>	<i>kede</i>	<i>kede</i>	<i>kede</i>
sit place	<i>godegode</i>	<i>gelagelamp</i>	<i>godegode</i>	<i>godegode</i>	<i>godegode</i>	<i>godegode</i>
		<i>a</i>				
spouse	<i>bela</i>	<i>bela</i>	<i>umangge</i>	<i>bela</i>	<i>bela</i>	<i>bela</i>
tie string	<i>bongko</i>	<i>bongko</i>	<i>bongko</i>	<i>bongko</i>	<i>bongko</i>	<i>boke</i>
wind	<i>iri</i>	<i>iri</i>	<i>kawea</i>	<i>kawea</i>	<i>kawea</i>	<i>wande</i>

A fuller treatment of the dialect situation is given in Donohue (forthcoming a), which includes detailed comparative vocabularies from all four main islands in the Tukang Besi archipelago, and a list from Bonerate in South Sulawesi as well.

The locations of the Wanci subdialects are shown in map 4. The division between Kapota and the rest is clear, having a sea channel separating the main island and Kapota. The division between the Rupu dialect area and the rest roughly follows the line that marks the Tindoi hill area off from the rest of the lowlands to the west and south. The extension of the Rupu dialect to the north, around Patuno and Waha, is the result of a population expansion in the last 80 years; previously the north coast was too dangerous for permanent settlement, due to the threat of piracy. The Lia-Mandati dialects are set in the area of (supposed) original settlement on the island, and the Wanse dialect is a northwards extension of that settlement, mixed with movement to the coast by people from the Rupu area since the establishment of the sub-district capital at Kota Wanci in the last 30 years.



Map 4. Sub-dialect areas on Wanci

One important and consistent difference between the Wanse-Mandati-Lia dialects and Rupu dialect lies in the treatment of certain high back vowels, which would involve the positing of six vowel phonemes in a 'pre-Tukang Besi' stage of the language (before the split up of the subdialects of the modern Wanci area). The correspondences are:

	Wa-Ma-Lia	Rupu	
[o] / [o]	<i>ʔolota</i>	<i>ʔolota</i>	'wilderness'
	<i>toka</i>	<i>toka</i>	'but'
	<i>wose</i>	<i>wose</i>	'prawn'
[u] / [w]	<i>peku</i>	<i>pekw</i>	'backfist'
	<i>wuta</i>	<i>wwta</i>	'ground'
	<i>kau</i>	<i>kaw</i>	'tree, wood'
[u] / [o]	<i>wurai</i>	<i>worai</i>	'sarong'
	<i>sauri</i>	<i>saori</i>	'very'
	<i>kaʔulu</i>	<i>kaʔolo</i>	'don't ever'

These alternations point to an analysis that would require three high back vowels to account for all the modern correspondences. The pre-Tukang Besi forms corresponding to the above sets would be as follows:

	pre-TkB:	Example:
[o] / [o]	* /o/	* <i>wose</i>
[u] / [w]	* /w/	* <i>wwta</i>
[u] / [o]	* /u/	* <i>wurai</i>

Thus a pan-dialectal approach to the phonology would need to refer to three different high back vowels, even though no dialect displays more than a two-way contrast between vowels in this environment synchronically.

1.4 Sources for this study

My first, informal, trip to the Tukang Besi islands was in August 1991, during which time I gathered mainly lexical materials on Wanci and swam off Hoga, near Kaledupa, but did only a small amount of grammatical work. I had earlier met Tukang Besi people travelling on Pelni ships through Indonesia, and had noted the people who referred to themselves as being from Sulawesi Tenggara, or if pressed Buton, but only reluctantly as being from the islands. Before and since that time I have visited Indonesia a number of times, on each occasion inevitably meeting Tukang Besi people in the unlikeliest of places, and later conducting research under the auspices of the Lembaga Ilmu Pengetahuan Indonesia. During these visits, between 1992 and 1995, the majority of the time was spent in the village of Patuno on the north coast of Wanci, and also a fair deal of time around Kota Wanci on the west coast. Walking trips around the island of Wanci were undertaken, to see how people in other villages lived and spoke, and occasionally to Kaledupa as well. Tukang Besi people from all the islands have been met with, and talked to informally on islands and boats between Surabaya and Irian Jaya in the years 1994 to 1998, sometimes in the scope of ongoing linguistic research, but sometimes merely adding socio-historical details to my knowledge of the area. All such encounters have deepened my understanding of the Tukang Besi people and their place in modern and historic Indonesia.

The people whose contact has fuelled this study have been from a wide cross-section of the Tukang Besi speaking community, ranging in age from around four to eighty, both male and female, and most age groups in between.

The formal education of the speakers I worked with reflects a range of experience. Some of the speakers were totally untouched by modern education (whilst often possessing a deep traditional education), being illiterate and having received no schooling either from the Dutch, the Japanese, or the modern Indonesian government. Others have been educated by the Dutch before World War II, received training under the Japanese regime, or have attended teachers' colleges since Indonesian independence. The most highly (formally) educated of my informants had just completed a basic university degree in Sulawesi, and was working as a junior lecturer when the field work for this study was completed.

Most of the people who have contributed information have been bilingual (or more) in Indonesian, Straits Malay, Ambonese Malay or Makassar Malay, or a mixture of these. Some older speakers contributed information elicited in Dutch or Japanese, and some of the younger generation are learning English to various degrees of proficiency. Many people who have helped me with paradigms, stories, explanations, and simple companionship, have been completely monolingual in Tukang Besi; these are the people living in the hill areas of Tindoi.

The social status of the people I have worked with varies between acknowledged *mia pande* shamans who are members of the nobility (*La Ode, Wa Ode*), to those who are considered *kombeo* 'mad' by others on the same island. Texts have been recorded from people known for their ability as raconteurs, others from those who consider themselves as unable to contribute worthwhile data (but who did, nevertheless, consent to being recorded). Casual conversation has been the source of many insights during festivals, boat building works, marriages, gardening, canoeing and simply chatting.

Whilst the input (in the form of data gathered from elicitation and stories recorded) has come from a wide cross-section of the *Tukang Besi* speaking population, the variety represented here is that of the *Rupu* sub-dialect of *Wanci* speech, unless otherwise mentioned (this is only important in chapter 9).

1.5 Data-gathering procedures

Most materials used in this grammar have been taken from recordings of traditional stories, explanations about how certain aspects of *Tukang Besi* material and social culture operate, and recordings of conversations. Texts were always transcribed with a native speaker, usually someone other than the person who gave the text in the first place; in this way the textual material represents the speakers' perception of "proper" speech, and also a consensus of views. Texts on various subjects, from traditional stories to life experiences and simple conversation, were recorded from speakers ranging from six years old to approximately ninety years old in age, ranging from village pariahs to local nobility in terms of social status, and from people from all the main dialect areas (all four islands), and representing all the subdialects of *Wanci* island. In this way it is hoped that the corpus of data is as representative as possible of *Tukang Besi* as it is actually spoken.

As will become obvious, some of the chapters in this grammar are largely populated by elicited examples (especially chapters 9 and 10). Whilst I prefer data that has come from textual or conversational materials, as being more indicative of spontaneous, "natural" language (for obvious reasons), I have no aversion to the use of elicitation to fill out a paradigm. Whilst I believe that an ideal linguistic description would include only naturally-occurring materials, and make no use of elicitation at all, such a grammar would also take 50 years or so to write, waiting for all the combinations of things to turn up by chance. Both my funding and my patience are insufficient for such a wait... As a restraint, I have deliberately not extended elicitation into areas for which there was no supporting data available from other sources. As an example of this, the material on double applicatives was only collected after double applicative constructions had been observed in texts, and in freely occurring speech; the elicitation sessions did not seek out paradigms that were not there. Most elicitation was conducted on a group of people (typically three to five), and later checked both with other groups, and with the same groups, to see if the judgements were consistent, and not just reflecting a peculiar idiolect. In general, (almost) all the materials present as examples in this grammar have been checked with about 10 different people, some of them more than once, to act as a check on quirky responses.

Chapter 2

Phonology and morphophonology

2.1 The phonemes

This chapter will mainly deal with the phonology of the Wanci dialect of the *Tukang Besi* language, but will also include an account of the more salient features of the phonology of the other dialects, such as gemination and the retroflex lateral phone. This information is presented in a descriptive manner, with phonemic contrasts amongst consonants being exemplified in detail only where the two phonetic distinct sounds are close enough to suspect a phonemic identity. The allophones of the individual phonemes are presented with the description of the phonemes, and further attention will be paid to those phonemes or groups of phonemes that show problematic allophony. The phoneme inventory of the Wanci dialect consists of maximally twenty seven consonants (counting loan phonemes) and five vowels (though see the historical analysis presented in chapter 1.3, which involves the use of a sixth vowel, /u/ (contrasting with /ɯ/) to account for the correspondences across dialects). The consonants and vowels are dealt with and exemplified separately in section 2.1.1 and 2.1.2.

2.1.1 Phoneme inventory

Consonantal phonemes:

Place: Manner:	BILABIAL	ALVEO- DENTAL	PALATAL	VELAR	GLOTTAL
Plosive, voiceless	p	t̪	(tʃ)	k	ʔ
Plosive, voiced	(b)	(d)	(dʒ)	g	
Implosive	ɓ	ɗ			
Fricative	β	ɣ			h
Nasal	m	ɲ		ŋ	
Prenasalised, voiceless	mp	n̪t̪ n̪s		ŋk	
Prenasalised, voiced	mb	n̪ɗ	(n̪dʒ)	ŋg	
Sonorant		r l			

Note: forms () in brackets are loan phonemes (mainly from Indonesian/Trade Malay), with [tʃ] alternating with [s], and [d] with [dʒ] (and sometimes [z] as well).

Vowel phonemes:

	FRONT	BACK	ROUND
HIGH	i	ɯ	o
	ɛ		
LOW		a	

2.1.2 Description of the phonemes

Here I list the phonemes and their major allophonic variants, with examples of the phonemes in words.

/p/ Voiceless bilabial stop

→ [p̚], [p̚p̚] /__(a, o)

→ [p]

porai [p̚orai]

'fiancee'

kape [kape]

'hand drum'

/mp/ prenasalised voiceless bilabial stop

→ [m̚p̚], [mp̚p̚] /__(a, o)

→ [mp]

mpa'ampa'a [mp̚paʔa'm̚paʔa]

'starfish'

katumpu [kaʔɯmpɯ]

'house post'

Note that /p/ and /mp/ have identical allophonic distributions, the only difference being the prenasalisation associated with /mp/.

/b/ imploded bilabial stop

→ [b̥], [p̚], (voiced or voiceless imploded stop)

→ [ʔb], [ʔb̥] /__V#

→ [β] /V__V

bambai [βambai]

'comb'

soba [sɔʔba] ~ [sɔβa]

'try'

/mb/ prenasalised voiced bilabial stop

→ [m̚b], [m̚β] /free variation

→ [m:] /fast speech (see section 2.1.7)

mbale [m̚bale]

'lie down'

wombo [βɔm:]'2nd story in a house'

/m/ voiced bilabial nasal stop

→ [m]

mura [mɯʔa]

'probably'

ama [ama]

'father'

/β/	voiced bilabial fricative		
→	[β], [ʋ]	/ __free variation	
→	[ϕ]	/ __rare allophone (found more commonly in children's speech)	
		/ __dominant allophone in Tomea and Binongko	
	<i>worai</i>	[βɔrai] ~ [ʋɔrai] ~ [ϕɔrai]	'sarong'
	<i>'awa</i>	[ʔaβa] ~ [ʔaʋa] ~ [ʔaϕa]	'get'

The fact that [ϕ] is the major allophone of /β/ in Southern Tukang Besi means that the contrast between /β/ and /p/ is often reduced in those dialects, as it often is in Northern Tukang Besi as well. The [β] allophone of /β/ overlaps with the [β] allophone of /b/, and the [ϕ] allophone overlaps with the [ϕ] allophone of /h/, reducing the contrast between phonemes in two other contexts as well.

/b/ voiced bilabial stop

Loan phoneme only present in recent borrowings

→	[b]		
	<i>baiara</i>	[bajara]	'pay'
	<i>babi</i>	[babi]	'pig'

/t̚/ voiceless apico-dental stop

→	[t̚]		
	<i>tinti</i>	[t̚ɪnti]	'run'
	<i>oto</i>	[ot̚o]	'car'

ⁿt̚/ prenasalised voiceless apico-dental stop

→	[ⁿ t̚]		
	<i>nti'i</i>	[ⁿ t̚ɪi]	'fast'
	<i>tanta</i>	[ⁿ t̚aŋta]	'aunt'

/ɖ/ voiced imploded apico-dental stop

→	[ɖ]		
→	[ʔɖ], [ɖ]	/ __V#	
	<i>dapi</i>	[ɖapi]	'twin'
	<i>hada</i>	[haʔɖa]	'shall, will, want'

ⁿɖ/ prenasalised voiced apico-dental stop; idiolectally released rhotically (especially in Kaledupa dialect)

→	[ⁿ ɖ], [ⁿ ɖʰ]		
→	[ⁿ ɖ]		
→	[ɳ:]	/fast speech (see section 2.1.7)	
	<i>ndanga</i>	[ɳ:ŋa]	'jackfruit'
	<i>wande</i>	[βaŋɖe] ~ [βaŋɖʰe] ~ [βaŋɖe]	'rain'

/ŋ/ voiced apico-dental nasal stop

→	[ŋ]		
	<i>nangu</i>	[ŋaŋu]	'swim'
	<i>pana</i>	[paŋa]	'arrow'

/s/ grooved voiceless alveolar fricative

→	[s]		
	<i>sala</i>	[sala]	‘road’
	<i>mobasa</i>	[mɔbasa]	‘large’

/ⁿs/ prenasalised voiceless grooved alveolar fricative

→	[ⁿ s], [~s]	(see section 2.1.7)	
	<i>hansu</i>	[hansw] ~ [hãsw]	‘sword’

/d/ voiced apico-alveolar stop/voiced palato-alveolar stop

Loan phoneme only present in borrowings

→	[d]	dominant allophone in Mandati-Lia sub-dialects of Wanci, and Tomea-Binongko; idiolectally otherwise	
→	[dʒ]		
	<i>da'o, ja'o</i>	[daʔo] ~ [dʒaʔo]	‘bad, evil’
	<i>karadaa, karajaa</i>	[karada:] ~ [karadʒa:]	‘work’

/r/ tapped or trilled voiced alveolar rhotic

→	[r]		
→	[r]	/V__V Wanci dialect only	
→	[ɽ ɽ̃]	/V__V casual fast speech (Wanci dialect only)	
	<i>ramo</i>	[ramo]	‘flesh’
	<i>bara</i>	[bãɽa]	‘don’t’

/l/ voiced alveolar lateral

→	[l]		
→	[ɽ ɽ̃]	/V__V casual fast speech (Wanci dialect only)	
→	[ɽ ɽ̃]	/(a.o.u)__ Tomea, Binongko dialects	
	<i>laro</i>	[laɽo]	‘inside’
	<i>lalo</i>	[laɽo]	‘fly’

Note that a common allophone of both /r/ and /l/ is [ɽ] or [ɽ̃]; this means that the contrast between the two phonemes is often neutralised, as in the examples above.

/tʃ/ voiceless (palato-) alveolar sibilant; in free variation with /s/

Loan phoneme only present in borrowings

→	[tʃ], [s]		
	<i>cokolati, sokolati</i>	[sɔkɔlati]	‘brown; chocolate’

/dʒ/ voiced apico-alveolar stop or fricative/voiced palato-alveolar stop

Loan phoneme only present in borrowings; often varies with /d/

→	[d], [dʒ]		
→	[z]	/ northern Wanci sub-dialects, idiolectally	
	<i>da'o, ja'o</i>	[daʔo] ~ [dʒaʔo] ~ [zaʔo]	‘bad, evil’
	<i>karadaa, karajaa</i>	[karada:] ~ [karadʒa:]	‘work’

/ⁿdʒ/ prenasalised voiced apico-alveolar stop or affricate

Suspected loan phoneme only present in very few observed forms

→ [d], [ⁿdʒ]
makanjara [maka'ndʒara] ~ [maka'ndara] 'kind of dance'

/k/ voiceless dorso-velar stop

→ [k̚], [c] /__i
 → [k]
kie [kie] ~ [cie] 'mat'
aka [aka] ~ [ak:a] 'root'

/ŋk/ prenasalised voiceless dorso-velar stop

→ [ŋk]
ngkaru [ŋkaru] 'carry'
pangku [paŋku] 'back'

/g/ voiced dorso-velar stop

→ [g], [g̚]
 → [ʔg], [ʔg̚] /V₁__V#
 → [ɣ] /__V((C)V)₂#
nogugudu [noɣu'gɯʔdu] 'they make noise'
baga [baʔga] 'cheek'

/ŋg/ prenasalised voiced dorso-velar stop

→ [ŋg]
 → [ŋ:] /fast speech (see section 2.1.7)
ngga [ŋga] 'than (in comparisons)'
tungga [tɯŋ:wa] 'each'

/ŋ/ voiced dorso-velar nasal stop

→ [ŋ]
ngaa [ŋa:] 'name'
anga [aŋa] 'gills'

/ʔ/ glottal stop, idiolectally slightly aspirated

→ [ʔ], [ʔ^h] /__ free variation
 → [k] /__V (-ʔɛ, -ʔa) (see section 2.1.4)
'angka [ʔaŋka] 'forbid'
ne'i [nɛʔi] ~ [nɛʔ^hi] 'contents'

/h/ voiceless glottal continuant

→ [ϕ] /__u
 → [h]
hu'u [huʔu] ~ [ϕuʔu] 'give; tree'
waha [βaha] 'west'

/i/ high front unrounded vowel

→	[i, ɪ]		
	<i>ina</i>	[ina]	'mother'
	<i>jari</i>	[dʒari] ~ [dari] ~ [zari]	'so, thus, then'

/ɯ/ high back unrounded vowel

→	[u]	/oC0__, w__	dominant allophone in Tomea, Binongko and Mandati-Lia sub-dialects of Wanci
→	[ɔ, ɯ]		
	<i>tolu</i>	[tɔu]	'three'
	<i>tuhu</i>	[tɯhu]	'descend'

/ɛ/ mid-closed front unrounded vowel

→	[e, ɛ]		
→	[e]	/__#	
	<i>ela</i>	[ɛla] ~ [ɛl:a]	'tongue'
	<i>mele</i>	[mɛle]	'request, ask'

/o/ mid back rounded vowel

→	[ɔ]		
→	[o]	/__u, __ (C)(o)#, (p,mp,b,mb,m,w,b) __	
	<i>'obu</i>	[ʔɔbu]	'dog'
	<i>'oloo</i>	[ʔo'lo:]	'day, sun'

/a/ low unrounded vowel

→	[ɐ],[a]		
	<i>atu</i>	[atɯ]	'that'
	<i>'eka</i>	[ʔɛka]	'climb'

For typographic convenience whenever text is not enclosed in phonetic or phonemic brackets in the rest of this description the following conventions will be assumed when writing the phonemes. Further discussion of orthographic representations of *Tukang Besi* can be found in section 2.6.

Phonemes:

p	t	(tʃ)	k	ʔ
(b)	(d)	(dʒ)	g	
β	ɸ			
β	s			h
m	n		ŋ	
mp	nt			
ns		ŋk		
mb	nd	(ndʒ)	ŋg	
	r	l		

Orthography:

p	t	c	k	'
<u>b</u>	<u>d</u>	j	g	
b	d			
w	s			h
m	n		ng	
mp	nt			
ns			ngk	
mb	nd	nj	ngg	
	r	l		

Minimal pairs amongst the vowels

<i>balu</i>	'buy'
<i>balo</i>	'answer'
<i>bala</i>	'classifier for soap'
<i>bale</i>	'young frond of coconut tree'
<i>bali</i>	'turn around'

Minimal contrasts amongst the (suspicious) consonants:

/m/ - /n/ - /ŋ/

<i>ama</i>	'father'	<i>ana</i>	'child'	<i>'anga</i>	'gills'
------------	----------	------------	---------	--------------	---------

/mp/ - /mb/

<i>kompa</i>	'eel'	<i>komba</i>	'moon'
--------------	-------	--------------	--------

/ʔ/ - /h/ - Ø

<i>'ada</i>	'send'	<i>hada</i>	'imminent'	<i>ada</i>	'borrow'
-------------	--------	-------------	------------	------------	----------

/ʔ/ - /h/

<i>pa'a</i>	'thigh'	<i>paha</i>	'thunder'
-------------	---------	-------------	-----------

/t/ - /m/

<i>titi</i>	'breast'	<i>tinti</i>	'run'
-------------	----------	--------------	-------

/d/ - /nd/

<i>pidi</i>	'rubbish'	<i>pindi</i>	'firm excrement'
-------------	-----------	--------------	------------------

/t/ - /r/

<i>tutu</i>	'blunt'	<i>turu</i>	'beat a fish unconscious'
-------------	---------	-------------	---------------------------

/ʔ/ - /r/

<i>ala</i>	'fetch'	<i>ara</i>	'if'
------------	---------	------------	------

/n/ - /n̩s/

<i>wine</i>	'seedling'	<i>pinse</i>	'squeeze'
-------------	------------	--------------	-----------

2.1.3 Vowel sequences

The following clusters of vowels have been found to occur morpheme internally:

Table 1. Vowel clusters

VV:	aa	æ	ai	ao	au
e.g.:	<i>ngaa</i> 'name'	<i>bae</i> 'rice'	<i>hebai</i> 'sew'	<i>hao</i> 'rope'	<i>rau</i> 'yell'
VV:	ea	ee	ei	eo	eu
e.g.:	<i>mea</i> 'pay'	<i>ree</i> 'cough'	<i>lei</i> 'sea urchin'	<i>ngeo</i> 'charcoal'	<i>deu</i> 'needle'
VV:	ia	ie	ii	io	iu
e.g.:	<i>mia</i> 'person'	<i>kie</i> 'mat'	<i>mohii</i> 'left'	<i>sio'oloo</i> 'afternoon'	<i>liu</i> 'reason'
VV:	oa	oe	oi	oo	ou
e.g.:	<i>soroa</i> 'sweat'	<i>doe</i> 'money'	<i>loiloi</i> 'lie'	<i>'oloo</i> 'sun'	<i>rou</i> 'forehead'
VV:	ua	ue	ui	uo	uu
e.g.:	<i>wunua</i> 'house'	<i>'ue</i> 'rattan'	<i>wui</i> 'bead'	<i>koruo</i> 'many'	<i>wakutuu</i> 'time'

Diphthongs & Vowel sandhi rules

Vowels across a word boundary often show sandhi effects such that one of the vowels is eclipsed (the first of the two), or a partial loss of features of both of the vowels creates a new phonetic shape, slightly longer than a normal single vowel, as seen in the examples below:

/a/ + /a/ →	[a:]	<i>awana atu</i>	[aβa'na:tu]
/a/ + /u/ →	[o], [w]	<i>manusia u kampo</i>	[manu'siɯkampo]
/a/ + /e/ →	[ɛ]	<i>'awa e sura</i>	[aβɛ'sura]
/a/ + /i/ →	[i], [e]	<i>wila i daoa</i>	[βili'daoa]
/o/ + /i/ →	[e:]	<i>rato i Wanse</i>	[rate:βanse]

/u/ + /a/ →	[o], [u]	watu ana	['batona]
/u/ + /e/ →	[ɛ]	balu e ika	['baleika]
/e/ + /u/ →	[ɔ:]	te uwe	['tɔ:βɛ]

At the end of a word the final vowel in the suffix *-mo* (perfective) can be deleted, without any effect on the already-established stress patterns; Thus

ku-halihali-mo → [ku,halihali'm] 'I'm off for a stroll.'

Before an initial consonant in a following word, the vowel after 'mo' or 'no' is deleted, and the [n] or [m] becomes a nasal homo-organic to the initial consonant of the following word:

<i>bangka no paira</i>	→	[ʔbaŋkampa'ira]	'Which boat?'
<i>nomangamo te bae</i>	→	[nomamaŋaŋɛ'bae]	'He ate the rice.'
<i>la'amo ku'ita'e</i>	→	[laʔa ŋkuʔiʔaʔe]	'I just saw it.'

This process of word final vowel deletion has been extended in north coast dialects, so that now in casual speech any vowel can delete finally, or become voiceless after a voiceless consonant:

V → Ø, V [-voice] / C __ #
([-voice])

e.g.,

<i>no-manga bae</i>	[nomamŋ'bae]	'He's a rice-eater.'
<i>ku-'awa-'e na ika</i>	[kuʔa'βaʔ na 'ika]	'I got a fish.'
<i>gonti-'e</i>	[g o' ŋkiʔ]	'Chop it down!'

2.1.4 Glottal stops

The sequences of vowels exemplified in table 1 above may be compared with the corresponding forms that exhibit a medial glottal stop:

Table 2. Vowel clusters interrupted by a glottal stop

a'a	a'e	a'i	a'o	a'u
ma'a	ba'e	ba'i	ha'o	gora'u
'yawn'	'fruit'	'previous'	'nail'	'egg'

e'a	e'e	e'i	e'o	e'u
<i>le'ale'ana</i> 'today'	<i>le'e</i> 'urine'	<i>ne'i</i> 'flesh'	—	<i>nde'u</i> 'not want'
i'a	i'e	i'i	i'o	i'u
—	—	<i>menti'i</i> 'fast'	—	—
o'a	o'e	o'i	o'o	o'u
<i>helo'a</i> 'cook'	<i>ko'e</i> 'stroke'	<i>lo'ia</i> 'ginger'	<i>wo'ou</i> 'new'	<i>moro'u</i> 'drink'
u'a	u'e	u'i	u'o	u'u
<i>tudu'a</i> 'slave'	<i>bu'ea</i> 'crocodile'	<i>wuwu'i</i> 'wash hands'	<i>wetu'o</i> 'star'	<i>lu'u</i> 'tear'

The lack of glottal stops following /i/, the high front member of the vowel inventory, is conspicuous. Since this has the lowest frequency of the vowel phonemes in Tukang Besi, this may simply reflect insufficient sampling (the above tabulation is based on a corpus of approximately 2,000 words), though the attested presence of glottal stops in all other combinations (with the exception of *e'o*; again, this may reflect the fact that /e/ and /o/ are relatively infrequent vowel phonemes) points to this being a systematic absence. The presence of an /i?i/ sequence is not surprising, in light of the tendency for glottal stops to appear at morpheme boundaries between identical high vowels (described below).

Despite the limited number of relevant examples, table 2 does indicate that the presence or absence of a glottal stop is phonemic in Tukang Besi, regardless of its unusual behaviour. In Tomea and Binongko, and to a lesser extent on Wanci, a glottal stop can be responsible for non-phonemic glide formation, if it precedes a high vowel, as described in the following rule:

$$\begin{array}{c}
 ? \\
 \left[\begin{array}{l} + \text{ V} \\ + \text{ high} \\ \alpha \text{ back} \\ + \text{ syllabic} \end{array} \right] \rightarrow \left[\begin{array}{l} \text{ G} \\ + \text{ high} \\ \alpha \text{ back} \\ - \text{ syllabic} \end{array} \right] ? \left[\begin{array}{l} \text{ V} \\ + \text{ high} \\ \alpha \text{ back} \\ + \text{ syllabic} \end{array} \right]
 \end{array}$$

Examples:

gora'u [gɔ'raʔu] ~ [gɔ'raʷʔu] 'egg'

mo'ini [moʔini] ~ [mojʔini] 'shy, embarrassed'

(Tomea, Binongko)

Compare this rule of glide formation with that described in section 2.1.7, which forms

glides progressively rather than regressively when adjacent to velar prenasalised stops.

Non-phonemic glottal stops

Non-phonemic occurrences of glottal stops can be found in three main environments:

1. before an imploded stop phoneme that follows a stressed syllable;
2. after a vowel in a word spoken with strong stress (anger, etc.);
3. between two vowels that occur in adjacent syllables as a result of morphological, syntactic or pragmatic factors.

Examples of 1. are:

<i>tokabi</i>	→	[t̚o'kaʔbi]	'lost'
<i>podī</i>	→	[pɔʔdi]	'chicken louse'
<i>baga</i>	→	[baʔga]	'cheek'

Examples of 2. are:

<i>ana</i>	→	[a'naʔ]	'Child!' (What DO you think you're doing?)
<i>dahani</i>	→	[d̚aʔ'ha:ni]	'(How would I) know (?)'
<i>mai</i>	→	[majʔ] ~ [ma'iʔ]	'Come! (for heaven's sake!)'

Examples of 3. are:

<i>waa-aku</i>	→	[βa:ʔakw]	'Tell me!'
<i>dī iso</i>	→	[d̚iʔiso]	'Over there'
<i>koru-uo</i>	→	[kɔruʔwo]	'Many!' (<koruo)

This insertion of a glottal stop at a morpheme boundary is never compulsory, but is most likely to occur:

1. between like vowels
2. between high vowels

Thus /e\$ə/ is less likely to have a glottal stop inserted than is /a\$a/, which in turn is less likely than /i\$u/ or /i\$i/, which is almost inevitably interrupted by a glottal stop.

The last example in 3. above shows reduplication of the vowel in the stressed syllable, to achieve an emphatic effect; this reduplication will always present a 'boundary' between two like vowels, and so is a prime candidate for glottal stop insertion.

The glottal stop /ʔ/ shows morphophonemic alternations with [k] in a restricted environment: if it is part of the object suffix or nominalising suffix, following a root whose last consonant is a glottal stop, it surfaces as [k]; i.e.,

/h/ → [k] / ? V \$ __ (-hɛ/, -hɑ/)

Examples:

<i>'ido</i>	+ 'a	→	[iʔɕɔʔa]	'place of birth'
<i>moro'u</i>	+ 'a	→	[,morɔʔuka]	'beverages'
<i>like</i>	+ 'e	→	[li'kɛʔɛ]	'wake someone up'
<i>hu'u</i>	+ 'e	→	[hwʔʔukɛ]/[ɕwʔʔukɛ]	'give to'

BUT	<i>ngo'o</i>	+ 'u	→	[ŋɔʔou]	'your nose'
	NOT		→	* [ŋɔʔɔku], [ŋɔʔɔʔu]	

Note that the glottal stop in the above example does not change to a [k], but rather disappears in the syllable following the first glottal stop:

/h/ → ∅ / ? V \$ __ (not -ʔɛ, -ʔa)

Further examples of this deletion are:

/moroʔw/	+ /ʔuka/	→	[mo,ɾoʔʔu:ka]	'Drink as well.'
/hʔw/	+ /ʔaβa/	→	[ʔʔaβa]	'You obtain.'

For some speakers (predominantly on the north coast), sequences of glottal stops in adjacent syllables are allowed in some words, but not in others:

<i>helo'a</i>	+ 'a	→	[,hɛlɔʔʔaʔa]	'cooking place'	
BUT	<i>moro'u</i>	+ 'a	→	[,morɔʔʔuka]	'beverages'

We can observe that there is a general process of glottal dissimilation in adjacent syllables; in some cases the dissimilation is accomplished by deletion, in others by the second glottal stop becoming a [k]. The existence of such forms as [,hɛlɔʔʔaʔa], however, indicates that this rule of glottal dissimilation must be lexically specified, and not an absolute rule in the language. It is worth noting that the same speakers who allow this glottal - vowel - glottal sequence do delete a glottal stop which is part of a possessive suffix: [,hɛlɔʔʔaʔaw], < *helo'a* - 'a - 'u, 'your cooking place.'

2.1.5 The glottal continuant

The phoneme /h/ is regularly realised as [h] in most environments, but in casual speech before /u/, rather than [hw], the sequence is more often realised as [ɕw]. This is regular in Wanci, but in the southern islands of Tomea and Binongko, where the usual realisation of the /w/ phoneme is not [β] but [ɕ], the resulting phonological confusion of the sequence /wu/ ([ɕw]) has resulted in a reinterpretation of the /w/ in several /wu/ clusters as an /h/. For example:

[hɛsɔ'ɸwi] 'wash' → /hɛsɔ'βwi/ (northern interpretation)
 → /hɛsɔ'hwi/ (southern interpretation)

2.1.6 Realisations of the imploded stops

The stops that are described as implosive have varying realisations. The labial phoneme /b/ shows the strongest implosion of the three, almost always appearing with a clearly identifiable amount of implosion to distinguish it from the loan phoneme /b̥/. Similarly with /d/, there is enough implosion to distinguish the contrast with the loan allophone /d̥/, but noticeably less implosion than would typically accompany /b/ in a similar environment. In the case of /g/, implosion is not part of the normal realisation of the phoneme, and the words native to *Tukang Besi* and those of foreign origins show the same allophones; the loan words have been assimilated into *Tukang Besi* with a loan /g/ interpreted as a *Tukang Besi* /g/, testifying to the very minimal load born by implosion as a distinctive feature of the velar phoneme. This has an obvious articulatory explanation in the fact that there is less room in the vocal cavity between a velar closure and the glottis than there is between a labial closure and the glottis, and so it is harder to reduce the air pressure (by means of the glottis-lowering mechanism that distinguishes imploded stops) sufficiently to create distinctive implosion. That the loan words are not simply borrowed with a loan phoneme of very similar phonetic shape (i.e., a /g/ to parallel the /d̥/ and /b̥/ that have been incorporated) is shown by the behaviour of the /g/ in lax and post-stressed environments.

In lax environments (informal, no emphasis or primary stress) between vowels, a /g/ may lenite to a /ɣ/:

/nogɯgwɯdɯ/ → [nɔɣu'gwɯɖɯ] 'they make noise'

In a post-stressed position, /g/ (as well as /b/ and /d/, BUT NOT /b/ and /d/) shows the greatest tendency to implode, and can also be pre-glottalised to some extent. This is the environment that displays the strongest implosion, especially noticeable with /b/ and /d/, and with all the voiced stops pre-glottalisation is frequently heard in this position.

	<i>kabongo</i>	→	[ka'βɔŋɔ]	'deaf'
	<i>molobu</i>	→	[mɔlɔʔβu]	'straight'
BUT	<i>babi</i>	→	['babi]	'pig' (< Indonesian <i>babi</i>)
	<i>kadola</i>	→	[ka'ɖɔla]	'chicken'
	<i>pada</i>	→	['paʔɖa]	'sword grass'
BUT	<i>nodomi</i>	→	[nɔ'dɔmi]	'they play domino-cards' (< Indonesian 'domino')
	<i>nogopo</i>	→	[nɔ'gɔpɔ]	'it is foggy'
	<i>to'oge</i>	→	[tɔ'ʔɔŋʔɛ]	'big'
		~	[tɔ'ʔɔŋɛ]	
AND	<i>pajoge</i>	→	[nɔpa'dʒɔŋɛ]	'dance' (< Indonesian <i>joget</i>)
		~	[nɔpa'dʒɔŋɛ]	

From these examples it can be clearly seen that the /g/ in the loanword *joge* (< Malay *joget*)

is treated identically to the /g/ in *to'oge*.

2.1.7 Realisations of the prenasalised phonemes

The prenasalised stops are orthographically represented as follows, with the following major allophones:

/ ^m p/	→	{mp}	[^m p], [^m ɸ]
/ ^m b/	→	{mb}	[^m b], [m:]
/ ⁿ t/	→	{nt}	[ⁿ t]
/ ⁿ d/	→	{nd}	[ⁿ d], [n:]
/ ⁿ s/	→	{ns}	[ⁿ s], [˜s]
/ ⁿ dʒ/	→	{nj}	[ⁿ dʒ]
/ŋk/	→	{ngk}	[ŋk]
/ŋg/	→	{ngg}	[ŋg], [ŋ:]

As can be seen, the realisations of the prenasalised series show more than simply a homorganic nasal plus stop series. The voiced members /ngg/, /nd/ and /mb/ provide interesting geminate allophones; these allophones appear in casual speech, in free variation with the normal allophones, but with low frequency. Thus, in casual speech we find the following variants:

<i>bambai</i>	[ʃa ^m bai]	~	[ʃa ^m :ai]	'comb'
<i>ndanga</i>	[ⁿ daŋa]	~	[ŋ ⁿ naŋa]	'jackfruit'
<i>dinggawi</i>	[i ⁿ ŋgaβi]	~	[i ⁿ ŋ:βi]	'yesterday'

Notice that the tendency is for a phonetically complex but phonemically unitary cluster (such as [m] + [b]) to alternate in casual speech with a geminate that separates the two phonetic elements into two (perceptual to a non-native speaker) timing units; the /m:/ in *bambai* requires additional length, and the /n:/ in *ndanga* is audible as two syllables. Note that the same 'splitting' phenomena is observed in extremely forceful speech (see section 2.10, note 2). This might suggest that the reality of the 'phonemic unit' that is represented as, for example /mb/, is actually at some level felt to be two separable units.

The lenition of /NC/ to [NN] also allows phonetic glides to form under the influence of a preceding vowel, as seen in 'yesterday' in the examples above; this can be captured in the following rule:

$$\left[\begin{array}{c} \text{V} \\ + \text{high} \\ \alpha \text{ back} \\ + \text{syllabic} \end{array} \right] + \left[\begin{array}{c} \text{NC} \\ + \text{high} \end{array} \right] \rightarrow \left[\begin{array}{c} \text{V} \\ + \text{high} \\ \alpha \text{ back} \\ + \text{syllabic} \end{array} \right] \left[\begin{array}{c} \text{N:} \\ + \text{high} \end{array} \right] \left[\begin{array}{c} \text{G} \\ + \text{high} \\ \alpha \text{ back} \\ - \text{syllabic} \end{array} \right]$$

This rule restricts the occurrence of glide formation to the environment immediately following a velar phoneme ([+high]). A further example is given below:

<i>tungga 'oloo</i>	[t _h ŋŋga ʔo ^h ʔo:]	~	[t _h ŋŋ: ^w a ʔo ^h ʔo:]	'everyday'
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The phoneme /ns/ may produce [ns] as an allophone, but is more likely to be manifested as an [s], with nasalisation on the preceding vowel:

mansa [maⁿsa] ~ [māsa] 'silat (fighting arts)'

The lack of a preceding vowel in word-initial position may be a reason for the (according to the data collected so far) lack of initial /ns/ sequences, despite their root-initial appearance (e.g., in *ma-nsuana* 'old') (though see chapter 11 for a discussion of the productivity of the putative prefix *mo-*).

Finally, /mp/ has the allophone [m^ɸ] in free variation with [mp] before a non-high back or low vowel:

monimpala [monɪ^mpala] ~ [monɪ^{mɸ}ala] 'homesickness, miss'

The distribution of [m^ɸ] parallels that of the [ɸ] allophone of [p], suggesting that [m^ɸ] is not an allophone special to the prenasalised character of the phoneme, but rather special to the bilabial articulation.

2.1.8 Loan phonemes

The phonemes /b/, /d/ and /c/, /j/ are found only in loan words of recent origin. The most frequent of these, /b/, is present only in more recent loan words, and speakers identify it as the 'Indonesian' way to say a 'b', not the *Tukang Besi* way. The phonemes /d/ and /j/ ([d] and [dʒ]) are found only rarely in loans, and the difference between the two is inconsistently maintained, a fact also very much apparent in the Indonesian spoken by many *Tukang Besi* speakers. Although /d/ is more likely to be realised as [dʒ] than /j/ as [d], both cases of transference occur. Thus we find:

Indonesian 'domba'	→	[dʒ ^ɔ m ^b a]	'sheep'
		(rarely [du ^m b ^a])	
Indonesian 'jadi'	→	[d ^a ri], [dʒ ^a ri]	'so, thus'
		(Rupu [z ^a ri])	

The other loan palatal consonant, /c/, is usually only realised by younger speakers, where older speakers will produce instead a [s]:

Indonesian 'bicara'	→	[bi'sara]	'say'
Indonesian 'camat'	→	[s ^a ma], [tʃ ^a maʔ]	'district officer'

2.2 Extra-phonemic issues

2.2.1 Extra-phonemic sounds

Not all of the sounds heard from Wanci speakers conform to all of these conventions, sounds in the class of interjections or imitative noises. Amongst others, these include:

[ɛtɛtɛtɛ] 'surprise, mild shock'

[tɔŋ]	'sound of a gong'
[sajaŋ]	'refrain in love-songs'

2.3 Syllable level processes

2.3.1 Phonotactics

The canonical form of a root is disyllabic, and each syllable consists of:

S → (C) V

The language will obviously allow no phonemic consonant clusters or final consonants, but will allow vowel clusters. This analysis is facilitated by the analysis of complex phonetic units such as [mp] as unitary pre-nasalised phonemes; this may be justified on the grounds that there are no other unambiguous consonant clusters in *Tukang Besi*, and that the pre-nasalised series parallel the distribution of the regular stops:

INITIAL		MEDIAL	
<i>peku</i>	'backfist'	<i>pepe</i>	'slap'
<i>beka</i>	'cat'	<i>kobe</i>	'correct'
<i>meha</i>	'red'	<i>rame</i>	'loud, busy'
<i>mpa'ampa'a</i>	'sea urchin'	<i>tumpe</i>	'first born'
<i>mbeaka</i>	'not'	<i>lembe</i>	'taut'
<i>tenda</i>	'storage shelf'	<i>letere</i>	'1l measure'
<i>dahani</i>	'to know'	<i>pidi</i>	'rubbish'
<i>nangu</i>	'to swim on the surface'	<i>wini</i>	'pull on line (fish)'
<i>(kede) ntigi</i>	'(sit) squatting'	<i>tinti</i>	'run'
<i>ndanga</i>	'jackfruit'	<i>pindi</i>	'firm excrement'
<i>(ma) nsuana</i>	'old (person)'	<i>hansu</i>	'heavy chopping sword'
<i>kaluku</i>	'ripe coconut'	<i>motika</i>	'hard'
<i>gai</i>	'hook, pull'	<i>baga</i>	'cheek'
<i>ngaa</i>	'name'	<i>anga</i>	'gills of fish'
<i>ngkaru</i>	'carry'	<i>kangkau</i>	'crow'
<i>nggala</i>	'to be exactly as'	<i>dinggawi</i>	'yesterday'

Further support of the unitary analysis of the prenasalised sequences is in their treatment in reduplicated words. Reduplication as a process in *Tukang Besi* regularly copies the first two syllables of the word in question (see 2.5.4); thus, reduplicating produces the following forms:

<i>'ita</i>	→	<i>'ita-'ita</i>	('look'	→	'glance at')
<i>hesowui</i>	→	<i>heso-hesowui</i>	('wash'	→	'wash playfully, splashingly')

If the N+C sequence was split over two syllables, the reduplicated form of 'karambau' (putatively syllabified ka.ram.ba.u) would be as follows:

karambau → * *karam-karambau* → * *karangkarambau*)

In fact, the reduplicated form is '*kara-karambau*', consistent with the analysis that the [m] is assigned to the following syllable, and thus not included in the reduplicated part.

Finally, native speakers of the language are unanimous in their syllable division of words containing the prenasalised phonemes, always assigning the N+C sequence to the beginning of one syllable if asked to break a word up into syllables. Thus *nolanda'e* 'they trampled it' is always divided into syllables as:

no - la - nda - 'e
and never
* *no - lan - da - 'e* (But see section 2.4.2)

2.3.2 Stress assignment

Stress is regularly assigned to the penultimate syllable of the word, and secondary stress is assigned to every second (phonetic) syllable preceding the stressed syllable. Thus, in the following examples stress is shown by a raised stress mark (´) preceding the syllable with primary stress, and a lowered stress mark (˘) preceding syllables with secondary stress.

[kɔw'ɔwɪhi]	'kick with heel'
['βandɛ]	'rain'
[no'βandɛ]	'It's raining.'
[noβa'ndɛho]	'It's still raining.'
[ku,βali'ako]	'I'll go home.'
[ku,pa.mo.roʔu'kɛmo]	'I made her/him drink.'

The major exception to this is the (common) case of a verb without object suffixing followed by a *te*-marked object, in which case the *te* is counted as part of the verb for the purposes of stress assignment:

[noʔi'ɛa ɛ ɛ ke'nɛno] 'He saw his friend.' (< *no'ita te keneno*)

This does not apply to the other articles that may appear post-verbally, *na* or *i*, nor to object-suffixed verbs:

[noʔi'ɛa na ke'nɛno]	'His friend looked.'	(< <i>no'ita na keneno</i>)
* [noʔi'ɛa na ke'nɛno]		
[noʔi'ɛaʔɛ na ke'nɛno]	'He saw his friend.'	(< <i>no'ita'e na keneno</i>)
* [noʔi'ɛaʔɛ na ke'nɛno]		

This is not merely a prosodic phenomenon concerning the syllabic length of a word, since adding a perfective clitic to the verb will not affect the process of the *te* article being treated as part of the preceding word, phonologically: [noʔi'ɛa'mo ɛ ɛ ke'nɛno].

The rules of stress-assignment become more complicated when we consider words with four or more vowels in which not every 'syllable' has an initial consonant, thus creating forms with two (or more) adjacent vowels. In order to adequately account for these cases we need to consider an analysis that uses both morae and syllables. The rules for mora assignment are simply that every vowel is assigned to its own mora. The rules for syllable assignment are that every mora is assigned to its own syllable provided that

- (a) it is the final or penultimate mora; (i.e., * __ μ μ #)
 (b) it is not adjacent to another vowel (i.e., * (V) __ (V))

An example of this can be seen in the word *waliako* 'return', which has the following mora and syllable assignments (primary and secondary stress are indicated as well, with one 'x' indicating secondary stress, and 'xx' indicating primary stress):

	<i>wa</i>	<i>li</i>	<i>a</i>	<i>ko</i>	
morae	μ	μ	μ	μ	
syllables	σ	σ	σ	σ	
stress	x	-	xx	-	
	[βa	li	'a	ko]	'return home'

Although the morae *li* and *a* present a sequence of two vowels, since the *a* occurs in the penultimate position it is automatically assigned to a separate syllable. If a perfective clitic were added to the end of the word, changing the number of morae, then a different picture of syllable assignment would appear due to the changed positions of the morae within the phonological word. Now *ko* and *mo* occupy the two final mora positions, and *li* and *a*, as adjacent vocalic segments, are assigned to the same syllable, creating a diphthong - interestingly, it is not predictable from the different vowel qualities whether the resulting diphthong will be a rising or a falling one, and both are attested in free variation. Since there is a consonant between the vowel of *wa* and that of *li*, the mora containing *wa* is still assigned to a separate syllable.

	<i>wa</i>	<i>li</i>	<i>a</i>	<i>ko</i>	<i>mo</i>	
morae	μ	μ	μ	μ	μ	
syllables	σ	σ		σ	σ	
stress	x	-	-	xx	-	
	[βa	liǎ	'kɔ	mo]	'returned home (perfective)'	
	~ [βa	lja	'kɔ	mo]		

Other examples follow:

	<i>ba</i>	<i>e</i>		<i>ba</i>	<i>e</i>	<i>su</i>		<i>ba</i>	<i>e</i>	<i>ma</i>	<i>mi</i>
morae	μ	μ		μ	μ	μ		μ	μ	μ	μ
								∖	/		
syllables	σ	σ		σ	σ	σ		σ	σ	σ	σ
stress	xx	-		-	xx	-		-	xx	-	-
	[ʔba e]			[ʔba 'ε	sw]			[ʔbaɛ 'ma mi]			
	'rice'			'my rice'				'our (paucal) rice'			

Compare the last derivation with a near-identical case that has a glottal stop separating the vowels, and an additional case in which the irrelevance of adjacent vowels in the final two morae may be seen:

	<i>ba</i>	<i>ʔe</i>	<i>ma</i>	<i>mi</i>		<i>ba</i>	<i>u</i>	<i>ba</i>	<i>u</i>
morae	μ	μ	μ	μ		μ	μ	μ	μ
						∖	/		
syllables	σ	σ	σ	σ		σ	σ	σ	σ
stress	x	-	xx	-		-	xx	-	-
	[ʔba ʔε	'ma	mi]			[ʔbaʊ	ʔba	ʊ]	
	'our (paucal) fruit'					'Baubau, capital city of Buton'			

The only remaining exception to this involves the /w/ vowel, which can form a diphthong with a following vowel (i.e., a rising diphthong). This is regularly found when the stress is found on the following vowel, and is observed with one preposition *kua* even though the /w/ occupies the primary-stressed position:

	[hε	sɔ	'βwi	mo]		'bathed'
~	[hε	sɔ	'βu	i mo]		
(cf.	[hε	sɔ	'βu	i],	?*	[hε sɔ 'βwi] / * [hε 'sɔ βwi] 'bathe')
	[kuʷa]					'to(wards)'
*	'kw	a]				

(In southern *Tukang Besi* the preposition is [ka] ~ [ka:], from /ka(a)/, and so we can see that in both languages the stress is regularly on the /a/; this would be expected given that the origin of this preposition is (probably) local Malay *ka* (< Standard Malay *kə*) 'towards'. Since no words other than case markers (which *kua* is not) may be monosyllabic, the addition of an extra vowel is not inexplicable)

Here the desyllabification of the /w/ to [ɥ] does not affect the count of syllables for the purposes of stress assignment, but simply joins the two vowels together into one syllable.

In the case of reduplication, or perceived reduplication, the reduplicated portion of the word is considered as a separate phonological word for the purposes of stress assignment.

	[nɔ̌ ʔɛ̌ lɔ̌ ʔɛ̌ lɔ̌ mo]	'he called around'
expected	* [nɔ̌ ʔɛ̌ lɔ̌ ʔɛ̌ lɔ̌ mo]	(< <i>no'elo'elomo</i>)
	[kɔ̌ mo kɔ̌ 'mo ro]	'small cucumber sp.'
expected	* [kɔ̌ ,mo kɔ̌ 'mo ro]	(< <i>komokomoro</i>) (< dutch <i>komkommer</i>)

The acoustic correlates of stress in *Tukang Besi* are surprisingly uniform: rather than being a cluster of properties reflecting amplitude, fundamental frequency and duration, we find that there is a relatively constant, high pitch throughout the 'stressed' syllable, and that this is the primary correlate of phonological stress. It is worth speculating (Donohue 1994a) that *Tukang Besi* has an incipient pitch-accent system, with a pitch-based system developing though the regularisation of the realisation of an older (non-contrastive) stress system. Since the rules for stress assignment are regular, this new system would then reppresent a pitch-accent system with no functional load, but the presence of different stress-patterns in relatively recent loanwords has led to a (very small) number of words that contrast only through stress (see section 2.4.2).

2.4 Variable phonetic processes

2.4.1 Gemination

Gemination of certain consonants is a feature of *Tukang Besi* that sets it apart from the other languages of the Southeast Sulawesi area; vowel gemination was exemplified in section 2.1.2 ('Non-phonemic glottal stops'), and geminate nasals arising from the prenasalised phonemes were dealt with in section 2.1.6. In addition to these, in the right environments the following consonants may optionally geminate, especially in *Kaledupa*, *Tomea* and *Binongko* speech, and less frequently but still noticeably in *Wanci*:

p	t	k
m	n	ŋ
	s	
	l	(alveolar allophone)

Gemination occurs in the first place on the consonant of the stressed (penultimate) syllable:

[top:aga	motut:ɯɯ	mel:ai	moʔom:ɯɯ]
'cut branches'	'sleepy'	'far'	'hungry' (<i>Tomea</i> , <i>Binongko</i>)

If the stressed syllable is also the initial one (i.e., the word is di-syllabic), the gemination can jump one syllable forward:

[kapi 'wing' (≠ * [k:api])	εk:a 'climb'	εl:a 'tongue'	gwan:ɥ 'mountain'
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This jump forward is allowed if and only if the phonemic consonant in the stressed syllable is *not* one of the following:

			?
mp	nt	ŋk	
mb	nd	ŋg	
m	n	ŋ	
w			
	1		

Thus the following do *not* show gemination:

[maʔεka 'afraid, fear' * [maʔεk:a]	mondilɥ 'sour' * [mondil:ɥ]	βila 'go' * [βil:a]	lono 'cloud' * [lon:o]	maŋa 'eat' * [maŋ:a]
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Note that this does not apply to non-phonemic glottal stops:

saba'anne (< *sabane*, with stressed vowel gemination for pragmatic effect
'all' and concomitant glottal stop insertion)

If a consonant qualifies for gemination, the addition of pronominal prefixes or suffixes will sometimes affect the placement of gemination. Details on why the geminate consonant changes in some cases but not in others are not yet known. Some examples:

/paŋa/ 'branch'	→	[paŋ:a] 'branch'		
	→	[top:aŋa]	→	[top:aŋaʔe] 'we cut branches'
			→	* [topaŋ:aʔe]
/pono/ 'suck'	→	[pon:o] 'suck'	→	[pon:oʔe] 'suck it'
	→	[nophon:o] 's/he sucks'		
	→	* [nop:ono]		

Lastly, certain vowel environments must be satisfied in order to qualify the consonants for gemination or not, different for different consonants: