

Article

Phonology of Adur Niesu in Liangshan, Sichuan

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Abstract: This study describes the segmental and suprasegmental phonology of Adur Niesu, a Loloish (or Ngwi) language spoken mainly in Liangshan, Sichuan, southwest China. Phonemically, there are 41 consonants, 10 monophthongs and 1 diphthong in Adur Niesu. All Adur syllables are open. Its segmental changes mainly happen to the vowels, featuring high vowel fricativization, vowel lowering, vowel centralization, vowel assimilation and vowel fusion. It is common for Adur Niesu syllables to be reduced in continuous speech, with floating tones left. There are three main types of syllable reduction: complete reduction including the segment and tone, partial reduction with a floating tone left, and partial reduction with the initial consonant left. Adur Niesu employs tones as an important means for lexical contrast, namely, high-level tone 55, mid-level tone 33, and low-falling tone 21. There is also a sandhi tone 44. There are two types of tonal alternation: tone sandhi and tone change. Tone sandhi occurs at both word and phrasal levels, and is conditioned by the phonetic environment, while tone change occurs due to the morphosyntactic environment. Finally, some seeming tonal alternation is the result of a floating tone after syllable reduction.

Keywords: Adur Niesu; phonology; consonants; vowels; tones; tone sandhi; tone change



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1. Introduction

Adur Niesu is a member of the Nisoic (aka. Loloish or Ngwi) subgroup of the Niso–Burmese (i.e., Burmese–Lolo) language group of the Tibeto–Burman languages (Bradley 1997; Lama 2012). It is spoken by about 440,000 people, who are officially recognized as Yi (彝族), residing in mountainous regions in Liangshan (literally ‘Cool Mountains’), Sichuan, in southwest China. The Adur Niesu people often call themselves simply Adur, which is said to be the surname of a famous ruling clan living in Butuo (or $ndzi^{55}la^{33}pu^{44}h_{u}^{33}$) in eastern Liangshan. Adur is often associated with the title $ndzi^{33}mo^{21}$ (lord caste:master) ‘highest lord caste’ and its variant $ndzi^{21}mo^{21}$ (lord caste:big) ‘big (accomplished) highest lord caste’, namely, $a^{33}tu^{33}ndzi^{33}mo^{21}$ and $ndzi^{21}mo^{21}a^{33}tu^{33}$. It is noted that the tone on the morpheme meaning ‘lord caste’ is different when it is before and after Adur, namely, $ndzi^{33}$ and $ndzi^{21}$. This reflects a tone change that will be discussed in Section 4.4.3. When $ndzi^{33}mo^{21}$ is placed after Adur, without any tone change, it functions as a title, similar to the structure in $su^{33}ga^{55}ma^{55}mo^{21}$ (surname teacher) ‘Mr. Suga’. When $ndzi^{21}mo^{21}$ is placed before Adur, with a tone change, it is a nominal modifier meaning ‘big (accomplished) lord caste’, similar to $dza^{44}ndo^{33}vi^{33}su^{33}ga^{55}$ (food:swallow:type surname) ‘Suga, big eater’. The Adur Niesu people mainly live in Butuo (布拖县), Puge (普格县) and Ningnan (宁南县), with some Adur population located along the border with Jinyang (金阳县) and Zhaojue (昭觉县); see Figure 1.

Moreover, Adur people also call themselves Niesu [$nje^{33}su^{33}$]. This autonym is shared by another group of Yi people adjacent to the Adur region, called Suondi Niesu or simply Suondi or Niesu; see Figure 1. Niesu [$nje^{33}su^{33}$] has two meaning-bearing morphemes, namely, [nje^{33}] ‘black’ and [su^{33}] ‘people’, which literally means ‘black people’. The population of Suondi Niesu is around 550,000, estimated according to Chen et al. (1985); Gerner (2013) and the 2010 Population Census of Liangshan. Major Suondi-speaking regions are Dechang (德昌县), Huili (会理县), and Puge (普格县) within Liangshan, Miyi (米易县) in

the adjacent city of Panzhihua (攀枝花市) in Sichuan, and Yongren (永仁县) and Yuanmou (元谋县) in Yunnan. Mutual intelligibility between Suondi Niesu and Adur Niesu is relatively high.

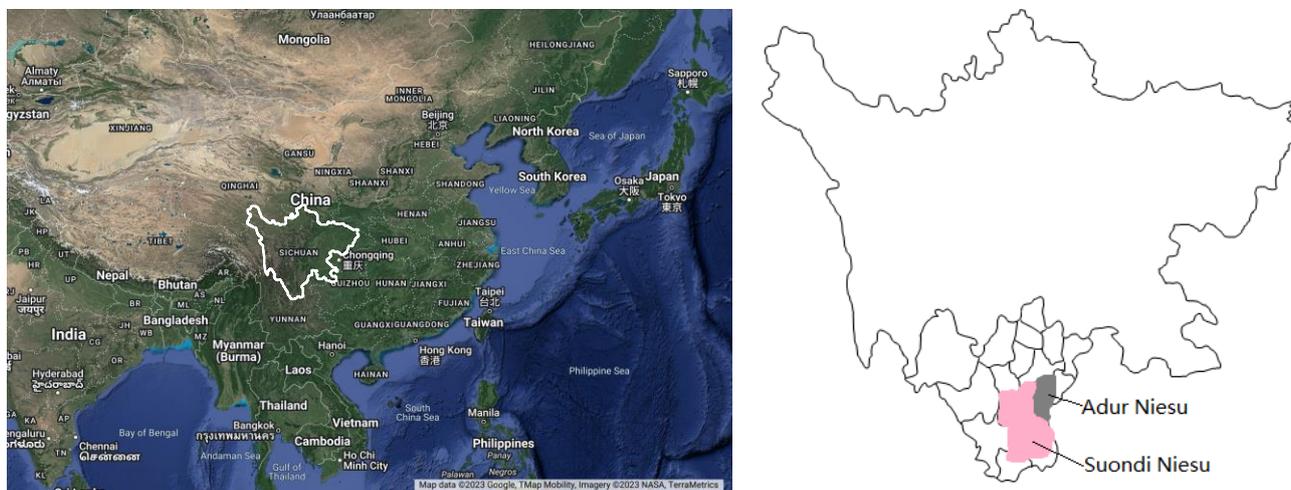


Figure 1. Distribution of Adur Niesu.

There are three recent studies about Niesu phonology, mostly focusing on Suondi Niesu in [Mahai \(2015, 2019\)](#) and in [Mise \(2020\)](#). Since Suondi Niesu is very close to Adur Niesu, these works are important references to understand Adur Niesu. But there is still room to improve the accuracy and adequacy of the analysis. Although some phonetic information, i.e., Adur consonants, vowels and tones, are presented in [Sun's \(2020\)](#) construction of an Adur phonetics corpus, there is little research on the phonology. Therefore, this study will contribute to the literature by describing the phonological system of Adur Niesu. The Adur Niesu data presented in this paper are first-hand fieldwork data collected through spontaneous narration and elicitation, mainly based on the Tuojué dialect spoken in central Butuo, Liangshan. The fieldwork in Tuojué (or 拖觉镇), Butuo, started in 2018 and there have been five trips so far; each trip lasted for about two months. The two main consultants are Adur Niesu native speakers who are in their 30s. They started to learn Chinese after they were 10 years old in school and became fluent in Chinese around the age of 18. The data presented in the paper were also cross checked with elder speakers aged from 50 to 70 in Butuo, Liangshan. Although a series of studies have been devoted to the labiovelar sounds in Adur Niesu (i.e., kp, kph, gb, gb, ɲm) ([Pan 2001](#); [Matisoff 2006](#); [Hajek 2006](#); [Bradley 2008](#)), such sounds are not found in the Tuojué dialect.¹

2. About Adur Niesu

Based on the subgrouping in [Hammarström et al. \(2022\)](#), Adur Niesu is a verb–final syllable–tone Burmo–Qiangic language; see [Figures 2 and 3](#). Its morphology is largely isolating. A large number of phonemic consonants in Adur Niesu are generated by voicing, aspiration and prenasalization. The grammatical function of Adur Niesu is mainly conveyed by using clitics and postpositions. Property-denoting modifiers follow the head noun. However, noun and genitive modifiers precede the head noun. Tense is not a grammatical category in Adur Niesu. The relation of the event time to some temporal reference point is expressed by lexical means, such as a²¹ɲu³³ ‘now’, a²¹ɲi⁵⁵ ‘the past’ and i²¹se²¹ɣ¹a⁴⁴ɔ³³ ‘the ancient past’. Its aspectual classes are expressed strictly analytically, by verbal enclitics, TAM auxiliaries, and periphrastic constructions. Adur Niesu forms its yes/no questions by reduplicating the last syllable of the verb or auxiliary. It is topic-prominent, frequently employing topic–comment constructions.

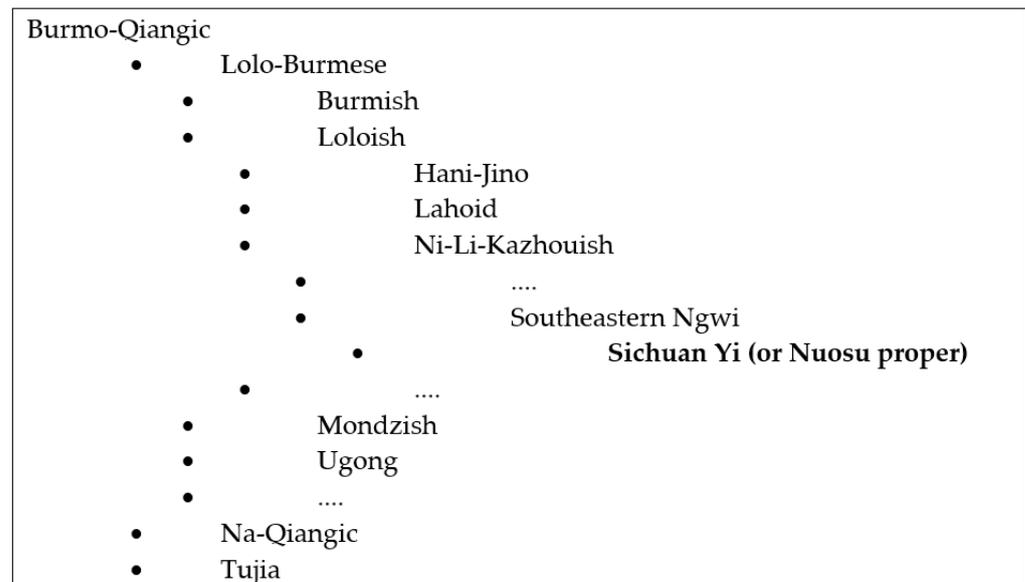


Figure 2. Phylogenetic position of Nuosu proper.

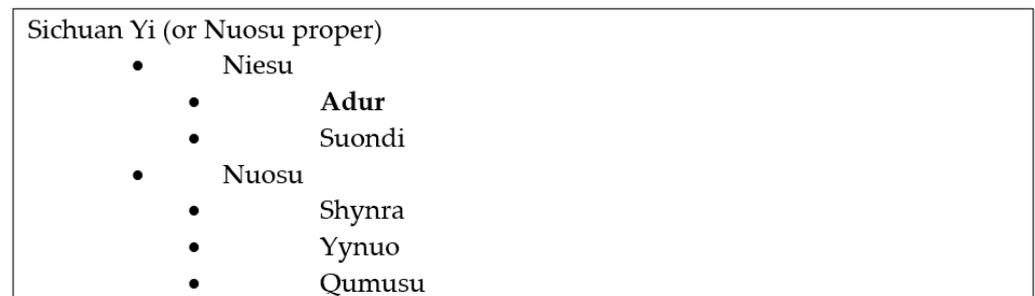


Figure 3. Internal subgroupings of Nuosu proper.

A close dialect of Adur Niesu is Nuosu. Nuosu, also meaning ‘black people’, is a relatively well-studied variety of Nuosu proper (Chen et al. 1985; Bradley 1990; Chen and Da 1998; Lama 1998; Hu 2001, 2010; Gerner 2013). Both Niesu and Nuosu are classified under Nuosu proper (Lama 2012); see Figure 3. People using the autonym of Nuosu include Shynra, Yynuo, and Qumusu speakers, whose population is estimated to be about 1.9 million (Bradley 2001).

The mutual intelligibility between Adur Niesu and Nuosu is relatively low (Bradley 2001), which is mainly due to phonological differences (see Table 1, and also Pan 2001; Matisoff 2006; Hajek 2006; Lama 2012).

While Adur shares many words with Suondi Niesu, it is phonologically different from Nuosu. If their geographic distribution is considered, Suondi Niesu is sandwiched between Adur Niesu and Nuosu. According to Lama (2022), there are two shared phonological innovations in Adur Niesu and Suondi Niesu, making them different from Nuosu. The first one is the lenition of the voiceless nasals, namely, making the voiceless nasals $m̥$ and $n̥$ voiced; see Table 2. The second innovation is that the *o sound in Proto-Nuosu proper is fronted and raised to i in Adur and Suondi Niesu; see Table 2.

Table 1. Exemplifying the phonological differences between Niesu and Nuosu.

	Adur Niesu	Suondi Niesu	Shynra Nuosu
‘arrive’	te ^h _i ³³	ei ³³	ei ³³
‘die’	ʂi ³³	ʂi ³³	ʂi ³³
‘dog’	tʂ ^h _i ³³	tʂ ^h _i ³³	k ^h _u ³³
‘half’	tɕɛ ³³ p ^h _j e ³³	tɕɛ ³³ p ^h _j e ³³	tɕɛ ³³ p ^h _a ³³
‘head’	o ³³ tɕ ^h _u ³³	o ³³ tɕ ^h _i ³³	i ³³ tɕ ^h _i ³³
‘mate’	bu ⁴⁴ dzu ³³	bo ⁴⁴ dzu ³³	bo ⁴⁴ dzu ³³
‘nose’	na ²¹ bi ⁵⁵	na ²¹ bi ⁵⁵	na ²¹ bi ⁵⁵
‘reciprocal, together’	dzi ³³	dzi ³³	dzi ³³
‘first half of the month’	zi ³³	zi ³³	zi ³³
‘see’	ŋu ²¹	ŋu ²¹ /hu ²¹	hu ²¹
‘take’	ci ²¹	si ²¹	si ²¹
‘second half of the month’	dje ³³	dje ³³	dɔ ³³
‘waist, middle’	dzo ⁵⁵	dzo ⁵⁵	dzu ⁵⁵
autonym	nje ³³ su ³³	nje ³³ su ³³	no ³³ su ³³

The identical words are highlighted among Adur Niesu, Suondi Niesu and Shynra Nuosu.

Table 2. Niesu phonological innovations (Lama 2022).

Proto-Nuosu Proper	Shynra Nuosu	Suondi Niesu	Adur Niesu	Meaning
*ma ⁵⁵ mo ²¹	ma ⁵⁵ mo ²¹	ma ⁵⁵ mo ²¹	ma ⁵⁵ mo ²¹	‘teacher’
*mo ⁵⁵	mo ⁵⁵	mi ⁵⁵	mi ⁵⁵	‘soldier’
*a ³³ ni ³³	a ³³ ni ³³	a ³³ ni ³³	a ³³ ni ³³	‘red’
*na ²¹ bi ⁵⁵	na ²¹ bi ⁵⁵	na ²¹ bi ⁵⁵	na ²¹ bi ⁵⁵	‘nose’
*t ^h o ⁵⁵	t ^h o ⁵⁵	t ^h i ⁵⁵	t ^h i ⁵⁵	‘upper part’
*vo ⁵⁵	vo ⁵⁵	vi ⁵⁵	vi ⁵⁵	‘pig’
*lo ⁵⁵	lo ⁵⁵	li ⁵⁵	li ⁵⁵	‘hand’
*zo ⁵⁵	zo ⁵⁵	zi ⁵⁵	zi ⁵⁵	‘to entertain’

There are additional innovations to subgroup Adur Niesu and Suondi Niesu under one node, and support Lama’s (2022) claim that they should be the first group to branch off from Proto-Nuosu proper. For example, the Proto-Loloish (PL) stops in Table 3 change to affricates in Adur and Suondi Niesu. It is also interesting to observe an intermediate stage towards affrication in the Jiaojihe (literally ‘intercourse river’ or 交际河) variety of Adur Niesu, which is to the south of Butuo and adjacent to the northeastern border of Yunnan. In Jiaojihe variety, the velar plosive is kept and the fricative is epenthesised. This could be considered as a shift of place of articulation from velar plosive to retroflex affricate, and is probably a feature of Proto-Adur Niesu.

Table 3. Examples of affrication in Niesu.

	Shynra Nuosu	Suondi Niesu	Adur Niesu (Jiaojihe)	Adur Niesu (Tuojue)	PL/PLB/PTB
‘dog’	k ^h _u ³³	tʂ ^h _i ³³	k ^h _ʂ _i ³³	tʂ ^h _i ³³	*kwe ²
‘bird nest’	k ^h _u ³³	tʂ ^h _i ³³	k ^h _ʂ _i ³³	tʂ ^h _i ³³	*k ^w əy ¹
‘to untie’	p ^h _u ³³	tʂ ^h _i ³³	k ^h _ʂ _i ³³	tʂ ^h _i ³³	*pre ¹
‘evening’	k ^h _u ⁵⁵	tʂ ^h _i ⁵⁵	k ^h _ʂ _i ⁵⁵	tʂ ^h _i ⁵⁵	*ʔ-kut ^L
‘sun’	g _u ³³	dzi ³³	gʂ _i ³³	dʒ _i ³³	*m-ka-n

The reconstruction *kwe² (PL), *pre¹ (PL), and *ʔ-kut^L (PL) are taken from Bradley (1979); *k^wəy¹ (PLB) and *m-ka-n (PTB) from Matisoff (2003).

Another innovation is the insertion of a medial /w/ to form diphthongs after velars (see Matisoff 2006; Bradley 2008). See examples in Table 4. The diphthongization is still

stable in Adur Niesu. According to Lama (2022), the diphthongization, however, is being lost among young Suondi Niesu speakers, while this feature has still been kept among the elder Suondi speakers.

Table 4. Examples of diphthongization in Niesu (Lama 2022, with revision).

Proto-Nuosu Proper	Shynra Nuosu	Suondi Niesu	Adur Niesu	Meaning
*gwo ³³	bo ³³	gwi ³³	gwi ³³	‘to go’
*gi ⁵⁵	gi ⁵⁵	gwi ⁵⁵	gwi ⁵⁵	‘be childless’
*k ^h e ³³	k ^h e ³³	k ^h we ³³	k ^h wε ³³	‘to chop’
*ŋge ³³	ŋge ³³	ŋwe ³³	ŋgwε ³³	‘to lie, cheat’
*k ^h a ⁵⁵	k ^h a ⁵⁵	k ^h wa ⁵⁵	k ^h wa ⁵⁵	‘be happy’

Moreover, velars in Nuosu are more palatalized in Suondi Niesu and Adur Niesu, if followed by the front vowel /i/ (see Table 5).

Table 5. Examples of palatalization in Adur Niesu.

	Shynra Nuosu	Suondi Niesu	Adur Niesu
‘to jolt or winnow (e.g., grain)’	k ^h i ⁵⁵	tɕi ³³	tɕi ³³
‘to ladle; scoop out with a spoon’	k ^h i ⁵⁵	tɕ ^h i ⁵⁵	tɕ ^h i ⁵⁵
‘spade hoe, a three-spiked digging tool’	(lɔ ⁵⁵)gɔ ²¹	gɔ ³³	(la ⁵⁵)dɕi ⁵⁵
‘to put the roof on (a thatched house)’	ki ⁵⁵	-	tɕ ^h i ⁵⁵

There are also phonological features which make Adur Niesu distinctive from Suondi Niesu. Table 3 shows that Adur Niesu retroflexizes the alveolar affricates in Suondi Niesu. The retroflexization, as a typical feature of Adur Niesu, is the reflex of PL or PTB *r and PL *ʃor *s; see Table 6.

Table 6. Examples of retroflexes in Adur Niesu.

	Shynra Nuosu	Suondi Niesu	Adur Niesu (Jiaojihe)	Adur Niesu (Tuojue)	PL/PTB
‘gallbladder’	tɕi ³³	-	kɕi ³³	tɕi ³³	*m/s-kri(y)-s
‘copper’	dɕi ³³	dzi ³³	gɕi ³³	dɕi ³³	*gre ²
‘skin’	ndɕi ³³	ndzi ³³	ŋgɕi ³³	ndɕi ³³	*re ¹
‘big’	zi ³³	zi ³³	ɕi ³³	zi ³³	*k/?-ri ²
‘foot’	ɕi ³³	si ³³	ɕi ³³	ɕi ³³	*kre ¹
‘to die’	si ³³	si ³³	ɕi ³³	ɕi ³³	*Je ²
nominalizer	su ³³	ɕu ³³	ɕu ³³	ɕu ³³	*su ¹

All reconstructions are taken from PL in Bradley (1979), except *m/s-kri(y)-s (PTB) from Matisoff (2003).

Vowel-wise, the front vowel /i/ in Suondi Niesu, as well as Nuosu, corresponds to back vowel /u/ in Adur Niesu if they are preceded by alveolo–palatal sounds (see Table 7).

Table 7. Examples of correspondence to back vowel /u/ in Adur Niesu.

	Shynra Nuosu	Suondi Niesu	Adur Niesu (Tuojue)
‘to become’	dɕi ²¹	dɕi ²¹	dɕu ²¹
‘bee’	dɕi ³³	dɕi ³³	dɕu ³³
‘leaf’	tɕ ^h i ³³	tɕ ^h i ³³	tɕ ^h u ³³
‘egg’	tɕ ^h i ²¹	tɕ ^h i ²¹	tɕ ^h u ²¹
‘to precipitate (e.g., rain)’	dɕi ²¹	dɕi ²¹	dɕu ²¹

3. Segmental Phonology

This section starts with Adur Niesu consonants and then moves on to vowels. After introducing the syllable and the phonotactics, segmental changes in both vowels and consonants will be covered.

3.1. Consonants

Table 8 demonstrates the 41 phonemic consonants of Adur Niesu: nine plain plosives, three prenasalized plosives, eleven fricatives, four nasals, two laterals, nine affricates and three prenasalized affricates. Suondi Niesu has the same consonant inventory as Adur Niesu (Lama 2012; Mise 2020). Compared with Nuosu, Adur Niesu lacks voiceless nasals /m̥/ and /ŋ̥/ (see Section 2). Depending on whether a consonant can precede either the unrounded palatal [j] or the rounded labiovelar [w], Adur Niesu consonants can be divided into two groups: the J-group, marked in the solid box, and the W-group, marked in the dotted box. The other consonants cannot be followed by the glides.

Table 8. Adur Niesu consonants.

	Bilabial	Dental	Retroflex	Alveolo-Palatal	Velar	Glottal
Plosive	mb	nd			ŋg	
	b	d			g	
	p	t			k	
	p ^h	t ^h			k ^h	
Fricative	v	z	ʒ	ʒ	ʁ	
	f	s	ʂ	ç	x	h
Affricate		ndz	ndʒ	ndz		
		dz	dʒ	dz		
		ts	tʂ	tç		
		ts ^h	tʂ ^h	tç ^h		
Nasal	m	n		ɲ	ŋ	
Lateral		l				
		ɭ				

3.1.1. Plain Plosives

The plain plosives are differentiated from the prenasalized plosives (see Section 3.1.5). They are produced through three places of articulation: bilabial, dental, and velar, as shown in Table 9, respectively. The three-way contrast among the plain plosives is achieved with voiced vs. voiceless unaspirated vs. voiceless aspirated. While the velar group cannot go with the J-glide, the bilabial and dental groups cannot go with the W-glide. It should be noted that the diphthongs [je] and [we] are two allophones of /ɛ/ and [wi] is an allophone of /i/ (see Section 3.2.1).

Table 9. Adur Niesu plosives.

	Bilabial	Dental	Velar
	b	d	g
	p	t	k
	p ^h	t ^h	k ^h

1	a	bi ⁵⁵	‘to emerge, come out’	bɛ ³³ [bjɛ ³³]	‘male penis’
		pi ⁵⁵	‘to take out, make appear’	pɛ ³³ [pjɛ ³³]	‘to jump’
		p ^h i ⁵⁵	‘classifier (e.g., of limbs, legs)’	p ^h ɛ ³³ [p ^h jɛ ³³]	‘to foster the domestic animals in another family’
	b	di ³³	‘be wicked’	dɛ ³³ [djɛ ³³]	‘to make, manufacture’
		ti ³³	‘only’	tɛ ³³ [tjɛ ³³]	‘to hold, to embrace’
		t ^h i ³³	‘to mean, to refer to’	t ^h ɛ ³³ [t ^h jɛ ³³]	‘to exchange’
	c	ga ³³	‘road’	gi ³³ [gwi ³³]	‘to leave’
		ka ³³	‘to take, hold’	kɛ ³³ [kwɛ ³³]	‘to estimate’
		k ^h a ³³	‘to want’	k ^h i ³³ [k ^h wi ³³]	‘to share’

3.1.2. Fricatives

The eleven fricatives are articulated at six places: bilabial, dental, retroflex, alveolo-palatal, velar and glottal (see Table 10).

Table 10. Adur Niesu fricatives.

Bilabial	Dental	Retroflex	Alveolo-Palatal	Velar	Glottal
v	z	ʒ	ʒ	ɣ	
f	s	ʂ	ç	x	h

At each place, except glottal, the fricative pair contrasts in terms of voicing. The five pairs of fricatives are exemplified in the following minimal pairs. No fricatives can go with a glide, neither the J-glide nor the W-glide.

2	a	vi ⁵⁵	‘pig’	fi ⁵⁵	‘cliff, stomach’
	b	zi ⁵⁵	‘to pay off, to unload’	si ⁵⁵	‘to kill’
	c	zo ³³	‘sheep’	co ³³	‘to grow, to raise’
	c	za ³³	‘to shout’	ʂu ³³	‘be toilsome’
	d	xo ³³	‘blue, green’	xo ³³	‘a ring (for keeping animals or for crematorium)’
	e	-		ho ³³	‘to marry’

3.1.3. Nasals and Laterals

The nasals have four places of articulation: bilabial, dental, alveolo-palatal and velar, and the laterals have just one: dental (see Table 11).

Table 11. Adur Niesu nasals and laterals.

Bilabial	Dental	Alveolo-Palatal	Velar
m	n	ɲ	ŋ
	l		
	ɭ		

Unlike Nuosu, the Niesu bilabial and dental nasals do not have a voicing contrast. They can go with the J-glide. The velar nasal can go with the W-glide.

3	a	mi ³³	‘name’	b	ma ⁵⁵	‘to teach’	c	me ³³ [mjɛ ³³]	‘to lift with feet (as in wrestling)’
		ni ³³	‘female’		na ⁵⁵	‘to coax’		nɛ ³³ [njɛ ³³]	‘black’
		-			ɲa ⁵⁵	‘to install’		ɲi ³³ [ɲwi ³³]	‘front’
		ɲi ³³	‘also’		ɲa ⁵⁵	‘be late’			

There is a contrast between voiced /l/ and voiceless /ɭ/. When the laterals precede the front vowel /ɛ/, they may be palatalized, showing free variation.

4	a	li ⁵⁵	‘to lick’	b	lɛ ³³	‘a verbal classifier (e.g., amount of the effort)’	[lɛ ³³] or [ljɛ ³³]
		ɭi ⁵⁵	‘be young’		ɭɛ ³³	‘to extract’	[ɭɛ ³³] or [ɭjɛ ³³]

3.1.4. Affricates

Niesu, both Adur and Suondi, has three sets of affricates, produced at dental, retroflex and alveolo-palatal, respectively. Each set shows a three-way contrast in terms of voicing and aspiration, as exemplified below (see Table 12).

5	a	dzi ³³	‘be left over’	tsi ³³	‘to leave something behind’	ts ^h i ³³	‘to fall quickly’
	b	ɖʒu ³³	‘money’	tʂu ³³	‘to feed, make eat’	tʂ ^h u ³³	‘rice, crop’
	c	dzi ³³	‘to fall down’	tɕi ³³	‘a classifier (e.g., clothes)’	tɕ ^h i ³³	‘to arrive’

Table 12. Adur Niesu affricates.

Dental	Retroflex	Alveolo–Palatal
dz	ɖʒ	ɖʒ
ts	tʂ	tʃ
ts ^h	tʂ ^h	tʃ ^h

3.1.5. Prenasalized Consonants

Voiced plosives and affricates are prenasalized in Adur Niesu (see Table 13). The prenasalized consonants are treated here as unitary segments, not consonant clusters, on the ground that (1) they are contrastive with other consonants, such as ndo²¹ ‘to fall down’ vs. do²¹ ‘speech, word’, ŋga³³ ‘be clever’ vs. ga³³ ‘road’, and ndʒa³³ ‘to sprinkle water for cooking the corn rice’ vs. ɖʒa³³ ‘sparrow’; (2) the nasal is always homorganic with the following plosives or affricates; and (3) the nasal–obstruent onsets only appear in the syllable-initial position. Lama (1998) also considers prenasalized obstruents in Nuosu, a close dialect of Adur Niesu, unitary segments, not consonant clusters, after acoustic analysis.

Table 13. Adur Niesu prenasalized consonants.

Labial	Dental	Retroflex	Alveolo–Palatal	Velar
mb	nd ndz	ndʒ	ndʒ	ŋg

The prenasalized plosives can also be followed by the glides.

6	a	mbi ³³	‘to divide’	mbɛ ³³ [mbjɛ ³³]	‘to shoot’
	b	ndo ³³	‘to drink’	ndɛ ³³ [ndjɛ ³³]	‘a kind of black bowl painted with lacquer tree liquid’
	c	ŋga ³³	‘be clever’	ŋgi ³³ [ŋgwi ³³]	‘to chew’
	d	ndza ⁵⁵	‘adjacency’		
	e	ndʒa ⁵⁵	‘be good’		
	f	ndzi ⁵⁵	‘to catch’		

3.1.6. Glides

Adur Niesu distinguishes between two glides: the unrounded palatal j and the rounded labiovelar w. The former is non-phonemic and the latter is phonemic. The glides are treated as part of the rhyme of a syllable, but not an element in a complex consonant. The reason is based on economy. By doing this, the sum of the diphthongs formed by the two glides is only four, including three allophonic diphthongs, [wɛ], [wi] and [jɛ] (see Section 3.2.1), and one phonemic diphthong, /wa/ (see Section 3.2.4), exemplified below. Bradley (2008) treated the glide /w/ as an element in complex consonants, or labialized velars. However, if similar treatment is made to the glide j, there would be as many as 17 complex consonants, including 13 allophonic complex consonants, such as [b^j], [p^j], [p^h^j], [d^j], [m^j], and [l^j] and four phonemic ones: g^w, k^w, k^{hw} and ŋ^w. This greatly exceeds the sum of the diphthongs formed by the two glides.

7	a	pɛ ³³ [pjɛ ³³]	‘to jump’	t ^h ɛ ³³ [t ^h jɛ ³³]	‘to exchange’
	b	gɛ ³³ [gwɛ ³³]	‘to compete with speaking skills’	k ^h ɛ ³³ [k ^h wɛ ³³]	‘to chop’
	c	gwa ³³	‘be of high capacity’	k ^h wa ³³	‘to share excessive important livestock, e.g., female pig, cattle (but need to pay back)’
	d	ga ³³	‘road’	k ^h a ³³	‘to want’
		gi ³³ [gwi ³³]	‘to leave, to go’	k ^h i ³³ [k ^h wi ³³]	‘to share’

3.2. Vowels

There are 10 monophthongs and one diphthong in Adur Niesu: /i/, /i/, /u/, /o/, /u/, /ɛ/, /i/, /a/, /ɔ/, /u/, and /wa/. Lama (2012), Mahai (2015, 2019) and Mise (2020) reported

similar monophthongs in Suondi Niesu. But different symbols are used, namely, the /ɿ ʅ/ set in [Mise \(2020\)](#) is represented as /i ɿ/ in the present study, and /e/ in [Lama \(2012\)](#) as /ɛ/ in the present study. All Adur vowels are oral. The monophthongs are organized by height (high, mid, low) and backness (front, central, back). A feature of Adur Niesu vowels is high vowel fricativization, occurring with the two high central vowels, /i/ and /ɿ/, and the two high back vowels /u/ and /ɯ/.

It should be noted that the Adur vowel /ɯ/ is more advanced and lower than the cardinal IPA [u]. Due to this deviation, it is not impossible to transcribe this vowel as /ə/, such as in the Nuosu vowel inventory in [Lama \(2002\)](#). In the present study, /ɯ/ is used, mainly because the Adur Niesu /ɯ/ is categorically closer to the cardinal IPA [u] in terms of vowel height and backness. This symbol /ɯ/ is also adopted in describing Nuosu vowels ([Lama 1998](#); [Edmondson et al. 2017](#)).

Another way of organizing Niesu vowels is to categorize them into tense and lax vowels ([Chen et al. 1985](#); [Lama 2002](#)) (see [Table 14](#)). This is useful for the description of vowel assimilation (see [Section 3.4.2](#)). It should be noted that the tense/lax contrast in the tradition of Southeast Asian languages have been applied in reversed fashion to the terms that are used in talking about Germanic languages ([Maddieson and Ladefoged 1985](#)). The principal component of the tense/lax distinction in Adur Niesu, as well as other Yi languages, is a difference in the laryngeal setting, namely, the tense vowels are more laryngealized than the lax ones ([Lama 2002](#); [Esling and Edmondson 2002](#)). Therefore, the lax vowels are closer in the vowel space and, thus, higher, while the tense vowels are more open and, thus, lower ([Edmondson et al. 2017](#)). Therefore, Adur Niesu monophthongs can be paired as below. This pairing also displays frequent assimilation results discussed in [Section 3.4](#).

Table 14. Tense/lax pairs of monophthongs in the Adur dialect.

Monophthongs	Lax vowel	i	ɿ	ɯ	o	u
	Tense vowel	ɛ	ɿ̄	a	ɔ	ɯ̄

3.2.1. Front Vowels

The Adur Niesu front vowels are distinguished by height. The minimal pairs are below.

8	a	fi ³³	‘to throw’	fɛ ³³	‘mouse’	fa ³³	‘golden pheasant’
	b	dzi ³³	‘be left over’	dzɛ ³³	‘to carve’	dza ³³	‘rice, food’
	c	ts ^h i ³³	‘ten’	ts ^h ɛ ³³	‘deer’	ts ^h a ³³	‘be hot’
	d	tɕ ^h i ³³	‘to arrive’	tɕ ^h ɛ ³³	‘to jump’	tɕ ^h a ³³	‘to caw (e.g., crow)’

The vowel /i/ cannot follow the retroflexes and the velar fricatives. It has an allophone [wi] when it occurs with velar stops.

9	a	ŋgi ³³	[ŋgwi ³³]	‘to chew’
	b	gi ³³	[gwi ³³]	‘to leave’
	c	ki ³³	[kwi ³³]	‘to dare’
	d	k ^h i ³³	[k ^h wi ³³]	‘to share’
	e	ŋi ³³	[ŋwi ³³]	‘front’

The vowel /ɛ/ has two diphthong allophones, [jɛ] and [wɛ]. The diphthong [jɛ] occurs when it follows the J-group consonants and the diphthong [wɛ] occurs when it follows the W-group consonants of velar.

10	a	mbɛ ³³	[mbjɛ ³³]	‘to shoot’	gɛ ³³	[gwe ³³]	‘to compete with speaking skills’
	b	mɛ ³³	[mjɛ ³³]	‘to lift with feet’	k ^h ɛ ³³	[k ^h wɛ ³³]	‘to chop’
	c	ɬɛ ³³	[ɬjɛ ³³]	‘to extract’	(o ⁵⁵)ŋɛ ³³	[ŋwe ³³]	‘be hungry’
	d	nɛ ³³	[njɛ ³³]	‘black’	kɛ ³³	[kwe ³³]	‘to estimate’

3.2.2. Central Vowels

Adur central vowels contrast one another in terms of height. The contrast between i and ɿ, regarding the retractedness or tenseness, also exists in Nuosu ([Edmondson et al. 2017](#)).

11	a	pi ³³	‘to exhibit speaking skills’	pi ³³	‘be not generous’
	b	p ^h i ³³	‘be painful, be spicy’	p ^h i ³³	CLF (for farmland)
	c	zi ³³	‘to buy’	zi ³³	‘to press’
	d	ʃi ³³	‘to die’	ʃi ³³	‘to roar’

Vowels *i* and *ɨ* only occur with 17 consonants: the three plain bilabial plosives, the six dental fricatives and affricates, the six retroflex fricatives and affricates, and the two dental laterals. Both of them are subject to high vowel fricativization, each having two allophones in the form of fricative vowels, namely, [z_i] and [z_ɨ], when they follow the plosives and the dentals, and [ʒ_i] and [ʒ_ɨ] when they follow the retroflex sounds. Therefore, the phonetic realizations of the examples in (11) are (12a) to (12d). See more examples in (12e) to (12m). According to Edmondson et al. (2017, p. 89), Nuosu expresses ‘dragon’ with the fricative vowel [v] as an allophone of /u/, thus transcribed phonetically with labialization: l^wi³³ ‘dragon’ (cf. lu³³ as the phonemic form). However, in Adur Niesu, lip rounding is not observed in the pronunciation of ‘dragon’ (see 12l) or in the other examples transcribed with labialization in Edmondson et al. (2017). Therefore, the laterals are incompatible with /u/ and /u/ in Adur Niesu. Similar to Nuosu, the laterals in Adur Niesu will end up being rhoticized after the high vowel fricativization. Similar rhoticization is reported in Ersu, a Na–Qiangic language spoken in Liangshan (Chirkova and Handel 2013).

12	a	pi	[pz ³³]	‘to exhibit speaking skills’	pi ³³	[pz ³³]	‘be not generous’
	b	p ^h i ³³	[p ^h z ³³]	‘be painful, spicy’	p ^h i ³³	[p ^h z ³³]	CLF (for farmland)
	c	zi ³³	[zz ³³]	‘to buy’	zi ³³	[zz ³³]	‘to press’
	d	ʃi ³³	[ʃz ³³]	‘to die’	ʃi ³³	[ʃz ³³]	‘to roar’
	e	bi	[bz ³³]	‘to give’	(z ³³)bi ³³	[bz ³³]	‘a bamboo trap’
	f	si ³³	[sz ³³]	‘again, still’	si ³³	[sz ³³]	‘tree’
	g	dzi ³³	[dzz ³³]	‘to ride (horse)’	dzi ³³	[dzz ³³]	CLF (for vehicles)
	h	ts ^h i ³³	[ts ^h z ³³]	‘he, she, it’	ts ^h i ³³	[ts ^h z ³³]	‘generation’
	i	zi ³³	[z _i z ³³]	‘be big’	zi ³³	[z _i z ³³]	‘soul’
	j	dzi ³³	[dz _i z ³³]	‘teeth’	dzi ³³	[dz _i z ³³]	‘to exist’
	k	tʃi ³³	[tʃz ³³]	‘to squeeze oil’	tʃi ³³	[tʃz ³³]	‘to pull’
	l	li ³³	[lz ³³]	‘dragon’	li ³³	[lz ³³]	‘to shake’
	m	ʈi ³³	[ʈz ³³]	‘wind’	ʈi ³³	[ʈz ³³]	‘to escape’

The rounded vowel /o/ may be reduced to [ə] by some Adur Niesu speakers. Other than this, large-scale patterned vowel centralization is not found in Adur Niesu.

13		a ⁴⁴ no ³³	‘many’	[a ⁴⁴ no ³³]	or	[a ⁴⁴ nə ³³]
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3.2.3. Back Vowels

Similar to /i/ and /ɨ/, the vowel /u/ contrasts with /u/ in terms of retractedness. Although the Adur vowel /u/ is more advanced and lower than the cardinal IPA [u], it is discussed with other back vowels.

14	a	p ^h u ³³	‘price, value’	p ^h <u>u</u> ³³	‘to dig’	-
	b	ʃu ³³	‘to do’	-	ʃu ³³	‘to find’
	c	ŋgu ³³	‘to boast’	ŋ <u>g</u> ³³	‘to rub with hands’	ŋgu ³³ ‘buckwheat’

The phonemic contrast between /u/ and /u/ is not symmetric. Consonants that can occur with /u/ may not have a contrast with /u/. For instance, zu³³ ‘to irritate’ has no contrastive pair as *zu³³, and k^hu³³ ‘to steal’ lacks a contrast as *k^hu³³. It is, therefore, observed that /u/ and /u/ start to merge as one phoneme. According to the main consultants, the following pairs are interchangeable, showing free variations.

15	a	su ³³ ga ⁵⁵	'be rich'	su ³³ ga ⁵⁵	or	su ³³ ga ⁵⁵
	b	bu ⁵⁵	'grass'	bu ⁵⁵	or	bu ⁵⁵
	c	gu ⁵⁵	'to sew the clothes'	gu ⁵⁵	or	gu ⁵⁵
	d	ku ⁵⁵	'to know how'	ku ⁵⁵	or	ku ⁵⁵
	e	vu ⁵⁵	'to run over'	vu ⁵⁵	or	vu ⁵⁵
	f	fu ⁵⁵	'to work hard'	fu ⁵⁵	or	fu ⁵⁵
	g	mu ⁵⁵	'to sip'	mu ⁵⁵	or	mu ⁵⁵
	h	ngu ⁵⁵	'to stab'	ngu ⁵⁵	or	ngu ⁵⁵

Another observation is that the retracted /u/ is forming a complementary distribution with /u/ by occurring with the high-level tone 55 only. While the lax /u/ bears tone 33, the tense /u/ bears tone 55 in (16). [Mise \(2020\)](#) also indicates that tone 55 causes vowel tenseness in Suondi Niesu. Therefore, it is possible for the two phonemes to merge or become allophonic in the future.

16	a	du ³³	'wing'	*du ³³	du ⁵⁵	'be stealthy'
	b	ɲu ³³	'be'	*ɲu ³³	(kɔ ³³ lɔ ³³)ɲu ⁵⁵	'be angry'
	c	tu ³³	'to lift'	*tu ³³	tu ⁵⁵ (m ³³)	'be promising'

Both /u/ and /u/ are noteworthy in that they lead to syllabic consonants if they are preceded by /m/. It was clearly observed from the consultants that the two syllables below were not produced with any rounding of the lips.

17	mu ³³	[m ³³]	'to do'	mu ³³	[m ³³]	'to blow up'
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Due to high vowel fricativization, like /i/ and /i/, /u/ and /u/ have an allophone of their own in the form of the fricative vowel [v] and [v] when they are preceded by velar consonants. It was observed from the consultants that the upper teeth touched the inner side of the lower lip when they pronounced these syllables, without any rounding of the lips.

18	a	ngu ³³	[ŋv ³³]	'to boast'	ngu ³³	[ŋv ³³]	'to rub with hands'
	b	gu ³³	[gv ³³]	'be firm'	gu ³³	[gv ³³]	'to protect (food, cubs)'
	c	ku ³³	[kv ³³]	'to call'	ku ⁵⁵	[kv ⁵⁵]	'to know how'
	d	k ^h u ³³	[k ^h v ³³]	'to steal'	-		

A final feature of /u/ and /u/ is that they may be substituted with a syllabic bilabial trill [β] after labial and dental plosives. The trill substitution is subject to personal habit, thus forming free variation. But the trill substitution is more preferred after voiced labial and dental plosives, and less preferred after voiceless ones.

19		/u/		/u/	
	a	[bu ²¹] or [bβ ²¹]	'a clan'	[bu ³³] or [bβ ³³]	'to write'
	b	[pu ²¹] or [pβ ²¹]	'to carry'	-	
	c	[p ^h u ³³] or [p ^h β ³³]	'value'	[p ^h u ³³] or [p ^h β ³³]	'to dig'
	d	[du ³³] or [dβ ³³]	'wing'	[du ⁵⁵] or [dβ ⁵⁵]	'be stealthy'
	e	[tu ³³] or [tβ ³³]	'to lift'	-	
	f	[t ^h u ³³] or [t ^h β ³³]	'silver'	[t ^h u ³³ (or t ^h β ³³) ʂa ³³]	'a kind of evil spirit'
	g	[mbu ³³] or [mβ ³³]	'be trapped'	[mbu ³³] or [mβ ³³]	'to squint'
	h	[ndu ²¹] or [ndβ ²¹]	'to beat'	[tjɛ ³³ ndu ³³ (or ndβ ³³)]	'be fat'

The mid-high oral vowel /o/ forms a phonemic contrast with the mid-low one /ɔ/ in terms of the openness of the mouth.

20	a	bo ³³	'mountain'	bɔ ³³	'to demand'
	b	p ^h o ³³	'to run'	p ^h ɔ ³³	'to reverse'
	c	ko ³³	'side, location'	kɔ ³³	'be capable'

3.2.4. Diphthong

While no diphthong is reported in the Nuosu vowel inventory ([Lama 1998, 2002](#); [Gerner 2013](#); [Edmondson et al. 2017](#)), different numbers of diphthongs in Suondi Niesu are reported: /ie ui ue/ in [Lama \(2012\)](#), /ua ue ui/ in [Mahai \(2015\)](#) and /ua ui/ in [Mise \(2020\)](#).

Due to the close relation between Suondi and Adur Niesu, it is suspected that not all reported diphthongs in Suondi Niesu are phonemic.

In Adur Niesu, phonetically, there are four diphthongs, [jɛ], [wɛ], [wi] and [wa]. But the only phonemic diphthong in Adur Niesu is /wa/. It can only occur with velar consonants, or the W-group. Minimal pairs are as shown below.

21	a	gwa ³³	‘be of large capacity’	ga ³³	‘to wear’
	b	kwa ³³	‘fire pit’	ka ³³	‘to take’
	c	k ^h wa ³³	‘to share excessive important livestock, e.g., female pig, cattle (but need to pay back)’	k ^h a ³³	‘to want’
	d	ŋwa ⁵⁵	‘to break apart’	ŋa ⁵⁵	‘to install’

3.3. The Syllable and Phonotactics

Adur Niesu syllable structure is relatively simple. All are open syllables. Adur Niesu segments are organized into syllables as below (see Figure 4).

Onset	Rhyme	
(Consonant)	(On-glide)	vowel or syllabic consonant

Figure 4. Syllable structure of Adur Niesu.

The onset can be any of the 41 consonants. The on-glides are either j or w. The vowel slot can be filled by any of the 10 monophthongs or the syllabic consonants if there is no glide in the syllable. The J-glide only occurs with /ɛ/, and the W-glide occurs with all front vowels, namely, /i/, /ɛ/ and /a/. But syllables involving a glide must be preceded by an onset, such as (22a) to (22f). In this case, all slots are filled. The onset and on-glide slots can be optional; see (22g) to (22h). The following are examples of all possible syllables in Adur Niesu. Most Adur Niesu syllables are made up of a consonant and a vowel.

22	a	ŋwi ³³	‘to chew’
	b	kwi ³³	‘to dare’
	c	mbje ³³	‘to shoot’
	d	gwɛ ³³	‘to break’
	e	k ^h wa ⁵⁵	‘be happy’
	f	ŋwa ⁵⁵	‘to break apart’
	g	a ⁴⁴ mo ³³	‘mother’
	h	o ³³	‘head’

Without considering the three basic tones of Adur Niesu, there are 308 attested syllables. Allophonic realizations are indicated in Table 15.

Table 15. Adur Niesu phonotactics.

	<u>i</u>	<u>i̇</u>	i	ε	u	a	o	ɔ	u	<u>u</u>	wa	
zero	-	-	+	+	-	+	+	+	-	-	-	5
b	z _i	z _u	+	je	-	+	+	+	+	+	-	9
mb	-	-	+	je	-	+	+	+	+	+	-	7
p	z _i	z _u	+	je	-	+	+	+	+	-	-	8
p ^h	z _i	z _u	+	je	-	+	+	+	+	+	-	9
d	-	-	+	je	+	+	+	+	+	+	-	8
nd	-	-	+	je	+	+	+	+	+	+	-	8
t	-	-	+	je	+	+	+	+	+	+	-	8
t ^h	-	-	+	je	+	+	+	+	+	-	-	7
m	-	-	+	je	-	+	+	+	m _i	m _u	-	7
n	-	-	+	je	+	+	+	+	-	-	-	6
l	z _i	z _u	+	je	+	+	+	+	-	-	-	8
l̥	z _i	z _u	+	je	+	+	+	+	-	-	-	8
g	-	-	wi	wε	+	+	+	+	v _i	v _u	+	9
ŋg	-	-	wi	wε	+	+	+	+	v _i	v _u	-	8
k	-	-	wi	wε	+	+	+	+	v _i	v _u	+	9
k ^h	-	-	wi	wε	+	+	+	+	v _i	v _u	+	9
ŋ	-	-	wi	wε	+	+	+	+	+	+	+	9
v	-	-	+	+	-	+	+	+	+	+	-	7
f	-	-	+	+	-	+	+	-	+	+	-	6
z	z _i	z _u	+	+	+	+	+	+	+	-	-	9
s	z _i	z _u	+	+	+	+	+	+	+	+	-	10
z̥	z̥ _i	z̥ _u	-	+	+	+	+	+	+	-	-	8
ʃ	z _i	z̥ _u	-	+	+	+	+	+	+	-	-	8
z	-	-	+	+	+	+	+	+	+	-	-	7
ç	-	-	+	+	-	-	+	-	-	-	-	3
ʁ	-	-	-	-	+	+	+	+	-	-	-	4
x	-	-	-	-	+	+	+	+	-	-	-	4
h	-	-	+	+	-	+	+	+	-	-	-	5
dz	z _i	z _u	+	+	+	+	+	+	+	-	-	9
ndz	z _i	z _u	+	+	+	+	+	+	+	-	-	9
ts	z _i	z _u	+	+	+	+	+	+	+	-	-	9
ts ^h	z _i	z _u	+	+	+	+	+	+	+	-	-	9
dʒ	z̥ _i	z̥ _u	-	-	+	+	+	+	+	-	-	7
ndʒ	z̥ _i	z̥ _u	-	+	+	+	+	+	+	-	-	8
tʃ	z̥ _i	z̥ _u	-	+	+	+	+	+	+	-	-	8
tʃ ^h	z̥ _i	z̥ _u	-	+	+	+	+	+	+	-	-	8
dz	-	-	+	+	+	+	+	+	-	-	-	6
ndz	-	-	+	+	-	+	+	+	-	-	-	5
tç	-	-	+	+	+	+	+	+	-	-	-	6
tç ^h	-	-	+	+	+	+	+	+	-	-	-	6
ŋ	-	-	+	+	-	+	+	+	-	-	-	5
	<u>i</u>	<u>i̇</u>	i	ε	u	a	o	ɔ	u	<u>u</u>	wa	308

3.4. Segmental Changes in Vowels

In the previous sections, some vowel changes were discussed: allophones of the front vowels in Section 3.2.1, occasional vowel reduction in Section 3.2.2, and high vowel fricativization in Sections 3.2.2 and 3.2.3. In the present section, another four vowel changes are presented: vowel lowering, vowel centralization, vowel assimilation and vowel fusion.

3.4.1. Vowel Lowering and Centralization

The high vowel /u/ may be lowered to /o/, forming a free variation. The reason why the change is considered a lowering, rather than a raising, is that the high vowel /u/ is more common in the speech of both the elder and young population.

23	a	su ⁴⁴ z _i ³³	‘the elder’	[su ⁴⁴]-[so ⁴⁴]
	b	zu ³³	‘to catch’	[zu ³³]-[zo ³³]

It is common for the Adur Niesu back vowel /u/ to be centralized as /i/ if it follows the sibilant fricatives.

24	nε ³³	‘black’	+	su ³³	‘people’	→	nε ³³ su ³³	or	nε ³³ si ³³	‘Niesu people or Niesu language’
	a ²¹	█	+	su ⁵⁵	█	→	a ²¹ su ⁵⁵	or	a ²¹ si ⁵⁵	‘we (inclusive)’
	zo ³³	‘study’	+	ʃu ³³	nominalizer	→	zo ³³ ʃu ³³	or	zo ³³ ʃi ³³	‘those (who are) studying’

3.4.2. Vowel Assimilation

Vowel assimilation is another case of vowel lowering in Adur Niesu. Nearly all assimilations in Adur Niesu are regressive, and most occur between tense and lax vowels (see Section 3.2), namely, the preceding lax vowel will be lowered to a tense vowel, or become more laryngealized; see Table 14. Recall in Section 3.2 that the tense vowels are treated as those which are more laryngealized than the lax ones, and thus have a lower position than the lax ones (Maddieson and Ladefoged 1985; Lama 2002; Edmondson et al. 2017). Therefore, the rhyme of the first syllable is assimilated in terms of the tenseness of the following rhyme. Compare the examples in (25a) to (25d). /ε/, /a/ and /i/, belonging to the tense group, lower the vowel of the first syllable from the lax one to its tense counterpart, namely, from [o] to [ɔ] and from [i] to [ε], respectively. But if the following rhymes do not belong to the tense group, assimilation does not occur.

25	a	o ³³	‘head’	+	ηε ³³	‘hair’	→	ɔ ³³ ηε ³³	‘hair’
		o ³³	‘head’	+	tɕ ^h u ³³	█	→	o ³³ tɕ ^h u ³³	‘head’
	b	o ³³	‘related to mother’s brother’	+	ka ⁵⁵	‘middle’	→	ɔ ³³ ka ⁵⁵	‘mother’s middle brother’
		o ³³	‘related to mother’s brother’	+	dʒi ⁵⁵	‘young’	→	ɔ ³³ dʒi ⁵⁵	‘mother’s younger brother’
		o ³³	‘related to mother’s brother’	+	zi ³³	‘big’	→	o ⁴⁴ zi ³³	‘mother’s elder brother’
	c	ni ²¹	‘two’	+	ma ³³	CLF	→	ηε ²¹ ma ³³	‘two pieces’
		ni ²¹	‘two’	+	bu ²¹	‘clan’	→	ni ²¹ bu ²¹	‘two clans’
	d	ŋi ³³	‘mouth’	+	le ³³	█	→	ηε ³³ le ³³	‘mouth’
		ŋi ³³	‘mouth’	+	tɕo ³³	‘direction’	→	ŋi ³³ tɕo ³³	‘front’

More examples are as below.

26	a	zi ³³	‘water’	+	tsi ³³	‘to get drenched’	→	zi ³³ tsi ³³	‘to get drenched by rain’
	b	mu ³³	‘ground’	+	li ³³	‘to shake’	→	mu ⁴⁴ li ³³	‘earthquake’
	c	o ³³	‘head’	+	ma ³³	general classifier	→	ɔ ³³ ma ³³	‘head, mind’
	d	ni ³³	‘female’	+	ndʒa ⁵⁵	‘be good, pretty’	→	nε ³³ ndʒa ⁵⁵	‘beautiful woman’
	e	do ²¹	‘speech’	+	ma ³³	general classifier	→	dɔ ²¹ ma ³³	‘speech, word’
	f	zu ³³	‘son, man’	+	k ^h ɔ ³³	‘be capable’	→	za ³³ k ^h ɔ ³³	‘hero, brave man’
	g	zo ³³	‘sheep’	+	la ³³	‘breeding’	→	zɔ ³³ la ³³	‘ram that is not castrated’
	h	zur ³³	‘son, man’	+	tɕ ^h ε ³³	‘hard’	→	za ³³ tɕ ^h ε ³³	‘tough man’
	i	ni ³³	‘red’	+	tʃi ³³	‘IDE’	→	nε ⁴⁴ tʃi ³³ tʃi ³³	‘bright red’
	j	ni ³³	ndʒa ⁵⁵	+	ni ³³	vε ³³	→	nε ³³ ndʒa ⁵⁵ nε ³³ vε ³³	‘beautiful woman’

Some of the assimilations are more phonetic in nature, since they can be restored to the original vowel in slow and careful speech; but some are more morpholexical in nature, since they cannot be restored to the original vowel, even using slow and careful speech. If restoration is forced in the latter case, new meanings will be produced. All examples in (27) are phonetic assimilations and those in (28) are morpholexical assimilations.

27		<i>casual speech</i>	<i>careful speech</i>
	‘tough man’	za ³³ k ^h ɔ ³³	zur ³³ k ^h ɔ ³³
	‘brightly red’	nε ⁴⁴ tʃi ³³ tʃi ³³	ni ⁴⁴ tʃi ³³ tʃi ³³
	‘see’	ɤo ²¹ ŋo ³³	ɤu ²¹ ŋo ³³

28	<i>With assimilation</i>		<i>Without assimilation</i>	
	dɔ ²¹ ma ³³	‘speech, language’	do ²¹ ma ³³	‘one piece of speech’
	zɔ ³³ la ³³	‘ram’	zɔ ³³ la ³³	‘the sheep come’
	za ³³ tɕ ^h ɛ ³³	‘capable man’	zu ³³ tɕ ^h ɛ ³³	‘the man is capable’
	nɛ ³³ ndzɑ ⁵⁵	‘beautiful woman’	ni ³³ ndzɑ ⁵⁵	‘the woman is beautiful’
	ɔ ³³ tʂi ⁵⁵	‘plait’	o ³³ tʂi ⁵⁵	‘to plait’
	ɔ ³³ ma ³³	‘head, mind’	o ³³ ma ³³	‘a head’

The tenseness/laxness-induced assimilation can also be relative. As long as the following vowel is tenser, or lower, than the preceding vowel, regressive assimilation can be triggered. For example, although /o/ is laxer than /ɔ/, it is tenser and lower than /u/; therefore, assimilation occurs in (29). Since /u/ is not tenser than /i/, assimilation is not triggered in ɲi²¹bu²¹ ‘two households’ in (25c) (cf. ɲɛ²¹ma³³ ‘two pieces’).

29	ɤu ²¹	‘to obtain’	+	ɲo ³³	‘to see’	→	ɤo ²¹ ɲo ³³	‘see’
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3.4.3. Vowel Fusion

Vowel fusion in Adur Niesu results in vowel substitution of the rhyme of the preceding syllable, such as za³³ (zi³³ ‘to go’ + a³³ ‘attitudinal marker’) ‘let’s go’. Although it is also possible for vowel fusion to occur intraclausally, it is more common at the clause end. In (30) and (31), the rhyme of the first syllable is replaced by the following vowel at the clause’s final position, and in (32), the vowel fusion occurs in the clause.

30	la ³³ =si ³³ o ⁴⁴	→	la ³³ =so ⁴⁴
	COME=REP PFV		COME=REP.PFV
	‘(He) came again.’		
31	ʂu ³³ + o ⁴⁴ → ʂɔ ⁴⁴		
	lu ³³ tɕ ^h i ³³ tɕi ³³ ʂa ³³ mu ³³ ɲi ³³ a ³³ tɕ ^h i ³³ ~tɕ ^h i ³³ mu ³³ ndu ²¹ ʂi ²¹ =ʂɔ ⁴⁴ .		
	cow this CLF toilsome:do:EXST extreme~REDPL do beat die=NMLZ.ATT		
	‘This cow was beaten to death pathetically.’		
32	tɕ ^h i ³³ + a ²¹ =si ²¹ → tɕ ^h a ²¹ =si ²¹		
	ɲo ³³ tɕ ^h a ²¹ =si ²¹		
	1PL 3SG.NEG=know		
	‘We do not know it.’		

3.5. Segmental Changes in Consonants

Segmental changes in Adur Niesu consonants are not widely observed. Lenition and clanlects are presented.

3.5.1. Lenition of the Velar Consonants

Briefly, the velar stops can be lenited in spontaneous speech as velar fricatives; see (33).

33	lenition	ɲo ³³ ‘we’	→	ɤo ³³
	lenition	ko ³³ ‘when, if’	→	xo ³³
	lenition	ga ⁴⁴ dzi ³³ ‘absolutely’	→	ɤa ⁴⁴ dzi ³³

3.5.2. Aspiration of the Clanlects

Variations in aspiration change between different clans are found, or ‘clanlects’. One of the main consultants is a descendant of the dze²¹ne³³ clan, and another one is of the su³³ga⁵⁵ clan. Both of them live in the same village since they were born. The following two words are not aspirated in the speech of the dze²¹ne³³ descendant, while they are aspirated in the speech of the su³³ga⁵⁵ descendant. But the aspirated affricate in the three words has wider usage among Adur Niesu speakers. Other than the two words, both consultants share similar phonological system of Adur Niesu.

			dze ²¹ ne ³³ clan	su ³³ ga ⁵⁵ clan
34	a	'he, she, it'	tsi ³³	ts ^h i ³³
	b	'this'	tsi ³³	ts ^h i ³³

3.6. Syllable Reduction

It is common for Adur Niesu syllables to be reduced in continuous speech. There are three types of syllable reduction being observed in the field: complete reduction including the segment and tone, partial reduction with a floating tone left, and partial reduction with the initial consonant left.

The syllable is so reduced that a particle is left to signal the existence of a clause; see (35b) where ts^hi²¹mu³³ 'doing so' is reduced.

35	a.	ts ^h i ²¹	mu ³³	ta ³³ ,	he ³³ ŋga ⁵⁵	lu ³³ o ³³ =sa ⁴⁴	lu ³³ ʃi ³³	ŋɔ ³³	la ³³ .
		this	do	NF	Han Chinese	cow:head=COM	cow:foot	collect	come
		'By doing so, the Han Chinese come to collect the head and feet of the (killed) cow.'							
	b.	ta ³³ ,	he ³³ ŋga ⁵⁵	lu ³³ o ³³ =sa ⁴⁴	lu ³³ ʃi ³³	ŋɔ ³³	la ³³ .		
		NF	Han Chinese	cow:head=COM	cow:foot	collect	come		
		'By doing so, the Han Chinese come to collect the head and feet of the (killed) cow.'							

It is often the segments of the whole syllable being deleted. After the reduction, the tone becomes a floating tone and reassociates itself onto the preceding syllable. For example, in (36a) to (36c), the second syllable is reduced, namely, ʃi in a³³ʃi⁵⁵ 'what', si in a²¹si²¹t^hu³³ 'when' and hi in a²¹hi³³ 'cannot'. But the tone is left. The tonal trace can be observed on the remaining preceding syllable. Namely, the original tone of the preceding syllable is overridden by the floating tone, where a³³ changes to a⁵⁵ in (36a) and a²¹ changes to a³³ in (36c). Since the first syllable a²¹ bears the same 21 tone with the deleted syllable in (36b), the overriding is not evident. In (36a) and (36b), other than the syllable reduction, the fricative glottal /h/ can often be epenthesized, namely, ha⁵⁵ and ha²¹.

36	a	a ³³ ʃi ⁵⁵	tsi ⁵⁵	→	a ⁵⁵ / ha ⁵⁵	tsi ⁵⁵	
		what	do		what	do	
		'to do what'					
	b	a ²¹ si ²¹ t ^h u ³³		→	a ²¹ t ^h u ³³ / ha ²¹ t ^h u ³³		
		'which:time'			'which:time'		
		'when'					
	c	a ²¹ hi ³³ mu ³³ (NEG=can do)	'cannot'	→	a ³³ mu ³³		
		tur ²¹	zi ³³	a ³³	mu ³³	t ^h u ³³	dzi ³³
		rise	go	NEG.CAN	do	place	EXST
		'(Someone) cannot stand up, but keep staying there.'					

In a polar interrogative, on the surface, there seems to be a tone change: 55 > 21 / 55 ₋. However, the tone lowering from 55 to 21 is not a tone change (cf. tone sandhi in Section 4.2 and Section 4.3), but in fact the result of the floating tone associated with the interrogative particle a²¹ after syllable reduction, which is exemplified below. The floating tone of the interrogative particle overrides the tone of the preceding syllable. Meanwhile, the preceding high front vowel [i] is assimilated by the interrogative particle a²¹ and lowered to [ɛ] (see Section 3.4). If the lowered vowel [ɛ] occurs with the J-group consonants, it will subsequently change to the phonetic diphthong allophone [jɛ], namely, pe²¹ [pje²¹] in (37b) and ndɛ²¹ [ndje²¹] in (37d).

	basic form	meaning	reduplicated form + interrogative particle	result	meaning	
37	a	si ⁵⁵	'to kill'	si ⁵⁵ ~si ⁵⁵ + a ²¹	si ⁵⁵ ~sɛ ²¹	'to kill or not'
	b	pi ⁵⁵	'to dig'	pi ⁵⁵ ~pi ⁵⁵ + a ²¹	pi ⁵⁵ ~pɛ ²¹	'to dig or not'
	c	vi ⁵⁵	'to shoulder'	vi ⁵⁵ ~vi ⁵⁵ + a ²¹	vi ⁵⁵ ~vɛ ²¹	'to shoulder or not'
	d	ma ²¹ ma ²¹	'to bear fruit'	ma ²¹ ma ²¹ ndi ⁵⁵ ~ndi ⁵⁵ + a ²¹	ma ²¹ ma ²¹	'to bear fruit or not'
	e	ndi ⁵⁵			ndi ⁵⁵ ~ndɛ ²¹	
		ndzi ³³ zi ⁵⁵	'to be drunk'	ndzi ³³ zi ⁵⁵ ~zi ⁵⁵ + a ²¹	ndzi ³³ zi ⁵⁵ ~zɛ ²¹	'to be drunk or not'

It is particularly useful to contrast the above syllable reduction with reduplication for intensification in Adur Niesu. Without the effect of the interrogative particle, when two high-level tones are adjacent to each other, there is no change of the tone and of the vowel.

38	a	basic form si ⁵⁵	meaning 'to kill'	reduplicated form si ⁵⁵ ~si ⁵⁵	meaning 'to kill fiercely'
	b	ma ²¹ ma ²¹ ndi ⁵⁵	'to bear fruit'	ma ²¹ ma ²¹ ndi ⁵⁵ ~ndi ⁵⁵	'to bear a lot of fruits'
	c	ndzi ³³ zi ⁵⁵	'to be drunk'	ndzi ³³ zi ⁵⁵ ~zi ⁵⁵	'to be quite drunk'

Moreover, the syllable reduction also occurs to other vowels bearing the high-level tone 55; see (39a) to (39c), accompanied by vowel assimilation. However, the syllable reduction does not occur to syllables bearing other non-high-level tones; see (39d) and (39e). Likewise, the vowel assimilation will not occur.

39	a	basic form tʃi ⁵⁵	meaning 'be correct'	reduplicated form tʃi ⁵⁵ ~tʃi ⁵⁵ + a ²¹ or tʃi ⁵⁵ ~tʃi ²¹	'be correct or not'
	b	sa ⁵⁵	'to finish'	sa ⁵⁵ ~sa ⁵⁵ + a ²¹ or sa ⁵⁵ ~sa ²¹	'to finish or not'
	c	p ^h o ⁵⁵	'to dig the earth'	p ^h o ⁵⁵ ~p ^h o ⁵⁵ + a ²¹ or p ^h o ⁵⁵ ~p ^h o ²¹	'to dig the earth or not'
	d	p ^h i ³³	'be polite'	p ^h i ⁴⁴ ~p ^h i ³³ + a ²¹	'be polite or not'
	e	fi ³³	'to throw'	fi ⁴⁴ ~fi ³³ + a ²¹	'to throw or not'

Sometimes, the syllable may not be completely reduced, leaving not only the tone, but also the onset. The leftover will go with the preceding syllable; see (40). Mahai (2019) reports another kind of partial reduction, namely, the initial consonant is deleted, with only the rhyme left, such as za²¹o⁵⁵ for za²¹zo⁵⁵ 'potato' and ɲo²¹i⁵⁵ for ɲo²¹ni⁵⁵ 'the two of us (exclusive)'. However, we did not have a similar observation about this reduction in Adur Niesu in the field.

40	a ²¹ ɲu ³³ 'now' → aɲ ³³					
	aɲ ³³	ts ^h i ⁴⁴ ~ts ^h i ³³ =ko ⁴⁴ =na ³³ ,	li ⁵⁵ sa ³³	ts ^h i ²¹	ma ³³	ka ³³
	present	neat~neat=moment=ɒsc	official seal	one	CLF	take
	a ³³ tu ³³	ɔ ²¹ la ³³ mu ³³ hi ⁵⁵ bi ³³	xa ³³	zi ³³	o ³³	di ⁴⁴ .
	Adur	name	give	away	go down	PFV QUOT
	'(Someone) said that at this exact moment, (you) took an official seal and went to give (it) to Uolamuhi who is from the Adur region.'					

Syllable reduction can also create the environment for vowel assimilation. For example, ts^hi²¹ mu³³ ɔ⁴⁴nɔ³³ (this do if) 'if it is like this' changes to ts^hɔ³³ɔ⁴⁴nɔ³³, with the syllable mu³³ being deleted, namely, ts^hi³³ ɔ⁴⁴nɔ³³, and tone 33 being reassociated to the preceding syllable and the rhyme then being assimilated by the following tenser vowel ɔ.

41	a	o ²¹ ,	ts ^h i ²¹	mu ³³	ɔ ⁴⁴ nɔ ³³ ,	ɲo ³³	ts ^h i ³³	a ²¹ =si ²¹ .	
		INTJ	this	do	if	1PL.EXCL	3SG	NEG=KNOW	
	'Oh, if it is something like this, we do not know it.'								
	b	o ²¹ ,	ts ^h ɔ ³³ ɔ ⁴⁴ nɔ ³³ ,	ɲo ³³	ts ^h i ³³	a ²¹ =si ²¹ .			
		INTJ	this	1PL.EXCL	3SG	NEG=KNOW			
	'Oh, if it is something like this, we do not know it.'								

4. The Suprasegmentals

Adur Niesu employs suprasegmentals as an important means for lexical contrast, like many other syllable–tone languages of East and Southeast Asia. In Adur Niesu, two types of tonal alternation should be distinguished: tone sandhi and tone change. Similar distinction is made in Prinmi (Ding 2014) and in Yongning Na (or Narua) (Michaud 2017).

Tone sandhi refers to the phonologically conditioned tonal alternation by adjacent tones, regardless of the morphosyntactic factors. The most productive sandhi rule of Adur Niesu is 33 > 44 / _ 33, such as su³³ 'people' + zi³³ 'big' > su⁴⁴zi³³ 'the elder'.

Tone change is governed by rules that are confined to specific morphosyntactic environments. It is the dominant form of tonal alternation in Adur Niesu. The tone change ap-

pears in the following morphosyntactic contexts: (1) compound words, (2) prefixed words, (3) patient marking, and (4) yes–no interrogation generated by reduplication.

Finally, floating tones in Adur Niesu can generate a surface kind of tonal alternation, although, in fact, it is the result of syllable reduction. After the syllable reduction, the tone becomes a floating tone and reassociates itself onto the preceding syllable, such as the so-called tonal change regarding the possessive pronouns, where the tone of the reduced genitive marker *ni²¹ of Proto-Nuosu proper was retained by the plain personal pronouns in Adur Niesu.

4.1. The Three Basic Tones

Identical to Suondi Niesu, Adur Niesu has three basic tones: high-level tone 55, mid-level tone 33, and low-falling tone 21. The minimal contrast between these three tonal categories is exemplified below (see Figure 5).

42	a	di ²¹	‘to say’	di ³³	‘be not good’	di ⁵⁵	‘to wear (shoes)’
	b	ti ²¹	‘to bury’	ti ³³	‘be only’	ti ⁵⁵	‘to make wear (shoes)’
	c	vi ²¹	‘guest’	vi ³³	possessive pronominal enclitic	vi ⁵⁵	‘pig’
	d	hi ²¹	‘to say’	hi ³³	‘house’	hi ⁵⁵	‘eight’
	e	ts ^h _i ²¹	‘his, her, its’	ts ^h _i ³³	‘he, she, it’	ts ^h _i ⁵⁵	‘family line’
	f	to ²¹	‘can’	to ³³	‘to respond’	to ⁵⁵	‘to light up’

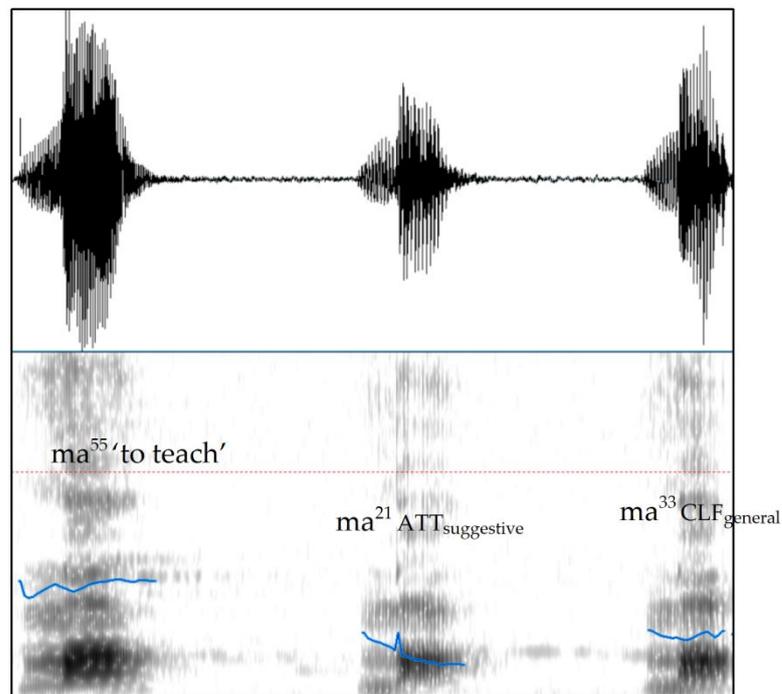


Figure 5. Adur Niesu tones exemplified by syllable [ma].

There is a 44 (high-mid level) tone in Adur Niesu. See Bradley (1990) for the discussion of tone 44 in Nuosu. However, it is seen largely in cases of tone sandhi, which often results from either tone 33 or tone 21 in syllable combination. There is no co-occurrence of tone 44 with tone 55 at the lexical level. In Figure 6, tone 44 is slightly higher than tone 33 in the word pi³³mo⁴⁴ ‘priest’, but tone 55 is much higher than tone 33 in the word ne³³ndza⁵⁵ ‘pretty woman’.

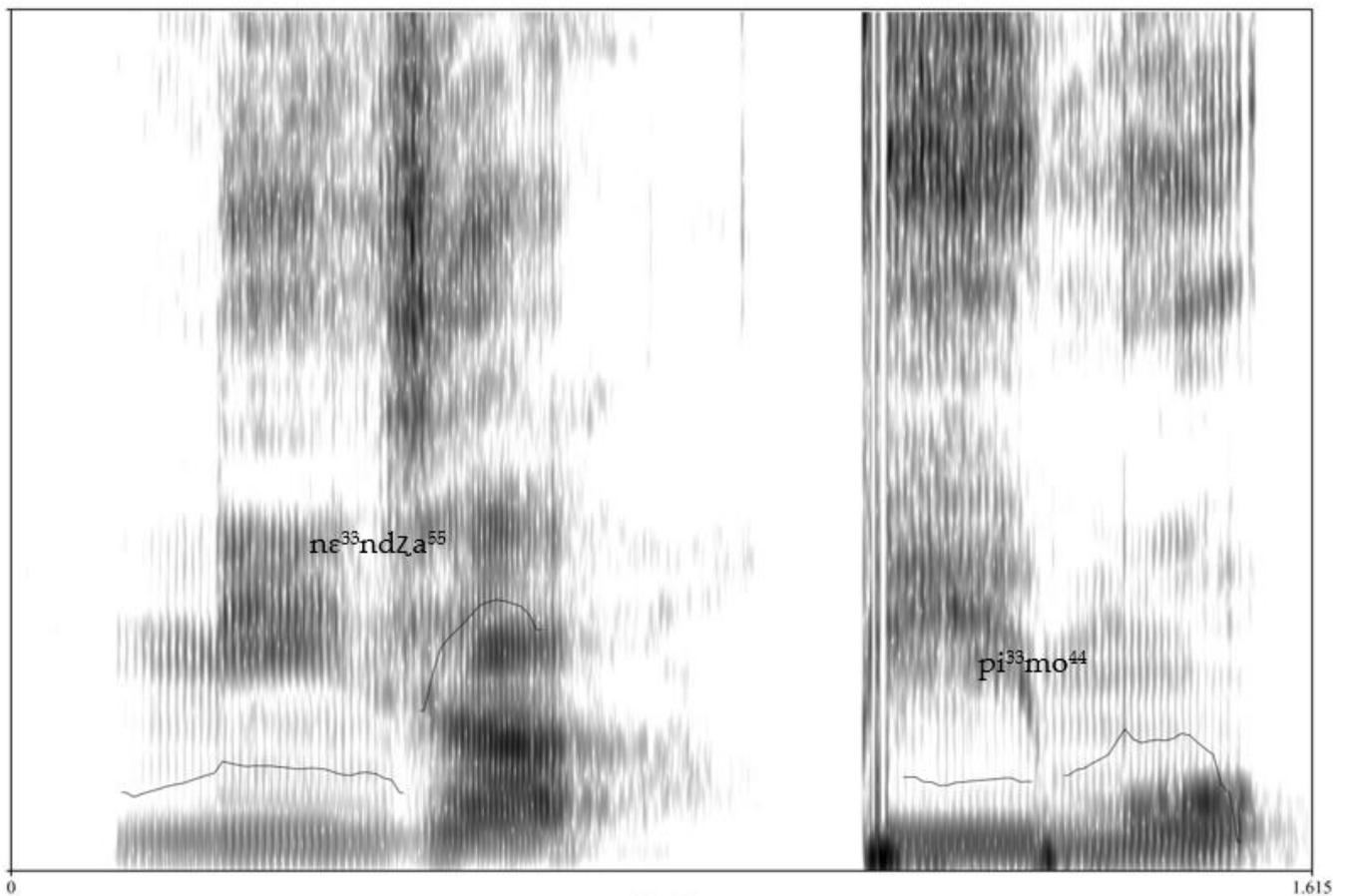


Figure 6. Compare Adur Niesu tone 44 with tone 33 and tone 55.

Tone 44 often appears in particles at the clause boundary, such as the sequential clitic *ci*⁴⁴ and change of state clitic *o*⁴⁴ in (43), and clause linker *lu*⁴⁴ in (44). If the clause boundary is occupied by content words, tone 44 is not used, such as *li*³³ ‘to trap’ in (44). If not used at the clause boundary, tone 44 only appears in a few morphemes in Adur Niesu as citation forms, namely, *mo*⁴⁴ as a hesitator, *sa*⁴⁴ the comitative, *di*⁴⁴ the quotative, and *ɲo*⁴⁴ the experiential clitic.

- 43 *no*²¹ *a*²¹*mu*³³ *ts*^h*i*³³ *ɲε*²¹ *ma*³³
 2PL.POSS daughter this two CLF
ts^h*i*⁵⁵=*ci*⁴⁴, *o*³³*no*³³ *xa*³³ *a*⁴⁴*ɲε*³³,
 tie=SEQ distance release after
*no*²¹ *zu*³³ *ma*⁴⁴ *sa*³³ ***o*⁴⁴**.
 2PL.POSS son CLF.DEF comfortable CSM
 ‘After (you) tie up your two daughters and abandon them in the wilderness, your son will recover.’
- 44 *to*⁵⁵ *pa*²¹*ɲε*²¹=*ko*³³ *li*³³, *ga*²¹*mo*²¹=*ko*³³ *tsi*⁴⁴ *tu*³³ ***lu*⁴⁴**,
 stamp mud=LOC trap road:big=LOC place inside CONT CLNK
*bi*⁵⁵*la*³³ *a*³³=*to*²¹ *mu*³³ *t*^h*u*³³ *i*⁵⁵ *dzi*³³ *ta*³³,
 exit:come NEG=can do t/here lie CONT NF
 ‘(The horse, the bull and all the big beasts) stamped on (the frog) into the mud, (who was) being stuck firmly in the road2, and (the frog) could not come out, staying there,’

4.2. Tone Sandhi: 33 > 44 / _ 33

The most productive tone sandhi in Adur Niesu is 33 > 44 / _ 33, regardless of the morphosyntactic environment. Other phonological processes may also occur, such as vowel

assimilation in (45f) and (45g). The fundamental function of this tone sandhi is to dissimilate two adjacent same tone.

45	a	su ³³	'people'	+	z _i ³³	'big'	→	su ⁴⁴ z _i ³³	'the elder'
	b	a ³³		+	ne ³³		→	a ⁴⁴ ne ³³	'after'
	c	bu ³³		+	dzu ³³		→	bu ⁴⁴ dzu ³³	'mate'
	d	ɔ ³³		+	nɔ ³³		→	ɔ ⁴⁴ nɔ ³³	'if'
	e	pu ³³		+	t ^h u ³³		→	pu ⁴⁴ t ^h u ³³	'Butuo (place name)'
	f	ti ³³	'cloud'	+	ne ³³	'black'	→	tɛ ⁴⁴ ne ³³	'dark cloud, nimbostratus'
	g	tɕ ^h u ³³	'rice, oryza sativa'	+	dza ³³	'grain'	→	tɕ ^h a ⁴⁴ dza ³³	'rice'

This sandhi rule can also mark the compounding of the verbs. The rise to tone 44 suggests that it is a compound word and the interpretation is from left to right; see (46). But if the tone is not raised, namely, xu³³dzu³³ and ŋu³³dzu³³, the interpretation of xu³³ and ŋu³³ changes to 'meat' and 'fish', respectively. The expressions are thus understood as phrases, not words, meaning 'to eat the meat' and 'to eat the fish'.

46	a	xu ³³	'to cut off' or 'meat'	+	dzu ³³	'eat'	→	xu ⁴⁴ dzu ³³	'to cut and eat'
	b	ŋu ³³	'to borrow' or 'fish'	+	dzu ³³	'eat'	→	ŋu ⁴⁴ dzu ³³	'to borrow and eat'

However, exceptions about this lexical tone sandhi can easily be found in Adur Niesu, such as ne³³su³³ 'the Niesu people', z_i³³lo³³ 'well, sink', ŋgu³³fu³³ 'buckwheat pie', and nɛ³³dzi³³ 'sun'. This sandhi pattern is also found in Nuosu (see Bradley 1990 for sandhi rules of Nuosu), but with higher productivity than in Adur Niesu. For example, this sandhi rule applies to bo⁴⁴fu³³ 'cheekbone' in Nuosu, but not to bo³³fu³³ 'cheekbone' in Adur Niesu.

This tone sandhi seldom occurs in phrases in Adur Niesu. In (47), where all expressions can be understood as phrases, this sandhi rule does not apply. For example, (47d) does not refer to a particular kind of snake, but a generic term to cover all snakes living or happening to be found in the water. However, this restriction seems less rigid in Nuosu. Gerner (2013) reported that the demonstrative would rise to tone 44 in Nuosu if there was a following classifier of tone 33, such as ts^h_i⁴⁴ma³³ (this CLF) 'this one' and ts^h_i⁴⁴bo³³ (this CLF.PL) 'these ones'. In contrast, the tone of the demonstrative is not raised in Adur Niesu, namely, ts^h_i³³ma³³ 'this one'. According to the Adur consultants, if the demonstrative is raised in tone, it means emphasis. It is more natural to keep the original tone 33 in this combination.

47	a	z _i ³³	'water, river'	+	dzi ³³	'clean'	→	z _i ³³ dzi ³³	'clean water'
	b	lu ³³	'cow'	+	tɕ ^h _i ³³	'manure'	→	lu ³³ tɕ ^h _i ³³	'cow's manure'
	c	ɣo ³³	'bear'	+	tɕ _i ³³	'bile'	→	ɣo ³³ tɕ _i ³³	'bile of the bear'
	d	z _i ³³	'water, river'	+	ɕi ³³	'snake'	→	z _i ³³ ɕi ³³	'snake(s) in the water (not a kind of snake)'

4.3. Tone Sandhi: 21 > 44 / 21 _

This is another relatively productive sandhi rule in Adur Niesu. Similar to the sandhi rule 33 > 44 / _ 33, this rule is again a case of tone dissimilation. Unlike 33 > 44 / _ 33, the sandhi rule 21 > 44 / 21 _ mainly occurs at the phrasal level, such as the auxiliary verb constructions from (48a) to (48c) and the noun phrases from (48d) to (48e). Its effect at the word level is not commonly found in Adur Niesu, for example, si²¹ 'to curse' + tɕ^hu²¹ 'to revile' → si²¹tɕ^hu²¹ 'to curse'. If the adjacent tones are different, this sandhi rule does not apply, for example, dzu³³ 'to eat' + do²¹ 'can' → dzu³³do²¹ 'can eat'.

48	a	ndu ²¹	'hit'	+	to ²¹	'can'	→	ndu ²¹ to ⁴⁴	'can hit'
	b	si ²¹	'know'	+	to ²¹	'can'	→	si ²¹ to ⁴⁴	'can understand'
	c	pu ²¹	'carry'	+	to ²¹	'can'	→	pu ²¹ to ⁴⁴	'can carry'
	d	ts ^h _i ²¹	'his, her, its'	+	dzi ²¹	'lower part'	→	ts ^h _i ²¹ dzi ⁴⁴	'beneath him/her/it (lit. the part below him/her/it)'
	e	ŋa ²¹	'my'	+	tɕo ²¹	'direction'	→	ŋa ²¹ tɕo ⁴⁴	'to me (lit. my direction)'

4.4. Tone Change in Compounds

Compounding is a productive means of word formation in Adur Niesu. Tone change can serve as a phonological criterion to distinguish compound words from phrases.

4.4.1. Tone 33 > 21/_ zuu³³

33 > 21 / _ zuu³³ occurs in compound words of animacy marked with the diminutive marker zuu³³, grammaticalized from the noun meaning ‘son’.

49	a	tʂ ^h _i ³³	‘dog’	+	z <u>uu</u> ³³	→	tʂ ^h _i ²¹ z <u>uu</u> ³³	‘puppy’
	b	mu ³³	‘horse’	+	z <u>uu</u> ³³	→	mu ²¹ z <u>uu</u> ³³	‘pony’
	c	ŋu ³³	‘fish’	+	z <u>uu</u> ³³	→	ŋu ²¹ z <u>uu</u> ³³	‘young fish’
	d	ʂu ³³	‘pheasant’	+	z <u>uu</u> ³³	→	ʂu ²¹ z <u>uu</u> ³³	‘young pheasant’

If the tone change does not occur, the meaning is also changed, namely, it becomes a nominal–nominal genitive phrase meaning ‘the offspring of the animal’.² Compare (50) with (49).

50	a	tʂ ^h _i ³³	‘dog’	+	z <u>uu</u> ³³	→	tʂ ^h _i ³³ z <u>uu</u> ³³	‘dog’s offspring’
	b	mu ³³	‘horse’	+	z <u>uu</u> ³³	→	mu ³³ z <u>uu</u> ³³	‘horse’s offspring’
	c	ŋu ³³	‘fish’	+	z <u>uu</u> ³³	→	ŋu ³³ z <u>uu</u> ³³	‘fish’s offspring’
	d	ʂu ³³	‘pheasant’	+	z <u>uu</u> ³³	→	ʂu ³³ z <u>uu</u> ³³	‘pheasant’s offspring’

Moreover, if the compound words with the diminutive marker refer to inanimate beings, such as mountains, the tone change does not occur.

51	a	bo ³³	‘mountain’	+	z <u>uu</u> ³³	→	bo ³³ z <u>uu</u> ³³	‘small mountain’
	b	z _i ³³	‘water, river’	+	z <u>uu</u> ³³	→	z _i ³³ z <u>uu</u> ³³	‘small river, creek’
	c	s _i ³³	‘tree’	+	z <u>uu</u> ³³	→	s _i ³³ z <u>uu</u> ³³	‘small tree’
	d	t ^h a ³³	‘jar’	+	z <u>uu</u> ³³	→	t ^h a ³³ z <u>uu</u> ³³	‘small jar’

This tone change does not happen to all animate beings if there is a ready expression for their offspring. For example, since there is an expression for ‘calf’, namely, ko³³li³³zuu³³, lu³³zuu³³ is, therefore, a phrase, meaning ‘offspring of the cow’, without the tone change. Other examples are:

						Meaning	Terminology for offspring		
52	a	zo ³³	‘sheep’	+	z <u>uu</u> ³³	→	zo ³³ z <u>uu</u> ³³	‘offspring of the sheep’	zo ³³ la ³³ z <u>uu</u> ³³ ‘lamb’
	b	lu ³³	‘cow’	+	z <u>uu</u> ³³	→	lu ³³ z <u>uu</u> ³³	‘offspring of the cow’	ko ³³ li ³³ z <u>uu</u> ³³ ‘calf’
	c	ze ³³	‘chicken’	+	z <u>uu</u> ³³	→	ze ³³ z <u>uu</u> ³³	‘offspring of the chicken’	ze ³³ tsi ⁵⁵ z <u>uu</u> ³³ ‘chick’

4.4.2. Tones 33 > 21/_ pa⁵⁵ and 33 > 21/_ pu³³

The two rules of tone change are discussed together since both of them occur in similar semantic environment, namely, about the masculine gender of animate beings. The words are compounded with an animal formative and the masculine morpheme pa⁵⁵ and pu³³. Morpheme pa⁵⁵ is a reflex of PTB *p/ba ‘male, father, 3rd pronoun’ and pu³³ is of PTB *pu ‘male, masculine suffix’ (see Matisoff 2003). Adur Niesu uses the former to refer to ‘parents’, namely, p^ha⁵⁵mo⁵⁵, with additional aspiration. Both pa⁵⁵ and pu³³ will cause the preceding 33 tone to be lowered. The dog word tʂ^h_i³³ can go with either masculine morpheme, and its tone is lowered in both compounding; see (53a) and (53g). Bearing the male morpheme pa⁵⁵, the word ‘horse’ mu²¹pa⁵⁵ has extended its meaning to cover both male and female horses. As a consequence, another gender morpheme is needed to specify whether it is a male or female horse in modern Adur Niesu, namely, mu²¹pu³³ ‘male horse’ and mu²¹mo²¹ ‘female horse’. In some cases, the masculine marker pu³³ is voiced, such as in lɛ²¹bu³³ ‘ox’, but the tone change rule still holds.

However, if the preceding syllable bears the 55 tone, it will not be lowered due to the masculine syllable, for example, tʂ^h_i⁵⁵bu³³ ‘male goat’ and vi⁵⁵pa⁵⁵ ‘female pig’.

53	33 > 21/_ pa ⁵⁵							
	a	tʂ ^h i ³³	‘dog’	+	pa ⁵⁵	→	tʂ ^h i ²¹ pa ⁵⁵	‘male dog’
	b	mu ³³	‘horse’	+	pa ⁵⁵	→	mu ²¹ pa ⁵⁵	‘male horse, horse’
	33 > 21/_ pu ³³							
	c	fɛ ³³	‘mouse’	+	pu ³³	→	fɛ ²¹ pu ³³	‘male mouse’
	d	mu ³³	‘horse’	+	pu ³³	→	mu ²¹ pu ³³	‘male horse’
	e	ʂu ³³	‘pheasant’	+	pu ³³	→	ʂu ²¹ pu ³³	‘male pheasant’
	f	fa ³³	‘golden pheasant’	+	pu ³³	→	fa ²¹ pu ³³	‘male golden pheasant’
	g	tʂ ^h i ³³	‘dog’	+	pu ³³	→	tʂ ^h i ²¹ pu ³³ (tʂ ^h i ²¹ mo ²¹)	‘male dog (and female dog)’

4.4.3. Tone 33 > 21/_ mo²¹

This tone change occurs if the preceding syllable bearing tone 33 is followed by the feminine morpheme mo²¹, a reflex of Proto-Loloish *ʔəC-ma³ ‘mother’ (Bradley 1979). Like many Tibeto–Burman languages, Adur Niesu mo²¹ can also function as an augmentative morpheme (see Matisoff 1992). This rule of tone change is effective if mo²¹ is used for two functions, i.e., a feminine marker and an augmentative marker, regardless of the animacy of the word. If the preceding syllable does not bear tone 33, this tone change does not apply, such as vi⁵⁵mo²¹ (pig:female) ‘female pig’ and tɕi⁵⁵mo²¹ (eagle:female) ‘female eagle’.

54	a	mu ³³	‘horse’	+	mo ²¹	→	mu ²¹ mo ²¹	‘female horse’
	b	zo ³³	‘sheep’	+	mo ²¹	→	zo ²¹ mo ²¹	‘female sheep’
	c	lu ³³	‘cow’	+	mo ²¹	→	lu ²¹ mo ²¹	‘female cow’
	d	vo ³³	‘bear’	+	mo ²¹	→	vo ²¹ mo ²¹	‘female bear’
	e	t ^h a ³³	‘jar’	+	mo ²¹	→	t ^h a ²¹ mo ²¹	‘big jar’
	f	zɿ ³³	‘water’	+	mo ²¹	→	zɿ ²¹ mo ²¹	‘big river’
	g	bo ³³	‘mountain’	+	mo ²¹	→	bo ²¹ mo ²¹	‘big mountain’
	h	pi ³³	‘priest’	+	mo ²¹	→	pi ²¹ mo ²¹	‘big (highly experienced) priest’

Similar to the masculine marker pa⁵⁵ in mu²¹pa⁵⁵ which covers both male and female horse as a general term, mo²¹ can also be lexicalized with its feminine meaning being implicit, such as dzu²¹mo²¹ ‘bee, queen bee’. But this rule of tone change still holds because of the feminine marker.

However, this tone change does not apply to other meanings derived from mo²¹. In Adur Niesu, besides ‘female’ and ‘big’, mo²¹ can also function as a nominal meaning ‘woman’ and ‘master’, such as nɛ³³mo²¹ (black Yi:woman) ‘the women of the Black Yi (the historical noble class)’, ma⁵⁵mo²¹ (teach:master) ‘teacher’, and a postposed modifier meaning ‘old’, such as tʂ^ho³³mo⁴⁴ (people:old) ‘old people’ and vo³³mo⁴⁴ (bear:old) ‘(old) bear’. This tone change does not apply to the above three meanings. Note the contrast between pi³³mo⁴⁴ ‘priest’ and pi²¹mo²¹ ‘big (highly experienced) priest’. The former is a general term and also the title to refer to a Yi priest, and the latter is only used for priests with experiences and achievements. For example, while dzu³³k^hu³³pi³³mo⁴⁴ means simply ‘Priest Jike’, pi²¹mo²¹dzu³³k^hu³³ is a nominal–nominal phrase, meaning ‘Jike, the highly experienced and accomplished priest’. Additionally, this rule of tone change serves as a criterion to distinguish two confusing meanings in Adur Niesu, namely, ‘old’ and ‘big’. In many languages of the world, ‘old’ and ‘big’ can be colexified (Rzymiski et al. 2020). If this tone change occurs in compound words, the meaning is not ‘old’, but ‘big’, for example, si²¹mo²¹ ‘big tree’. To express ‘old tree’, a phrase is needed, namely, si³³a³³mo²¹ (tree old) ‘old tree’.

4.4.4. Tone 33 > 21/_ ni⁵⁵

This rule of tone change occurs in the semantic environment of dual marking, with the plural pronouns compounded with the dual morpheme ni⁵⁵.

55	a	t ^h u ³³	‘they’	+	ni ⁵⁵	→	t ^h u ²¹ ni ⁵⁵	‘the two of them’
	b	no ³³	‘you (PL)’	+	ni ⁵⁵	→	no ²¹ ni ⁵⁵	‘the two of you’
	c	no ³³	‘we (exclusive)’	+	ni ⁵⁵	→	no ²¹ ni ⁵⁵	‘the two of us (exclusive)’

It should be noted that the dual marker ηi^{55} is derived from, but different from, the cardinal word ηi^{21} ‘two’. This can be proved by the evidence from $a^{33}si^{55}\eta i^{55}$ (1PL.inclusive dual) ‘the two of us (inclusive)’ where, without tone 33 on the preceding syllable, the dual marker still bears tone 55, not tone 21. Otherwise, ηi^{21} will be considered to colexify ‘dual’ and ‘two’, which is an unlikely proposal for Adur Niesu.

4.4.5. Tone 33 > 44/ ha^{21} _

This tone change occurs in interrogatives of quantity, such as ‘how many’ and ‘how long’. The interrogative words are compounds, formed by the interrogative morpheme ha^{21} and the adjectival roots; see Table 16. Both ha^{21} and the adjectival roots are bound morphemes, and cannot be used as full words. This tone change is also found in Nuosu; see Table 16.

Table 16. Adur Niesu and Nuosu interrogatives of quantity.

Meaning	Shynra Nuosu	Adur Niesu
how big?	$k^h_{u^{21}}z_i^{44}$	$ha^{21}z_i^{44}$
how thick (e.g., tree, string)?	$k^h_{u^{21}}f_u^{44}$	$ha^{21}f_u^{44}$
how high?	$k^h_{u^{21}}\eta u^{44}$	$ha^{21}\mu u^{44}$
how long (distance)?	$k^h_{u^{21}}\zeta o^{44}$	$ha^{21}\zeta u^{44}$
how long (time)?	$k^h_{u^{21}}h_o^{44}$	$ha^{21}\eta o^{44}$
how wide (2-dimensional)?	$k^h_{u^{21}}f_i^{44}$	$ha^{21}f_i^{44}$
how wide (3-dimensional)?	$k^h_{u^{21}}d_z i^{44}$	$ha^{21}d_z i^{44}$
how thick?	$k^h_{u^{21}}t_u^{44}$	$ha^{21}t^h u^{44}$
how many?	$k^h_{u^{21}}\eta i^{44}$	$ha^{21}\eta o^{44}$
how heavy?	$k^h_{u^{21}}l_i^{44}$	$ha^{21}l_i^{44}$

Adur Niesu ha^{21} should follow the derivational chain from the category of selection $a^{21}si^{21}$ ‘which’ to the category of manner $ha^{21}\mu u^{33}$ (how:do) ‘how’.

First, typologically, the derivational direction from the interrogative category of selection to that of manner is attested, not the other way around (see Hölzl 2018, p. 83). Second, Adur Niesu ha^{21} ‘how’ and $a^{21}si^{21}$ ‘which’ are closely related; the former should be a form after syllable reduction of the latter. After the syllable reduction of si from $a^{21}si^{21}$, a fricative glottal /h/ can often be epenthesized, such as $ha^{21}z_i^{44}$ / $a^{21}z_i^{44}$ ‘how big?’ and $ha^{21}\eta o^{44}$ / $a^{21}\eta o^{44}$ ‘how many?’. The epenthesized form now becomes the dominant form of this morpheme. A similar epenthesis is shown in (36).

Adur Niesu ha^{21} can be interchangeably pronounced as $a^{21}si^{21}$ as in $a^{21}si^{21}\mu u^{33}$ / $ha^{21}\mu u^{33}$ (how:do) ‘how’ and as $a^{21}si^{21}t^h u^{33}$ / $ha^{21}t^h u^{33}$ (which:time) ‘when’. Therefore, $a^{21}si^{21}$ means both ‘which’ and ‘how’ in Adur Niesu. Treating $a^{21}si^{21}$ as the *how* form in Adur Niesu is attested by PL *ʔəs (Bradley 1979, p. 334). The Nuosu $k^h_{u^{21}}$ should be a reflex of the Proto-TB *ka (Matisoff 2003). Unlike Adur Niesu, Nuosu $k^h_{u^{21}}$ has lost its etymological connection with its modern *which* word ci^{44} (Shynra) and ca^{42} (Yynuo). The possible reason is that, at a certain historical moment, there used to be two *which* words in Nuosu: the canonical *which* lexeme, cognate of the Proto-TB *ka, and an innovation derived from other interrogatives (e.g., *where* and *what*). Gradually, the innovative form replaced the old *which* lexeme (Ding 2022).

Functioning as the interrogative category of selection, or ‘which’, $a^{21}si^{21}$ is an adjective, placed after the head noun, such as $ts^h o^{33} a^{21}si^{21} ma^{33}$ (people, which CLF) ‘which person’. Due to its being used for another function, namely, the interrogative of manner, the *which* word $a^{21}si^{21}$ has changed its adjectival word class, and is used as an adverb in the *how* word, placed before verbs, namely, $a^{21}si^{21}\mu u^{33}$ (how:do) or $ha^{21}\mu u^{33}$ (how:do) ‘how’. As a consequence, after the functional change, it is no longer acceptable to pronounce $ha^{21}\eta o^{44}$ ‘how many/much’ as $*a^{21}si^{21}\eta o^{44}$ or $a^{21}si^{21} ma^{33}$ ‘which one’ as $*ha^{21} ma^{33}$ in Adur Niesu. The irreversibility between ha^{21} and $a^{21}si^{21}$ in the selection interrogative and the quantity interrogative suggests that ha^{21} has become a different morpheme

with different word class and different function from a²¹si²¹ ‘which’, although it is derived from the *which* morpheme. The derivational path in Adur Niesu is proposed as below (see Figure 7 and also Ding 2022).

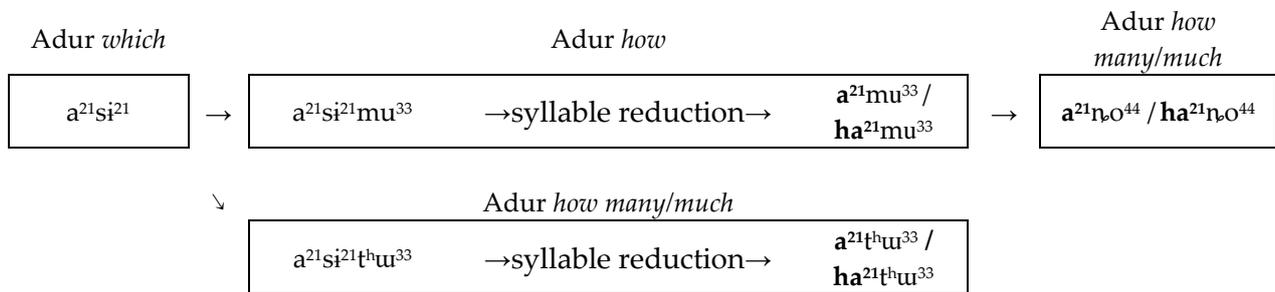


Figure 7. The derivation of Adur Niesu *which*, *how*, and related categories.

4.5. Tone Change in Prefixed Words

Tone change occurs to the prefixes a³³- and i³³-, which are used in the formation of property-denoting words, kinship terms, and animal words.

4.5.1. Tone 33 > 44/ _ 33 in Dimensional Words

This tone change is most popular in a³³-/i³³- prefixed property-denoting words in Adur Niesu.

The words in Table 17 are called stative verbs of dimensional extensives in Bradley (1995). In modern Adur Niesu, the positive dimensional words are prefixed by a³³-, and the negative ones are prefixed by i³³-, both sharing the same root. This derivational pattern is not productive in modern Nuosu and Niesu. However, historically, the positive and negative forms may have different roots, such as Nuosu a⁴⁴i³³ ‘heavy’ and zo⁴⁴so³³ ‘light’, and Adur Niesu a⁴⁴zi³³ ‘big’ and ε⁵⁵tsi³³ ‘small’. According to Bradley (1995), the historical development is that the original negative dimensional words were replaced by forms that have the prefix i³³- plus the positive dimensional words. The negative dimensional word ‘small’ in the big/small pair has persisted and has not been replaced by the i³³-prefixed positive form in Nuosu and Niesu in Table 17. In the cases of ‘heavy/light’, while the replacement of the negative extensive forms by the positive forms occurs in Adur Niesu, the negative forms zo⁴⁴so³³ (Shynra Nuosu), or i³³so³³ (Yynuo Nuosu) ‘light’, have survived. But a different prefix zo³³-, rather than i³³-, is added to so³³ ‘light’ in Shynra Nuosu (see Ding 2022).

Table 17. Adur Niesu dimensional words.

Meaning	Shynra Nuosu	Adur Niesu
big	a ⁴⁴ zi ³³	a ⁴⁴ zi ³³
small	ε ⁵⁵ tsi ³³	ε ⁵⁵ tsi ³³
thick (e.g., tree, string)	a ³³ fu ³³	a ⁴⁴ fu ³³
slender	i ⁴⁴ fu ³³	i ⁴⁴ fu ³³
high	a ³³ mu ³³	a ⁴⁴ mu ³³
low	i ⁴⁴ mu ³³	i ⁴⁴ mu ³³
long (distance)	a ³³ so ³³	a ⁴⁴ su ³³
short	i ⁴⁴ so ³³	i ⁴⁴ su ³³
long (time)	a ³³ ho ⁴⁴	a ⁴⁴ no ³³
short	i ³³ ho ⁴⁴	i ⁴⁴ no ³³
wide (2-dimensional)	a ³³ fi ³³	a ⁴⁴ fi ³³
narrow	i ⁴⁴ fi ³³	i ⁴⁴ fi ³³

Table 17. *Cont.*

Meaning	Shynra Nuosu	Adur Niesu
wide (3-dimensional) narrow	a ³³ dʒi ³³ i ⁴⁴ dʒi ³³	a ⁴⁴ dʒi ³³ i ⁴⁴ dʒi ³³
thick (e.g., book) thin	a ³³ tu ³³ i ⁴⁴ tu ³³	a ⁴⁴ t ^h u ³³ i ⁴⁴ t ^h u ³³
many few	a ⁴⁴ ŋi ³³ i ⁴⁴ ŋi ³³	a ⁴⁴ ŋo ³³ i ⁴⁴ ŋo ³³
heavy light	a ⁴⁴ li ³³ ʒo ⁴⁴ so ³³	a ⁴⁴ li ³³ i ⁴⁴ li ³³

It can be observed that this tone change spreads to all dimensional extensives in Adur Niesu, but not in Nuosu.

4.5.2. Tone 33 > 44/ _ 33 in Kinship and Animal Words

This tone change is also related to the prefix a³³- in other word formations besides the dimensional words. Although many of them have lost productivity, historically, it has several other semantic functions in Adur Niesu, including kinship terms, color words, and animal words. See Matisoff (2018) for a cross-linguistic study of Proto-Tibet–Burman *a-prefix.

In modern Adur Niesu, this tone change only has certain productivity in kinship terms and animal names, besides the dimensional words. Given names of Adur Niesu are mostly bisyllabic, such as ga³³ko³³, a given name often for female. One of the syllables of the given name can be taken and prefixed by a³³- to express endearment with this tone change, such as a⁴⁴ko³³.

56	a	a-prefixed kinship terms	
		a ⁴⁴ bo ³³	‘father’s sister’
		a ⁴⁴ ta ³³	‘father’
		a ⁴⁴ p ^h u ³³	‘grandfather’
		a ⁴⁴ mo ³³	‘mother’
	b	a-prefixed endearment addresses	
		a ⁴⁴ ko ³³	often for female
		a ⁴⁴ si ³³	often for female
		a ⁴⁴ ga ³³	often for male
		a ⁴⁴ thi ³³	often for male
		a ⁴⁴ ndza ³³	both for female and male

This rule of tone change still applies to a large number of animal words, with some exceptions (e.g., a³³vo⁴⁴ ‘bear’ and a²¹dʒa³³ ‘sparrow’).

57	a	a ⁴⁴ ŋɛ ³³	‘cat’
	b	a ⁴⁴ fɛ ³³	‘mouse’
	c	a ⁴⁴ lɛ ³³	‘goat’
	d	a ⁴⁴ du ³³	‘fox’
	e	a ⁴⁴ ʃi ³³	‘pigeon’
	f	a ⁴⁴ dʒu ³³	‘raven’
	g	a ⁴⁴ vo ³³	‘hoopoe bird’

The a-prefix in color terms are lexicalized without any tone change, such as a³³ni³³ ‘red, be red’, a³³t^hu³³ ‘white, be white’, a³³ŋɛ³³ ‘black, be black’, and a³³ʃi³³ ‘yellow, be yellow’. If the tone change rules apply, the meanings will be changed. For example, the consultants indicate that a⁴⁴t^hu³³, with the tone of the prefix raised to 44, means ‘thick (e.g., book)’ (see Table 17), but not ‘white, be white’ anymore.

4.6. Tone Change in Patient Marking

There are three rules of tone change about patient marking, which are discussed together: patient³³ > 44 / _ 33; patient³³ > 21 / _ ko³³; 21 > 44 / patient³³ _.

Since Adur Niesu is SOV, if there is only one argument in the clause, it could be agent or patient. In some cases, the default context is clear to tell the meaning, such as xur³³ dzur³³ (meat eat) ‘to eat the meat’ as a non-reversible event. However, in many cases, ambiguity emerges. To disambiguate, other than the contexts, there are two main means to mark the patient of the clause.

First, the tone change of patient³³ > 44 / _ 33 is addressed. This tone change is on the patient. The argument is mostly monosyllabic personal pronouns before the main verb. The patient will change from tone 33 to tone 44. This strategy is often used when the main verb bears tone 33.

58	nur ³³	hi ²¹	ŋo ⁴⁴	kur ³³ .
	2SG	say	1PL	make listen
	‘You tell us (of it).’			
59	i ³³		ŋa ⁴⁴	xur ³³ =a ²¹ =da ³³ .
	SG.LOG		1SG	win=NEG=SP
	‘He/she cannot win over me.’			

Compare (60a) and (60b). With the tone change, the ambiguity in (60a) can be eliminated in (60b). Despite the ambiguity in (60a), it will often be understood, without the tone change, as a resultative construction ‘someone stole his (belongings)’ in Adur Niesu, where the patient is placed sentence initially as the topic and the rest the comment.³

Due to the analytic morphology of Adur Niesu, there is the possibility that this tone change is caused by some floating tone marking patient. However, since we do not have any supporting evidence, it is synchronically an issue of tone change.

60	a	ts ^h i ³³	ts ^h o ³³	kh ^u ³³ .
		3SG	people	steal
		‘Someone stole his (belongings).’ or ‘he stole someone’s (belongings).’		
	b	ts ^h i ³³	ts ^h o ⁴⁴	kh ^u ³³ .
		3SG	people.P	steal
		‘He stole someone’s (belongings).’		
	c	ts ^h i ³³	ts ^h o ²¹ =ko ³³	kh ^u ³³ .
		3SG	people=DOM	steal
		‘He stole someone’s (belongings).’		

If the monosyllabic arguments are replaced by polysyllabic ones, the tone change cannot apply. To disambiguate (61a), an analytic means by differential object marker ko³³ is used to mark the patient; see (61b). Similarly, since there is the way to disambiguate, (61a), without the marking, it will often be understood as ‘dzε²¹ne³³ stole su³³ga⁵⁵’s (belongings)’.

61	a	su ³³ ga ⁵⁵	dzε ²¹ ne ³³	kh ^u ³³ .
		surname	surname	steal
		‘dzε ²¹ ne ³³ stole su ³³ ga ⁵⁵ ’s (belongings).’ or ‘su ³³ ga ⁵⁵ stole dzε ²¹ ne ³³ ’s (belongings).’		
	b	su ³³ ga ⁵⁵	dzε ²¹ ne ³³ =ko ³³	kh ^u ³³ .
		surname	surname=DOM	steal
		‘su ³³ ga ⁵⁵ stole dzε ²¹ ne ³³ ’s (belongings).’		

The differential object marker (DOM) can also be used with monosyllabic patients for disambiguation; see (60c). In this case, the tone change rule of patient³³ > 21 / _ ko³³ is applied. The citation tone 33 of the person pronoun will be lowered to tone 21; see (62). The tone lowering or dissimilation before the DOM occurs regardless of the tonal value of the main verb.

62	a	ts ^h _i ³³ 3SG 'Someone killed him.' or 'He killed someone'	ts ^h _o ³³ people	si ⁵⁵ . kill	
	b	ts ^h _i ³³ 3SG 'He killed someone.'	ts ^h _o ^{21=ko} ³³ people=DOM	si ⁵⁵ . kill	
	c	ts ^h _i ³³ 3SG 'Someone shouldered him.' or 'He shouldered someone'	ts ^h _o ³³ people	vi ⁵⁵ . carry on shoulder	
	d	ts ^h _i ³³ 3SG 'He shouldered someone.'	ts ^h _o ^{21=ko} ³³ people=DOM	vi ⁵⁵ . carry on shoulder	
	e	xo ³³ ts ^h _i ⁵⁵ ɿa ²¹ ba ³³ name 'Hotihlabba ignored him.'	ts ^h _i ^{21=ko} ³³ 3SG-DOM	a ²¹ =hi ²¹ . NEG=say	
	f	nu ³³ 2SG 'You come to save me.'	ŋa ^{21=ko} ³³ 1SG-DOM	p ^h u ⁴⁴ save	la ³³ . come

While the above two rules of tone change apply to the argument, the tone change 21 > 44 / patient³³ _ applies to the main verb; see Table 18.

Table 18. Adur Niesu argument marking through tone.

	Meaning	Agent marking	Patient marking
argument + ndu ²¹	'to beat'	ndu ²¹	ndu ⁴⁴
argument + ʃu ²¹	'to find'	ʃu ²¹	ʃu ⁴⁴
argument + pu ²¹	'to carry'	pu ²¹	pu ⁴⁴
argument + bi ²¹	'to give'	bi ²¹	bi ⁴⁴
argument + nu ²¹	'to chase'	nu ²¹	nu ⁴⁴

Specifically, if the main verb bears tone 21, to mark the patient, the original tone 21 of the main verb will be raised to tone 44, suggesting the preceding argument is the patient of the verb, no longer the agent. In (63a), the citation form 'to find, search' in Adur Niesu is ʃu²¹. If it is changed to tone 44, the preceding pronoun becomes the patient; see (63b). It is also acceptable to use the DOM in (63c) with the patient changing its tone to 21. Please note that tonal rising for patient marking does not occur to the main verb bearing tone 33, such as ku³³ 'to steal', and such a sentence is not acceptable, i.e., *ts^h_i³³ ts^h_o³³ k^hu⁴⁴ (3SG people steal, intended meaning: 'he stole someone's belongings').

63	a	ŋa ³³ 1SG 'I searched (, but in vain).'	ʃu ²¹ find	o ⁴⁴ . PFV
	b	ts ^h _i ³³ 3SG 'He (is) looking for me.'	ŋa ³³ 1SG	ʃu ⁴⁴ . find
	c	ts ^h _i ³³ 3SG 'He (is) looking for me.'	ŋa ^{21=ko} ³³ 1SG-DOM	ʃu ⁴⁴ . find

The following pairs are only contrastive in the tone of the verb. If the original tone 21 is changed to 44, the meaning is also changed; see (64) to (66).

64	a	ts ^h _o ³³ people '(This wound) is (caused) by (someone's) beating.'	ndu ^{21=ʃi} ³³ beat=NMLZ	ŋu ³³ . COP
	b	ts ^h _o ³³ people '(This is) something (used) to beat people'	ndu ^{44=ʃi} ³³ beat=NMLZ	ŋu ³³ . COP

65	a	a ⁴⁴ ta ³³ father	pu ²¹ =nuu ⁴⁴ =ei ⁴⁴ carry=IMPF=SEQ	zi ³³ water	kuu ³³ throw	la ³³ come	'Father carried (something) and threw into the water.'
	b	a ⁴⁴ ta ³³ father	pu ⁴⁴ =nuu ⁴⁴ =ei ⁴⁴ carry=IMPF=SEQ	zi ³³ water	kuu ³³ throw	la ³³ come	'(Someone) carried the father and threw (him) into the water.'
66	a	ŋa ³³ 1SG	bi ²¹ give	o ⁴⁴ PFV			'I gave (it to someone).'
	b	ŋa ³³ 1SG	bi ⁴⁴ give	o ⁴⁴ PFV			'Something (was) given to me.'

4.7. Tone Change in Reduplication for Interrogation

There are two rules for tone change to generate reduplication for yes–no interrogations: 33 > 44 / _ 33 and 21 > 33 / 21 _ . It is clear that the two rules are consistently tone dissimilation, namely, adjacent same tones trigger dissimilation.

The first tone change, namely, 33 > 44 / _ 33, is productive in reduplicating monosyllabic verbs for yes–no questions; see (67). The first monosyllabic verb with tone 33 will rise to tone 44. See Figure 8 for the tone change.

67	a	zi ³³	+	zi ³³	→	zi ⁴⁴ ~zi ³³	'to buy or not'
	b	ndo ³³	+	ndo ³³	→	ndo ⁴⁴ ~ndo ³³	'to drink or not'
	c	la ³³	+	la ³³	→	la ⁴⁴ ~la ³³	'to come or not'
	d	tɕo ³³	+	tɕo ³³	→	tɕo ⁴⁴ ~tɕo ³³	'to turn or not'

The tone change rule is not applicable to disyllabic or multisyllabic verbs for interrogative. Therefore, it serves as a criterion to distinguish words and phrases in Adur Niesu. While (68a) and (68b) are verbs without the tone change, (68c) and (68d) are verb phrases with the tone change.

68	a	tɕe ³³ p ^h ɔ ³³	'to fight back'	+	p ^h ɔ ³³	→	tɕe ³³ p ^h ɔ ³³ ~p ^h ɔ ³³	'to fight back or not'
	b	hi ³³ tɕe ^h i ³³	'to fall down'	+	tɕe ^h i ³³	→	hi ³³ tɕe ^h i ³³ ~tɕe ^h i ³³	'to fall down or not'
	c	zi ³³ ndo ³³	'to drink water'	+	ndo ³³	→	zi ³³ ndo ⁴⁴ ~ndo ³³	'to drink water or not'
	d	dzuu ³³ tɕe ^h i ³³	'want eat (something)'	+	tɕe ^h i ³³	→	dzuu ³³ tɕe ^h i ⁴⁴ ~tɕe ^h i ³³	'to want or not want to eat'

Another rule of tone change found in interrogations, namely, 21 > 33 / 21 _ , differs from 33 > 44 / _ 33 in that it occurs in both word and phrase. For example, (69h) and (69i) are words and (69j) is a phrase; the tone change 21 > 33 / 21 _ is still applicable.

As was discussed in Section 3.6, on the surface, there seems to be a third rule of tone change regarding reduplication for interrogation: 55 > 21 / 55 _ . However, the tone lowering from 55 to 21 is not a tone change, but the result of the floating tone associated with the interrogative particle a²¹ after syllable reduction.

69	a	hi ²¹	'to say'	+	hi ²¹	→	hi ²¹ ~hi ³³	'to say or not'
	b	ʃuu ²¹	'to find'	+	ʃuu ²¹	→	ʃuu ²¹ ~ʃuu ³³	'to find or not'
	c	vu ²¹	'to sell'	+	vu ²¹	→	vu ²¹ ~vu ³³	'to sell or not'
	d	guu ²¹	'to play'	+	guu ²¹	→	guu ²¹ ~guu ³³	'to play or not'
	e	su ²¹	'to resemble'	+	su ²¹	→	su ²¹ ~su ³³	'to resemble or not'
	f	ndu ²¹	'to hit'	+	ndu ²¹	→	ndu ²¹ ~ndu ³³	'to hit or not'
	g	ŋo ²¹	'to think'	+	ŋo ²¹	→	ŋo ²¹ ~ŋo ³³	'to think or not'
	h	a ³³ go ²¹	'empty'	+	go ²¹	→	a ³³ go ²¹ ~go ³³	'be empty or not'
	i	mo ³³ ŋgo ²¹	'to undo the curse'	+	ŋgo ²¹	→	mo ³³ ŋgo ²¹ ~ŋgo ³³	'to undo the curse or not'
	j	xuu ³³ vu ²¹	'to sell the meat'	+	vu ²¹	→	xuu ³³ vu ²¹ ~vu ³³	'to sell the meat or not'

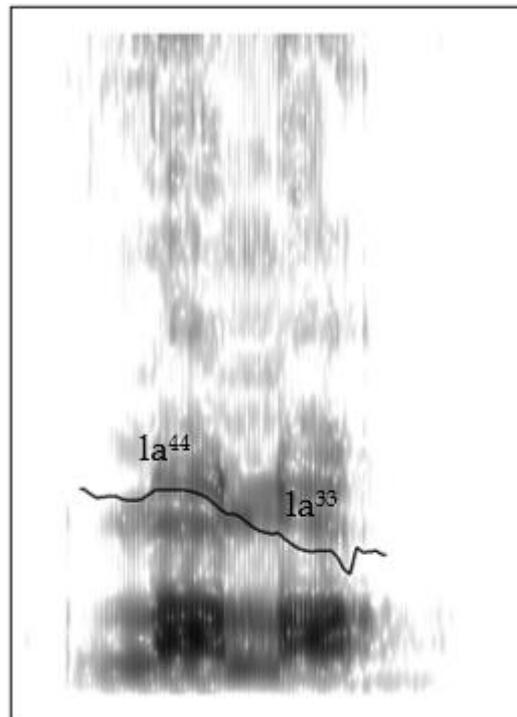


Figure 8. The tone change with monosyllabic verb *la*³³ ‘come’.

4.8. Effect of Floating Tone

Finally, the effect of the floating tone is discussed. On the surface, it appears to be a kind of tonal alternation. However, different from tone sandhi and tone change, it is the effect of the tone of an additional syllable after syllable reduction, such as tone 21 left after the reduced interrogative particle *a*²¹ in Section 3.6.

Another case of floating tone is about tone 21 in Adur Niesu possessive pronouns. Tone 21 was originally borne by the Proto-Nuosu proper genitive marker **ni*²¹. This genitive marker is reduced in Adur Niesu and Nuosu, but still kept in Yynuo Nuosu as *ni*⁴², such as *a*³³*p*^h*u*³³=*ni*⁴² *t*^h*u*⁴²*z**i*³³ (grandfather=GEN book) ‘grandfather’s book’. Lama (2022) reports the tonal change from Proto-Nuosu proper 21 to modern Yynuo Nuosu 42.

Therefore, the genitive marker overrides its floating tone to Adur Niesu plain personal pronouns, e.g., *ŋa*³³ + **ni*²¹ → *ŋa*²¹ ‘my’. Take the noun phrases of locational description for example, modified by the possessive pronouns. Adur Niesu locational concepts are mainly expressed through nouns, such as *dzi*²¹ ‘lower part’ and *ŋi*³³ ‘front’. Most examples in (70) also experience tone dissimilation, namely, 21 > 44 / 21 _ in Section 4.3.

70 a	<i>ts</i> ^h <i>i</i> ²¹ ‘his, her, its’	+	<i>dzi</i> ²¹ ‘lower part’	→	<i>ts</i> ^h <i>i</i> ²¹ <i>dzi</i> ⁴⁴	‘beneath him/her/it (lit. the part below him/her/it)’
	<i>ts</i> ^h <i>i</i> ²¹ ‘his, her, its’	+	<i>tɕo</i> ²¹ ‘direction’	→	<i>ts</i> ^h <i>i</i> ²¹ <i>tɕo</i> ⁴⁴	‘to him/her/it (lit. his/her/its direction)’
	<i>ts</i> ^h <i>i</i> ²¹ ‘his, her, its’	+	<i>ŋi</i> ³³ ‘front’	→	<i>ts</i> ^h <i>i</i> ²¹ <i>ŋi</i> ³³	‘in front of him/her/it (lit. his/her/its front)’
b	<i>ŋa</i> ²¹ ‘my’	+	<i>dzi</i> ²¹ ‘lower part’	→	<i>ŋa</i> ²¹ <i>dzi</i> ⁴⁴	‘beneath me (lit. the part below me)’
	<i>ŋa</i> ²¹ ‘my’	+	<i>tɕo</i> ²¹ ‘direction’	→	<i>ŋa</i> ²¹ <i>tɕo</i> ⁴⁴	‘to me (lit. my direction)’
	<i>ŋa</i> ²¹ ‘my’	+	<i>ŋi</i> ³³ ‘front’	→	<i>ŋa</i> ²¹ <i>ŋi</i> ³³	‘in front of me (lit. my front)’
c	<i>nuu</i> ²¹ ‘your (sing.)’	+	<i>dzi</i> ²¹ ‘lower part’	→	<i>nuu</i> ²¹ <i>dzi</i> ⁴⁴	‘beneath you (lit. the part below you)’
	<i>nuu</i> ²¹ ‘your (sing.)’	+	<i>tɕo</i> ²¹ ‘direction’	→	<i>nuu</i> ²¹ <i>tɕo</i> ⁴⁴	‘to you (lit. your direction)’
	<i>nuu</i> ²¹ ‘your (sing.)’	+	<i>ŋi</i> ³³ ‘front’	→	<i>nuu</i> ²¹ <i>ŋi</i> ³³	‘in front of you (lit. your front)’

5. Conclusions

This study describes the segmental and suprasegmental phonology of Adur Niesu, a Loloish (or Ngwi) language spoken mainly in Liangshan, Sichuan, in southwest China. There are 41 phonemic consonants: nine plain plosives, three prenasalized plosives, eleven fricatives, four nasals, two laterals, nine affricates and three prenasalized affricates. Com-

pared with Nuosu, a close dialect of Adur Niesu, it lacks voiceless nasals /m/ and /n/. There are 10 monophthongs and one diphthong in Adur Niesu. A feature of Adur Niesu vowels is high vowel fricativization, occurring with the two high central vowels /i/ and /ɨ/, and the two high back vowels /u/ and /ɯ/. Adur Niesu's syllable structure is relatively simple. All are open syllables. The following segmental changes are reported: vowel lowering, vowel centralization, vowel assimilation, vowel fusion, consonant lenition, and aspiration of clanclets. It is common for Adur Niesu syllables to be reduced in continuous speech. There are three main types of syllable reduction: complete reduction including the segment and tone, partial reduction with a floating tone left, and partial reduction with the initial consonant left. There are three contrastive tones in Adur Niesu, namely, high-level tone 55, mid-level tone 33, and low-falling tone 21. There is also a sandhi tone 44. There are two types of tonal alternation: tone sandhi and tone change. Tone sandhi occurs at both the word and phrasal levels, and is conditioned by the phonetic environment; tone change occurs due to the morphosyntactic environment. Moreover, some seeming tonal alternation is the result of the floating tone after syllable reduction.

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Notes

¹ Abbreviations: 1: first person, 2: second person, 3: third person, ATT: attitudinal marker, CLF: classifier, CLNK: clause linker, COM: comitative, CONT: continuous, CSM: change of state marker, DEF: definite, DOM: differential object marker, DSC: discourse clitic, EXCL: exclusive, EXST: existential verb, IMPF: imperfective, INTJ: interjection, LOC: locative, LOG: logophor, NEG: negation, NF: non-final marker, NMLZ: nominalizer, P: patient, PFV: perfective, PL: plural, POSS: possessive, QUOT: quotative, REDPL: reduplication, REP: repetitive, SEQ: sequential marker, SG: singular, SP: second part

² It can refer to a grown-up animal, as long as it is some animal's offspring.

³ Adur Niesu resultative construction expresses the result happening to the affected entity, structured as affectee + instigator + complement clause, such as below. It does not follow the canonical SOV word order, but is construed in a topic-comment

	lɛ ²¹ bu ³³	ts ^h ɿ ³³	si ⁵⁵	dzuu ³³	o ⁴⁴ .
articulation.	cow:male	3SG	kill	eat	PFV

'He killed the ox and ate (it).'

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