# Phonology of T'ap'anta Abaza: examples from Inzhig-Chkun and Gumlokt

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# 1 Introduction

### 1.1 General information about Abaza

In this article I describe two varieties of Tapanta dialect of Abaza (ISO-639-3 abq, glottocode abaz1241) spoken in two villages in the Karachay-Cherkess Republic: Inzhig-Chkun (in Abaza /jənˈdʒəgʲ-tʃkˈwən/) and Krasniy Vostok (in Abaza /gwəmˈlokt/). Abaza is a language of the Abkhaz-Abaza group of Northwest Caucasian family of languages. After the Caucasian War (1817–1864) a lot of Abaza, Abkhaz, Ubykh and Adyghe people were forced either to resettle from higher mountains or to immigrate to the Ottoman Empire. As a result Abaza people were split into those who remain in Russia (mostly in the Karachay-Cherkess Republic, see Figure ?? created with lingtypology (Moroz 2017)) and who moved to Turkey. According to the 2010 Russian census, there are slightly less than 38 thousand speakers of Abaza in Russia. The exact number of speakers in other countries, mainly in Turkey (Chirikba 2012: 21–23), is unknown. The data analyzed in this study were collected in 2018, 2019 and 2021 during a field trip to the villages. Even though traditionally Abaza is treated as a separate language with two dialects T'ap'anta and Shkharawa (Genko 1955: 5–7; Tabulova 1976: 3–4; Lomthathidze 2006: 98), some of the researches consider Abkhaz and Abaza to be a dialect continuum (e. g. Hewitt 1979: 1; Colarusso 1988: 7–9; Chirikba 1996). However varieties of Inzhig-Chkun and Gumlokt belong to the same dialect, those lects have their own differences, e. g. Abaza language is /abaza bəzŝa/ in Inzhig-Chkun and /abaza bəzṣa/ in Gumlokt.

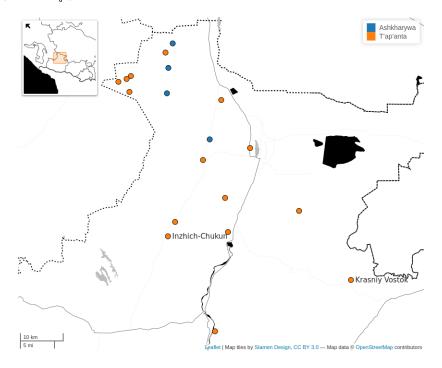


Figure 1: Abaza settlements of the Karachay-Cherkess Republic colored by the dialect (mostly based on (Chirikba 2020)). In Abazakt, Adyge-Khabl, Ersakon, Khumara, and Psauche-Dakhe Circassians are predominant. In Koydan Karachay are predominant.

# 1.2 State of research

Phonological inventory of Abaza can be found in multiple sources (Bouda 1940; Lomthathidze 1944, 2006; Genko 1955; Allen 1956; Tabulova 1976; Colarusso 1988; O'Herin 1992, 2021; Chirikba 1996; Arkadiev 2019), however more detailed phonological description is limited to (Bouda 1940; Lomthathidze 1944; Genko 1955; Catford 1972; Tabulova 1976; Colarusso 1988; Arkadiev 2019) and lack any acoustic analysis that appears just recently (Mamonova, Moroz 2019). It is also worth mentioning works by V. Chirikba (Chirikba 1985, 2020), where he provides data from huge amount of Abaza settlements, explores correspondences of post-alveolar sibilants among them and compare obtained data with data from Abkhaz and Adyghe.

# 2 Phonological inventory

### 2.1 Consonants

Phonological inventory of T'ap'anta is present in Table ??. I illustrate¹ consonant inventory with some examples in Appendix 1.

Table 1: Joint consonant system of Inzhig-Chkun and Gumlokt. Parenthesis denote the system that is common for Gumlokt, where the vast mojority of speakers use labialised post-alveolar segments.

	aspirated plosives	ejective plosives	voiced plosives	voiceless affricates	ejective affricates	voiced affricates	voiceless fricatives	voiced fricatives	nasals	approximant	tap	laterals
labial	p <sup>h</sup>	p'	b				f	v	m	w		
dental	th	ť'	d	ts	ts'	dz	S	Z	n			
alveolar											ſ	
post-alveolar (labialized)				tŝ(w)	tŝ'(w)	dâ(w)	ŝ(w)	$\hat{\mathbf{z}}(\mathbf{w})$				
retroflex				tş	tş'	$\mathrm{d}\mathrm{z}_{\!\scriptscriptstyle arphi}$	ş	z				
alveolo-palatal				tç	t¢'	dz	Ç	Z				
lateral												l lj
palatal	ch	c'	j				ç			j		
plain velar	kh	k'	g									
labialized velar	khw	k'w	gw				xw					
plain uvular	qh	q'					χ	R				
palatalized uvular		q' <sup>j</sup>					χ <sup>j</sup>	$\mathbf{R}_{\mathbf{j}}$				
labialized uvular	q <sup>hw</sup>	q'w					χ <sup>w</sup>	R <sub>M</sub>				
plain pharyngeal							ħ	ſ				
labialized pharyngeal							ħw	ςw				
glottal		?										

The main difference between Inzhig-Chkun and Gumlokt consonant systems is in post-alveolar consonants. All speakers of Inzhig-Chkun and some minority in Gumlokt use non-labialized post-alveolars (e. g. ŝ, see Figure ??). The majority of speakers in Gumlokt use labialised post-alveolars (e. g. ŝ<sup>w</sup>). Everything become even more complicated, since some post-alveolars in Inzhig-Chkun correspond to retroflex segments in Gumlokt. It looks like there is some proto-phonemes that merged together in most Abaza dialects except Gumlokt and Apsua (Ashkharywa dialect, (Lomthathidze 2006: 47, 445–446)): in Apsua in the same position labialized retroflex fricatives are observed (cf. ??-??).

## (1) ŝə (Inzhig-Chkun), sə (Gumlokt), swə (Apsua) — 'door'

 $<sup>^1</sup>$ In this work I will use two transcription systems. First system is my interpretation of Abaza phonology using IPA. Second is standard Abaza orthography. The IPA transcription used in this work differ from traditional Caucasian transcription, however Northwest Caucasian researchers still can retrieve desired information from orthographic correspondences. Unfortunately IPA alphabet still allows a lot of space for interpretation, so my system is differ from other recent phonological phonetic discriptions illustration of Northwest Caucasian languages (see (Gordon, Applebaum 2006; Andersson, Vaux, Pysipa (Şener) 2021)). I refuse to use symbols like  $\int$ ,  $\int$ ,  $\int$  or  $\partial$  one can find in the literature for special post-alveolars sounds present in all Northwest Caucasian and continue to use symbols  $\hat{\partial}$  after the following sources (Ladefoged, Maddieson 1996:  $\partial$  161– $\partial$ 4; Catford 1997; Testelets et al. 2009; Applebaum, Gordon 2011; Paschen 2015).

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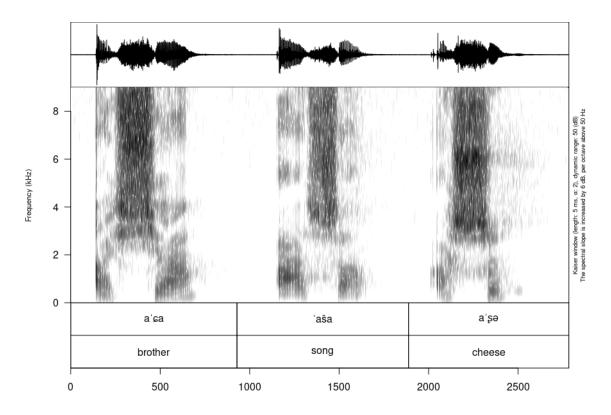


Figure 2: Fricatives by female speaker with non-labialised post-alveolars.

Presented examples show that the post-alveolar correspondences between Inzhig-Chkun and Gumlokt not predictable without Gumlokt or Apsua data (see Table ??), so I decided to collect some lexicon that could be useful for further historical and dialectal investigation (see Appendix 2).

Table 2: Post-alveolar correspondences between Inzhig-Chkun and Gumlokt.

	Inzhig-Chkun	minority in Gumlokt	majority in Gumlokt	orthography
bullock	tŝə	tŝə	tŝ <sup>w</sup> ə	чвы
apple	tŝ'a	tŝ'a	tŝ' <sup>w</sup> a	чІва
one person	zaˈd͡zə	zaˈdźə	zaˈd͡zwə	заджвы́
you (2pl)	ŝaˈra	ŝaˈɾa	ŝ <sup>w</sup> aˈɾa	швара́
cow	źә	źә	ź <sup>w</sup> ə	жвы
hay	tŝa	tşa	tşa	чва́
oak	d <b>z</b> tŝ'ə	dztş'ə	dztş'ə	джьчІвы
to go out	w'dâəlts'	wˈdzəlts'	wˈdzəlts'	уджвы́лцІ
door	ŝə	ŞӘ	Şə	ШВЫ
old	źә	zə	zə	жвы

It is worth mentioning that in (Chirikba 2020) based on different resources Vyacheslav Chirikba discovered even bigger variation. There are four sibilant subsystems in (ibid.: 27), however our field data support only two types: with labialised post-

alveolars (majority) and with non-labialised post-alveolars (minority). In order to check my hypothesis I performed small experiment asking 31 Gumlokt speakers (15 female and 16 male speakers) for two words:  $\hat{z}(w)$ 9 'cow' and  $t\hat{s}'(w)$ 9 'apple'. As I found indeed there is a variation across speakers I worked with, however only Gumlokt 2 (with labialised post-alveolars, 25 people) and Gumlokt 1 (with non-labialised post-alveolars, 6 people) sibilant subsystems from (ibid.) were attested (see Figure ??). It also visible from the experiment results that non-labialised post-alveolars are tend to appear in speach of older females, but this is just a preliminary result that should be checked with greater number of stimuli and speakers.

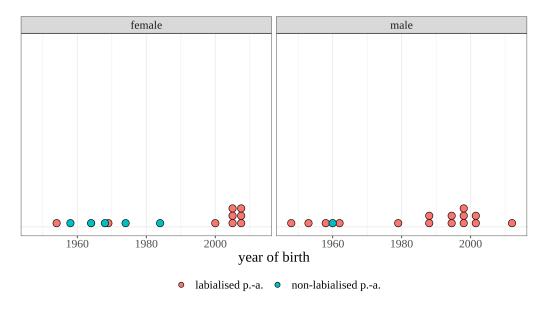


Figure 3: Results of experiment. Each dot represents one person colored by result and faceted by gender.

Except of my interpretation of alveolar and retroflex consonants (see the footnote on the page ??) the main difference between my phonological description and older ones is in the palatal area: I treat segments  $c^h$ , c', and  $\mathfrak{z}$  as palatal, however more traditional interpretation is palatalized velars:  $k^j$ , k', and  $\mathfrak{z}^j$ .

Articulation of labialization in T'ap'anta is different for different places of articulation (see (Catford 1972) for the similar observations for Abkhaz):

- $\cdot$  /w/-labialisation this kind of labialization is more or less independent of the main place of articulation. This kind of labialisation is typical for velar and uvular places fricatives and stops;
- · /u/-labialisation this kind of labialization is typical for pharyngeals. It looks like the tongue body is retracted (due to pharyngeal place of articulation) and raised, that results /u/-like sound;
- · /y/-labialisation this kind of labialization is typical only for post-alveolars in Gumlokt. The main place of articulation somehow merged with the additional place of articulation that produces a long hole for /y/-like sound.

There is also so called weaken labialised post-alveolars mentioned in literature (Chirikba 1985, 2020; Lomthathidze 1944), but we didn't noticed such sounds neither in Inzhig-Chkun nor Gumlokt.

## 2.2 Vowels

The vowel inventory traditionally analized as two core vowels a (low) and  $\vartheta$  (mid) (see (Bouda 1940; Lomthathidze 1944, 2006; Genko 1955; Allen 1956; Tabulova 1976; Colarusso 1988; O'Herin 1992, 2021; Chirikba 1996; Arkadiev 2019)). There are additional vowel colors that appear in numerous loanwords or due to contraction of vowel and glide (cf. ??-??):

- (3)  $i < \partial j$  or  $j\partial$ ;
- (4) e < aj;

- (5)  $u < \partial w$  or  $w\partial$ ;
- (6) o < aw.

In order to show vowel space I collected a list of monosyllabic words in Inzhig-Chkun and Gumlokt (see Appendix 3).

# 3 Stress

T'ap'anta Abaza stress was discussed in my unpublished report from previous expeditions and became a basis for (Arkadiev 2019). Unfortunately I've changed my opinion, so I will try to sum up my current opinion on the topic. Our stress model based on the ideas presented in (Dybo 1977; Spruit 1986).

Stress in Abaza is distinctive (see (??) and other examples in Appendix 4).

(7) saˈɾa 'I' vs. ˈsaɾa 'lamb'

Each Abaza morpheme (even borrowed) can be represented by combination of open syllables with vowel a or a. According to some test discussed bellow each syllable assigned to one of the accentual classes: dominant or recessive. The main stress rule is formulated in (Spruit 1986: 37–40): stress falls on the first D element followed by R or word boundary (see () and ...), otherwise stress is on the first syllable (see ...).

# Appendix 1: List of consonant examples

Example words for consonants from Table ??. First example before slash is from Inzhig-Chkun and some speakers from Gumlokt, example after slash are common for most speakers from Gumlokt.

trans	cription orth	nography translation		
p <sup>h</sup> a	па	son		
p'aj	пІай	dirt		
ba	ба	you (2sgf)		
fa'ra	фара́	to eat		
ma	ма	here you are (giving something)		
wa	ya	you (2sgm)		
't <sup>h</sup> aba	та́ба	frying pan		
't'at'a	тІа́тІа	soft		
da	да	tendon		
tsa	ца	barn		
ts'a	цІа	louse		
dza	дза	rib		
sa	ca	I		
'Swaza	гІва́за	twins		
na'Sa	нагІа́	slope		
ba'ra	бара́	you (2sgf)		
tŝa / tŝ <sup>w</sup> a	чва	skin		
tŝ'a / tŝ'wa	чІва	apple		
dâa'ra / dâwa'ra	джвара́	vomiting		
ŝa / ŝ <sup>w</sup> a a'ŝa / a'ŝ <sup>w</sup> a	шва ажва́	you (2pl) word		
tṣaba	ажва тша́ба	gelding		
	шІа	mouth		
tş'a 'pʰadza	паджа	firstborn		
sa'ba	шаба	dried-up		
'zac'a	жа́кІьа	beard		
tça'ra	чара́	to eat		
'tç'atç'a	чIáчIa	kidney		
'dzadza	джьа́джьа	curly		
ça	ща	blood		
zaˈra	жьара́	to deceive		
la	ла	dog		
l <sup>j</sup> a'g <sup>j</sup> an	льагьан	basin		
'mac <sup>h</sup> a	ма́кьа	grindstone		
'c'ana	кІьа́на	lump		
' <del>j</del> aba	гьа́ба	(body) side		
'çap <sup>h</sup> ad	тлапа́д	stocking		
ja'ra	йара́	he (3sgm)		
k <sup>h</sup> ət <sup>h</sup>	КЫТ	village		
k'aˈra	кІара́	something		
'gara	га́ра	cradle		
khwa	ква	rain		
k'wa	кІва	bosom		
g <sup>w</sup> a'ban	гваба́н	mattress		
'x <sup>w</sup> at <sup>h</sup> a	хва́та	rug		
q <sup>h</sup> a	хъа	head		

	transcript	ion	orth	ography	translation		
q'aˈla	Къ	ала́	•	town			
χaˈra	xaj	ρá		to give a	present		
<sub>r</sub> rara	Гъа	а́гъа		broad, v	vide		
'q' <sup>j</sup> ara	къ	ьара́		to wave			
χ <sup>j</sup> a'ra	ХЬа	apá		to give l	oirth		
к <sup>j</sup> a'sа	Гъ	гъьаса́		nutwoo	od		
q <sup>hw</sup> a	ХЪ	хъва		ashes			
q'wa'ra	къ	вара́		to stay too long			
χ <sup>w</sup> a	хва	a		mountain			
tŝwa'uwa	чва	агъва	á	ploughed up			
ћа	xIa	1		we			
a'Sa	агІ	агIá		raw leather			
ћ <sup>w</sup> а	xIE	хІва		pig			
۲wa	гІв	гІва		dry			
a'?aca	аъ	а́ща		situation			

# Appendix 2: Post-alveolar/retroflex correspondences to Inzhig-Chkun's post-alveolars in Gumlokt

zaˈd²wa         заджвы         one person           d²wd²wa         джвджвы         saliva           had²w         хłаджв         stack           \$wa'ra         швара́         you           alarśwa'ra         аларшвара́         to tum on           'aśwa         ашва         song           gwlaśw         гвлашв         indifferent           'jaśwa         гъашв         orphaned           k'aśwa'ra         кłaшвара́         to fall           k'wrośw         кврышв         patch           laśw         лашв         blind           maratha'śwartha         мараташва́рта         west           nab'saśw         набгъ́шв         one year old foal           phośwth amamk'wa         пышва тамікав         without break           wo'dzośwa         удамийва         green           wo'dzośwa         удамийва         green           wo'aśwa         унашва         food (cooked)           ts'a'śwa         цашва         trump card           'śwapa         цвабъж         urample           'śwapa         цвабъж         very           'śwapa         швабъж         urample           'śwapa         <	transcri	iption orthography	translation		
d2wd2wo         джвджвы         saliva           had2w         хlаджв         stack           %wa'ra         швара         you           alarswa'ra         аларшвара         to tum on           'aswa         а́шва         song           gwlasw         гвлашв         indifferent           'jaswa         гъа́шва         orphaned           k'aswa'ra         кlaшвара́         to fall           kwrosw         кврышв         patch           lasw         лашв         blind           maratha'swartha         мараташва́рта         west           nab'asw         набтъа́шв         one year old foal           phoswth amamk'wa         набтъа́шв         without break           wa'aswa         уна́шва         green           wa'naswa         уна́шва         green           wa'naswa         уна́шва         advice           qhswa         хъвшва         food (cooked)           ts'a'swa         цвабъъх         very           'swapxa         швабъх         very           'swapxa         швабъх         Monday           swwoch         швара         fruit           swapxa         шва					
8wa'ra         швара́         you           alarswa'ra         аларшвара́         to turn on           'aśwa         áшва         song           gwlaśw         гвлашв         indifferent           jaśwa         гъашва         orphaned           k'aśwa'ra         кашвара́         to fall           kwrośw         кврышв         patch           laśw         лашв         blind           maratha'śwartha         мараташва́рта         west           nab'ваśw         набтъа́шв         one year old foal           phośwth amamk'wa         пышва without break           wo'dzośwa         удзыйва         green           wa'naśwa         уна́шва         advice           qhśwa         хъвшва         food (cooked)           ts'a'śwa         удзыйва         green           wa'naśwa         уна́шва         trump card           ts'a'śwa         ува́йа         trump card           ts'a'śwa         цва́быж         very           'śwapza         шва́быж         very           'śwapza         шва́быж         very           'śwapza         шва́быж         very           'śwapza         шва́быж	dâwdâwə		_		
alarswa'ra         аларшвара́         to turn on           'aswa         áшва         song           gwlasw         гвлашв         indifferent           'jaswa         гълашв         orphaned           k'aswa'ra         кlaшвара́         to fall           kwrosw         кврышв         patch           lasw         лашв         blind           maratha'swartha         мараташва́рта         west           nab'ваsw         набгъ́ашв         one year old foal           phoswh amamk'wa         набгъ́ашв         without break           wo'dzoswa         удзыц́ва         green           wa'dzoswa         удзыц́ва         green           wa'dzoswa         уна́шва         advice           qh'swa         уна́шва         driout break           wa'dzoswa         удзыц́ва         green           wa'dzoswa         удзыц́ва         green           wa'dzoswa         удзыц́ва         green           wa'jaswa         уна́шва         advice           g'swabza         шва́къа         wery           'swabza         шва́къа         Monday           swar         шва́къа         Monday           swar	ħadâ <sup>w</sup>	хІаджв	stack		
'aswa         áшва         song           gwlasw         гвлашв         indifferent           'jaswa         гъашв         orphaned           k'aswa'ra         кlaшвара́         to fall           kwrosw         кврышв         patch           lasw         лашв         blind           maratha'swartha         мараташва́рта         west           nab'asw         набтъа́шв         one year old foal           phswa         набтъа́шв         one year old foal           phswa         набтъа́шв         one year old foal           phswa         набтайшв         one year old foal           phswa*         нашва         food (cooked)           ts'a*         набтайшв         trump card           'swaya         швабьа         wery           'swaya         швайсы <t< td=""><td></td><td>швара́</td><td>you</td></t<>		швара́	you		
aswa         áшва         song           gwlasw         гвлашв         indifferent           'jaswa         гъашва         orphaned           k'aswa'ra         кlaшвара́         to fall           kwrəsw         кврышв         patch           lasw         лашв         blind           maratha'swartha         мараташва́рта         west           nab'ваsw         набгъа́шв         one year old foal           phoswth amamk'wa         набгъа́шв         one year old foal           phoswth amamk'wa         nusums advice           wo'naśwa         удэыйва         green           wo'naśwa         уна́шва         advice           qhśwa         хъвшва         food (cooked)           ts'a'swa         цашва         trump card           'swapa         швабыж         very           'swapa         швабыж         very           'swapa         швабыж         very           'swapa         швахьа́         Monday           swwoch         швахьа́         Monday           swar         швыр         fruit           sa         айша         traditional table           iajsa         айша         bitte	alarŝ <sup>w</sup> a'ra	аларшвара́	to turn on		
jaŝwa         гъа́шва         orphaned           k'aŝwa'ra         кlашвара́         to fall           kwroŝw         кврышв         patch           laŝw         лашв         blind           martha'ŝwartha         мараташва́рта         west           nab'saŝw         набгъа́шв         one year old foal           phoŝwth amamk'wa         ива́макива         without break           wo'dzoŝwa         удзышва         green           wo'dzoŝwa         удзышва         green           wo'naŝwa         уна́шва         advice           qh'ŝwa         хъвшва         food (cooked)           ts'a'ŝwa         цашва́         trump card           'ŝwaboz         шва́быж         very           'ŝwaboz         шва́быж <td>'aŝ<sup>w</sup>a</td> <td></td> <td>song</td>	'aŝ <sup>w</sup> a		song		
k'aswa'ra         кІашвара́         to fall           kwrasw         кврышв         patch           laśw         лашв         blind           maratha'swartha         мараташва́рта         west           nab каśw         набгъа́шв         one year old foal           phswth amamkwa         пышвт ама́мкІва         without break           wo'dzoswa         удзы́шва         green           wo'naśwa         уна́шва         advice           qhswa         хъвшва         food (cooked)           ts'a'śwa         цашва́         trump card           'śwabz         швабыж         very           'śwabz         швабыж         very           'śwapya         швайы         trump card           'śwapya         швайы         trump card           'śwapya         швайха         very           'śwapya         швайха         wery           'śwapya         швайха         wery           'śwapya         швайха         Monday           śwwoch         швыр         fruit           ga         шы         door           a'jsa         айша         traditional table           'ajsa         айша	g <sup>w</sup> laŝ <sup>w</sup>	гвлашв	indifferent		
kwrośw кврышв patch laśw лашв blind maratha'śwartha мараташва́рта west nab'ваśw набгъа́шв one year old foal phośwth amamk'wa пышвт ама́мкІва without break wo'dzośwa удзы́шва green wo'naśwa уна́шва douce qhśwa хъвшва food (cooked) ts'a'śwa ціашва́ trump card 'śwaboz шва́быж very 'śwapya шва́таха ехатріе 'śwapya шва́таха молdау śwwoch швуокъ дип śwor швыр fruit sə шы door a'ṣə ашы́ cheese aj'ṣa айша́ traditional table 'ajṣa айша bitter bza'ṣə бжашы́ not fully painted sk'ə шкІы hundred bəz'ṣa бызша́ language gwaṣ гваш даtе la'ṣan лаша́н time for weeding mṣə мшы bear rṣa'ra ршара́ to scare nəṣ ныш clay tharaṣ тара́ш даtе qhwṣə хъвшы medicine qhəs хъвшы medicine qhəs хъвшы medicine ga'a шпаа фансара факуа шагівы́ fearful gaga'la шагаа́ раск оf jackal mya numal sp'a шпаа фосшент sər шыр апітаl ts'wa чіва арріе amts'tŝ'wa'ra мицчвара́ to rob	' <del>j</del> aŝ <sup>w</sup> a	гьа́шва	orphaned		
laŝw         лашв         blind           maratha'ŝwartha         мараташва́рта         west           nab'ваŝw         набъъ́шв         one year old foal           phoŝwth amamk'wa         пышвт ама́мкІва         without break           wo'azoŝwa         удзышва         green           wo'naŝwa         уна́шва         advice           qhswa         хъвшва         food (cooked)           ts'a'swa         цІашва́         trump card           'ŝwaboz,         швабъьж         very           'ŝwapxa         шва́тха         example           'ŝwapxa         швальа́         Monday           \$wwoch         швальа́         Monday           \$wwoch         швыр         fruit           \$a         ра         шы           door         a'ga         ашы           a'ga         ашы         cheese           aj'ga         айша         bitter           bza'ga         бжашы́         not fully painted           'ga'ga         бжашы́         not fully painted           'ga'ga         бжашы́         language           gwaş         гваш         gate           la'gan         лаша́	k'aŝ <sup>w</sup> aˈɾa	кІашвара́	to fall		
maratha'swartha         мараташва́рта         west           nab'ва\$w         набгъа́шв         one year old foal           phoswth amamk'wa         пышвт ама́мкІва         without break           wo'dzo\$wa         удзыйва         green           wo'na\$wa         уна́шва         advice           qhswa         хъвшва         food (cooked)           ts'a'swa         цІашва́         trump card           '\$wabaz,         швабыж         very           '\$wapxa         шва́тха         example           '\$wapxa         шва́тха         cheese           aj'ya         айша         bitter           baz'	k <sup>w</sup> rəŝ <sup>w</sup>	кврышв	patch		
nab'ва\$"         набгъа́шв         one year old foal           ph-98'wth amamk'wa         пышвт ама́мкІва         without break           wo'dzə\$"a         удзыйва         green           wo'na\$"a         уна́шва         advice           qh'8"a         хъвшва         food (cooked)           ts'a'\$"a         цІашва́         trump card           '\$"abəz         шва́быж         very           '\$"apxa         шва́пха         example           '\$"apxa         шва́пха         door           a'ja         айша         bitter           bza'sa         байша         bitter           bza'sa         быша         gate           парша         gat	laŝ <sup>w</sup>	лашв	blind		
ph-sswth amamk'wa         пышвт ама́мкІва         without break           wo'dzəswa         удзы́шва         green           wo'naswa         уна́шва         advice           qhswa         хъвшва         food (cooked)           ts'a'swa         цІашва         trump card           'swabəz         швабыж         very           'swapxa         шва́тха         example           'swapxa         шкіь         cheese           aj'sa         айша         bitter           baz'sa         быша         language           gwaş         гваш         gate           la'gan         лаша́н         time for weeding           msa         rapaíш	marat <sup>h</sup> a'ŝ <sup>w</sup> art <sup>h</sup> a	мараташва́рта	west		
wə'naśwa         удаышва         green           wə'naśwa         уна́шва         advice           qh³wa         хъвшва         food (cooked)           ts'a'śwa         цІашва́         trump card           'śwabəz         швабыж         very           'śwapxa         швабыж         very           'śwapxa         швахьа́         Monday           śwapxa         шватьа         door           śwapxa         швыр         fruit           şə         шы         door           a'şə         ашы́         traditional table           'a'şə         ашы́         traditional table           'ajşa         айша         bitter           baz'şə         бжашы́         not fully painted           şk'ə         шкІы         hundred           baz'şa         бызша         language           gwaş         гваш         gate           паў         мшы         bear           гра'га	nap <sub>,</sub> raţ <sub>m</sub>	набгъа́шв	one year old foal		
wə'naśwa         уна́шва         advice           qhśwa         хъвшва         food (cooked)           ts'a'śwa         цашва         trump card           'śwabəz         швабыж         very           'śwapxa         швахьа         Monday           śwayła         швахьа         Monday           śwoch         швыр         fruit           ga         шы         door           a'ṣa         ашы́         cheese           aj'ṣa         айша         bitter           baa'ṣa         бжашы́         traditional table           'ajṣa         айша         bitter           baa'ṣa         бжашы́         not fully painted           gk'a         шкы         hundred           baz'ṣa         бызша         language           gwaṣ         гваш         gate           la'ṣan         лаша́         time for weeding           mṣa         мшы         bear           rṣa'ra         ршара́         to scare           naṣ         ныш         clay           tharaş         тара́ш         gate           qhwṣa         хъвшы         window           teaş         чаш<	p <sup>h</sup> əŝ <sup>w</sup> t <sup>h</sup> amamk' <sup>w</sup> a	пышвт ама́мкІва	without break		
qh&wa         хъвшва         food (cooked)           ts'a'\$wa         цІашва́         trump card           '\$wabəz         шва́быж         very           '\$wapya         шва́быж         very           \$wapya         шва́быж         Monday           \$wapya         пвы фоог         traditional table           bitter         cheese         amы́ traditional table           bitter         bōteese         amы́ traditional table           bitter         bōteese         amы́ traditional table           bitter         bōteese         amuritional table           baz'sa         бжшы         not fully painted           baz'sa         бжшы         gate           baz'sa         паш         gate           baz'sa <t< td=""><td>wəˈdzəŝʷa</td><td>удзыш́ва</td><td>green</td></t<>	wəˈdzəŝʷa	удзыш́ва	green		
ts'a'swa         цІашва́         trump card           'swabəz         шва́быж         very           'swapxa         шва́йха         example           'swayla         швальа́         Monday           swoch         швыр         fruit           şə         шы         door           a'şə         ашы́         cheese           aj'ga         айша         bitter           bajşa         абашы́         language           ga'şa         бызша         language           gwaş         гваш         gate           la'şan         лаша́н         time for weeding           mşa         мшы         bear           rşa'ra         ршара́         to scare           nəş         тыш         gate           qhwşs         хъвшы         window	wəˈnaŝʷa	уна́шва	advice		
'ŝwabəz         шва́быж         very           'ŝwayla         шва́пха         example           'ŝwayla         швахьа́         Monday           ŝwoch         швыр         fruit           ge         шы         door           a'ṣə         ашы́         cheese           aj'ga         айша         bitter           baj'ga         айша         bitter           baj'ga         айша         bitter           baj'ga         бжашы́         not fully painted           k'ajga         бжашы́         language           gwag         гваш         gate           la'yaa         гваш         gate           la'yaa         гваш         gate           гра'га         ршара́         to scare           пър         ныш         clay           tharas         тара́ш         gate           qhwsp         хъвшы         medicine           qhaysp         хъвшы         patty           ga'yaa	q <sup>h</sup> ŝ <sup>w</sup> a	хъвшва	food (cooked)		
'ŝwapxa         шва́пха         example           'ŝwaxja         швахьа́         Monday           ŝwacoch         швуокь         gun           ŝwac         швыр         fruit           ga         шы         door           a'ṣa         aшы́         cheese           aj'ṣa         aйша         bitter           bza'ṣa         бжашы́         not fully painted           ķ'a         шкы         hundred           baz'ṣa         бызша         language           gwaş         гваш         gate           la'ṣan         лаша́н         time for weeding           mṣa         мшы         bear           rṣa'ra         ршара́         to scare           nəṣ         ныш         clay           tharaş         тара́ш         gate           qhwṣa         хъвшы         medicine           qhaş         хъвшы         medicine           qhaşa         хъвшы         medicine           qhaşa         хъвшы         medicine           qhaşa         хъвшы         medicine           qhaşa         хъвшы         patty           saga'la         шагала́ <t< td=""><td>ts'a'ŝ<sup>w</sup>a</td><td>цІашва́</td><td>trump card</td></t<>	ts'a'ŝ <sup>w</sup> a	цІашва́	trump card		
'\$waxia         швахьа́         Monday           \$woch         швуокь         gun           \$war         швыр         fruit           \$a         шы         door           a'şa         aшы́         cheese           aj'ga         aйша         bitter           bza'şa         бжашы́         not fully painted           k'a         шкІы         hundred           baz'şa         бызша         language           gwaş         гваш         gate           la'şan         лаша́н         time for weeding           mşa         мшы         bear           гşa'ra         ршара́         to scare           naş         ныш         clay           tharaş         тара́ш         gate           qhwga         хъвшы         medicine           qhaya         хъвшы         pack of jackal           кр'a         шпа <td< td=""><td>'ŝ<sup>w</sup>abəz<sub>t</sub></td><td>шва́быж</td><td>very</td></td<>	'ŝ <sup>w</sup> abəz <sub>t</sub>	шва́быж	very		
8 woch         швыр         fruit           8 ог         швыр         fruit           8 ог         шы         door           а'şə         ашы         cheese           аj'şа         айша         bitter           'ajşa         айша         bitter           bza'şə         бжашы         not fully painted           ķk'ə         шкlы         hundred           bəz'şa         бызша         language           gwaş         гваш         gate           la'şan         лашан         time for weeding           mşə         мшы         bear           гşa'ra         ршара́         to scare           nəş         ныш         clay           tharaş         тара́ш         gate           qhwşə         хъвшы         medicine           qhəş         хъвшы         medicine           qhəş         хъвшы         medicine           qhəş         хъвшы         medicine           qhəş         хъвшы         patty           şa'Ya         шагівы         fearful           şaya         шыр         animal           tb'wa         шыр         animal <td>'ŝ<sup>w</sup>apχa</td> <td>шва́пха</td> <td colspan="2"><b>.</b></td>	'ŝ <sup>w</sup> apχa	шва́пха	<b>.</b>		
\$ в в в в в в в в в в в в в в в в в в в	'ŝ <sup>w</sup> aχ <sup>j</sup> a	швахьа́	Monday		
§ә         шы         door           а'şә         ашы́         cheese           аj'şа         айша         bitter           'ajşа         айша         bitter           bza'şə         бжашы́         not fully painted           şk'ə         шкlы         hundred           bəz'şa         бызша́         language           gwaş         гваш         gate           la'şan         лаша́н         time for weeding           mşə         мшы         bear           гşa'ra         ршара́         to scare           nəş         ныш         clay           tharaş         тара́ш         gate           qhwşə         хъвшы         medicine           qhaş         хъвшы         window           teaş         чаш         patty           şa'fwə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпа         document           şər         шыр         animal           t6'wa         чІва         apple           amts'tŝ'wa'ra         амц/чва         to rob	ŝ <sup>w</sup> woc <sup>h</sup>	швуокь	gun		
а'§ә ашы́ сheese аj'şа айша traditional table 'ajṣa áйша bitter bza'ṣə бжашы́ not fully painted  ṣk'ə шкІы hundred bəz'ṣa бызша́ language gwaṣ гваш gate la'ṣan лаша́н time for weeding mṣə мшы bear rṣa'ra ршара́ to scare nəɛ ныш clay tharaṣ тара́ш gate qhwṣə хъвшы medicine qhəɛ хъыш window tcaɛ чаш patty ṣa'Ywə шагІвы́ fearful ṣaga'la шагала́ pack of jackal ṣp'a шпІа thick ṣʔa шьа document ṣər шыр animal ts'wa чІва аррlе аmts'tŝ'wa'ra амцІчІвара́ to rob	îwər	швыр	fruit		
аj'şа айша bitter bza'şə бжашы́ not fully painted gk'ə шкІы hundred bəz'şa бызша́ language gwaş гваш gate la'şan лаша́н time for weeding mşə мшы bear гçа'га ршара́ to scare пәҳҳ тара́ш gate th'araҳҳ тара́ш gate qh'wҳъ хъыш medicine qh'əҳҳ хъыш window tcaҳҳ чаш patty ξa'Ywə шагІвы́ fearful ҳaga'la шагала́ pack of jackal ҳр'a шпІа thick ҳҳҳ шыр animal ttò'wa чІва аррlе аmts'tŷ'wa'ra амцІчІвара́ to rob	şə	шы	door		
'ajṣa         áйша         bitter           bza'ṣə         бжашы́         not fully painted           şk'ə         шкІы         hundred           bəz'ṣa         бызша́         language           gwaṣ         гваш         gate           la'ṣan         лаша́н         time for weeding           mṣə         мшы         bear           rṣa'ra         pшapá         to scare           nəṣ         ныш         clay           tharaṣ         тара́ш         gate           qhwṣə         хъышы         medicine           qhəş         хъыш         window           tcaṣ         чаш         patty           şa'Ywə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпа         thick           şa'a         шта         document           şər         шыр         animal           tb'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	aˈşə	ашы́	cheese		
bzaˈṣə         бжашы́         not fully painted           şk'ə         шкІы         hundred           bəzˈṣa         бызша́         language           gwaṣ         гваш         gate           laˈṣan         лаша́н         time for weeding           mṣə         мшы         bear           rṣaˈra         pшapа́         to scare           nəṣ         ныш         clay           tʰaraṣ         тара́ш         gate           qʰwṣə         хъвшы         medicine           qʰəṣ         хъвшы         window           tcaṣ         чаш         patty           ṣa'ſwə         шагІвы́         fearful           ṣaga'la         шагала́         pack of jackal           ṣp'a         шпІа         thick           ṣʔa         штьа         document           ṣər         шыр         animal           tb'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	ajˈşa	айша́	traditional table		
gk'ə         шкІы         hundred           bəz'şa         бызша         language           gwaş         гваш         gate           la'şan         лашан         time for weeding           mşə         мшы         bear           rşa'ra         ршара         to scare           nəş         ныш         clay           tharaş         тараш         gate           qhwşə         хъвшы         medicine           qhəş         хъвшы         window           tcaş         чаш         patty           şa'Twə         шагІвы         fearful           şaga'la         шагала         pack of jackal           şp'a         шпІа         thick           ş7a         шта         document           şər         шыр         animal           t5'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	'ajşa	а́йша	bitter		
bəz'şa         бызша         language           gwaş         гваш         gate           la'şan         лашан         time for weeding           mşə         мшы         bear           гşа'га         ршара         to scare           nəş         ныш         clay           tharaş         тараш         gate           qhwşə         хъвшы         medicine           qhəş         хъыш         window           tcaş         чаш         patty           şa'Ywə         шагІвы         fearful           şaga'la         шагала         pack of jackal           şp'a         шпІа         thick           ş7a         шта         document           şəг         шыр         animal           t5'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	bza'şə	бжашы́	not fully painted		
gwaş         гваш         gate           la'şan         лаша́н         time for weeding           mşə         мшы         bear           rşa'ra         ршара́         to scare           nəş         ныш         clay           tharaş         тара́ш         gate           qhwşə         хъвшы         medicine           qhəş         хъыш         window           tcaş         чаш         patty           şa'Ywə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпіа         thick           ş?a         штьа         document           şər         шыр         animal           t5'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	şk'ə	шкІы	hundred		
la'şan         лаша́н         time for weeding           mşə         мшы         bear           rşa'ra         ршара́         to scare           nəş         ныш         clay           tharaş         тара́ш         gate           qhwşə         хъвшы         medicine           qhəş         хъыш         window           tcaş         чаш         patty           şa'Ywə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпІа         thick           ş?a         шта         document           şər         шыр         animal           t5'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	bəz'şa	бызша́	language		
тра         мшы         bear           гра'га         ршара́         to scare           пэр         ныш         clay           thагар         тара́ш         gate           qhwpa         хъвшы         medicine           qhap         хъвшы         window           tcap         чаш         patty           ga'fwa         шагІвы́         fearful           saga'la         шагала́         pack of jackal           gp'a         шпІа         thick           gra         штьа         document           sər         шыр         animal           tb'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	g <sup>w</sup> aş	гваш	Ü		
гṣa'ra ршара́ to scare пәқ ныш clay tharaқ тара́ш gate qhwқр хъвшы medicine qhәқ хъвшы window tсақ чаш раtty қа'fw шагІвы́ fearful қада'la шагала́ раск оf jackal қр'а шпІа thick қ?а шыр апітаl tѣ'wa чІва арріе атts'tŝ'wa'ra амцІчІвара́ to rob	laˈṣan	лаша́н	time for weeding		
пә§         ныш         clay           tʰaraş         тара́ш         gate           qʰwgə         хъвшы         medicine           qʰəş         хъвшы         window           tcaş         чаш         patty           şa'ʃwə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпІа         thick           şʔa         штьа         document           şər         шыр         animal           tŝ'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	mşə	мшы	bear		
tharaş         тара́ш         gate           qhwşə         хъвшы         medicine           qhəş         хъыш         window           tcaş         чаш         patty           şa'Swə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпІа         thick           ş?a         штьа         document           şər         шыр         animal           tŝ'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	rşa'ra	ршара́	to scare		
qhwgə         хъвшы         medicine           qhəg         хъыш         window           tcag         чаш         patty           ga'Ywə         шагІвы         fearful           şaga'la         шагала         pack of jackal           gp'a         шпІа         thick           g?a         шъа         document           şər         шыр         animal           tŝ'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	nəş	ныш	clay		
qhəş         хъыш         window           tcaş         чаш         patty           şa'fwə         шагІвы́         fearful           şaga'la         шагала́         pack of jackal           şp'a         шпІа         thick           şʔa         шъа         document           şər         шыр         animal           tŝ'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	t <sup>h</sup> araş	тара́ш	gate		
tcaş         чаш         patty           şa'ſwə         шагӀвы́         fearful           şaga'la         шагала́         pack of jackal           sp'a         шпІа         thick           şʔa         штьа         document           şər         шыр         animal           tŝ'wa         чІва         apple           amts'tŝ'wa'ra         амцІчІвара́         to rob	q <sup>hw</sup> şə	ХЪВШЫ	medicine		
ga'SwəшагІвы́fearfulşaga'laшагала́pack of jackalşp'aшпІаthickş?aштьаdocumentşərшырanimaltŝ'waчІваappleamts'tŝ'wa'raамцІчІвара́to rob	q <sup>h</sup> əş	хъыш	window		
şaga'la шагала́ pack of jackal şp'a шпІа thick ş?a шъа document şər шыр animal tŝ'wa чІва apple amts'tŝ'wa'ra амцІчІвара́ to rob	tcaş	чаш	patty		
§р'ашпІаthick§?ашъаdocument§әгшырanimaltŝ'waчІваappleamts'tŝ'wa'raамцІчІвара́to rob		шагІвы́	fearful		
§р'ашпІаthick§?ашъаdocument§әгшырanimaltŝ'waчІваappleamts'tŝ'wa'raамцІчІвара́to rob	şaga'la	шагала́	pack of jackal		
şər шыр animal tŝ'wa чІва apple amts'tŝ'wa'ra амцІчІвара́ to rob	şp'a	шпІа	thick		
tŝ'wa чIва apple amts'tŝ'wa'ra амцІчІвара́ to rob	şʔa	шъа	document		
amts'tŝ'wa'ra амцІчІвара́ to rob	şər	шыр	animal		
' 1	tŝ' <sup>w</sup> a	чІва	apple		
I h Ave	amts'tŝ'wa'ra	амцІчІвара́	to rob		
a q <sup>n</sup> ats <sup>w</sup> ra axъачівра to stitch	a'q <sup>h</sup> atŝ <sup>w</sup> ra	ахъа́чІвра	to stitch		

transcr	iption orthography	y translation
jaˈtŝʷa	йачІва́	star
jaˈtŝ' <sup>w</sup> a	йачІва́	grey
k <sup>w</sup> ajˈtŝ' <sup>w</sup> a	квайчІва́	black
mətş'w	мычІв	shy
p <sup>h</sup> ətŝ' <sup>w</sup>	пычІв	initial
waˈtŝ'ʷə	уачІвы́	tomorrow
tŝ' <sup>w</sup> ra	чІвра	to turn sour
tŝ'wə	чІвы	bolt
tŝ <sup>w</sup> ə	чвы	bullock
ˈtŝʷa͡zʷaɾa	чва́жвара	to speak
an'tŝ <sup>w</sup> az	анчва́жь	birthmark
'aq <sup>h</sup> atŝ <sup>w</sup> açara	а́хъачващара	to find respectable
a'tŝ <sup>w</sup> ədzra	ачвы́дзра	to lose something
bnatŝ <sup>w</sup>	бначв	aurochs
tŝ <sup>w</sup> a	чва	skin
tŝ <sup>w</sup> ra	чвра	to cut (wood)
tŝ <sup>w</sup> a	чва	color
dzətŝ <sup>w</sup>	дзычва	swan
ĉ <sup>w</sup> tŝ <sup>w</sup> a	жвчва	overdone (about food)
ˈq'ətŝ <sup>w</sup> ga	къы́чвга	hatchet
ma'tŝ <sup>w</sup> ə	мачвЫ	finger
ma'tŝ <sup>w</sup> əsra	мачвы́сра	glare (about lightning)
an'tŝ <sup>w</sup> a	анчва́	God
'nətŝ <sup>w</sup> a	ны́чва	hemp
p <sup>h</sup> ərtŝ <sup>w</sup>	пы́рчв	mane
ˈpsatŝ <sup>w</sup> ja	пша́чвгьа	strong wind
tŝ <sup>w</sup> a'ra	чвара́	dream
tʕaˈtŝʷa, tħaˈtŝʷa	тгІачва́, тхІачва́	family
q <sup>h</sup> ətŝ <sup>w</sup>	хъы́чв	bird comb
tŝ <sup>w</sup> a	чва	skin
tŝ <sup>w</sup> a'ba	чваба	wax
tŝ <sup>w</sup> a'ħ <sup>w</sup> a	чвахІва́	stripe
tŝwbza	чвбза	lover
tŝ <sup>w</sup> ja	чвгьа	evil
tŝ <sup>w</sup> c <sup>h</sup> ac	чвкьа́щ	shabby
tŝ <sup>w</sup> ts'a'ra	чвцІара́	to scatter
tŝ <sup>w</sup> əs	чвыш	pale
alar'tşa	алартшА	alloyed
la'tşa	латшА	ferment
ma'tşa	матшА	dishes
psla'tṣa	пслатша	fish
'ak <sup>w</sup> tşaga	а́квтшага	watering-pot
t <sup>h</sup> atṣaˈɾa	татшара́	to pour
tşa	тша	hay
atş'şa'ra	ашІшарА	to be afraid of
'ak <sup>hw</sup> tş'ara	áквшIара	to sit down
aˈtʂ'əja	ашІы́йа	what
bəlˈtṣ'ə	былшІы	fuel
dztę'ə	джьшІы	oak
nq'wga'tş'ə	нкъвгашІы́	sick person
ուզ ցաւթ թ	TIK DDI GHIIDI	otek person

•	transcription	orthography	translation
pssSa'tş'ə	пссгІ	ашІы́	bird
χa'tṣ'ə	хашІ	ы́	task
ĉwә	жвы		cow
aˈâʷa	ажва́		word
baŝ <sup>w</sup>	бажв		abundant
ˈgʷə̂zwk'ɾa	кыат	квкІра	to be angry
ĉ <sup>w</sup> ba	жвба		nine
ĝwʕwa'qʰa	жвгІ	вахъа́	shoulder
ĝ <sup>w</sup> Ῡ <sup>w</sup> a	жвгІ	за	cow that didn't gave birth
ĝwςwand	жвгІ	занд	sky
âwp'a	квпІ	a	thick
ź <sup>w</sup> rа	жвра	l	drink
źwts'ə	жвцІ	ы	swallow
ts'əâw	кыІр	СВ	tick
χts'əź <sup>w</sup>	хцІы	жв	accidental bullet
'tŝ <sup>w</sup> aĉ <sup>w</sup> ara	чва́ж	вара	to speak
ˈcaźwəʕw	ща́жі	выгІв	bloodsucker
p <sup>h</sup> əâ <sup>w</sup> 'bana	пыж	вба́на	hedgehog
ź <sup>w</sup> ra	жвра	ı	to boil, to drink
â <sup>w</sup> tŝ <sup>w</sup> a	жвчв	a	overdone (about food)
a'zə	ажы		old
'Satş'zara	гІа́ш	Іжара	to tear off
za'ba	жаба́		ten
'zzaga	жжа́і	ra	harrow
thaz <sub>t</sub>	таж		grandmother
wasa'raz <sub>t</sub>	yacaı	эаж	wise
wzə	ужы́		now

# Appendix 3: List of monosyllabic words for the vowel space research

mвэ         мгы маа         lamp           mza         маа         lamp           mza         маы         moon           mzate         маы         moon           mzate         маы         tree pitch           myde         маы         sterile           mtsa         мин         fire           mtsa         мин         lie           mtsa         мин         sterile           mtsa         мин         strong           mtsa         мин         day           mtsa         мин         day           mtsa         мин         day           mtsa         belt         pele           mta         son         ppla           ma         son         ppla           psqha         nca         dead body           psa         nca         nca           pyda         nxa         heat           pyda         nxa         heat <td< th=""><th>transc</th><th>ription ortho</th><th>graphy translation</th></td<>	transc	ription ortho	graphy translation		
mzə         мзы         moon           mzətc         мзыч         tree pitch           mydæ         мхьа         sterile           mtsa         мца         fire           mtsa         мца         fire           mtsa         мца         fire           mtsa         мца         strong           mtsa         мца         strong           mtsa         мин         day           mtsa         belt         belt           mta         son         ppaece of wood           mtsa         belt         belt           mtsa         belt         pecce of wood           mtsa         belt         pecce           mtsa         belt         pecce           mta         room         soul           ptsta         nta         soul           ptsta         nta         soft           ptsta         nta         wind           ptsta <td>mr9</td> <td>мгъы</td> <td>thorn</td>	mr9	мгъы	thorn		
mzde         мзыч         tree pitch           mx/de         мхьа         sterile           mtsa         мца         fire           mtsa         мца         fire           mtsa         мцы         lie           mtsa         мцы         strong           mtsa         мцы         strong           mtsa         мшы         day           msa         мшы         day           msa         мшы         day           msa         мшы         day           msa         belt         proce of wood           msa         belt         pelt           mra         belt         pelt           mra         belt         pebl           mra         bood         bood           ptysa         mxa         head body           psa         mxa         heat           pyda         mxa         heat           pyda         mxa	mza	мза	lamp		
mx/ae         мхьа         sterile           mtsa         мца         fire           mtsa         мцы         lie           mtsa         мцы         lie           mtsa         мцы         strong           mtsa         мшитшыт         piece of wood           msa         мшы         day           msa         belt         ppaa           msa         belt         ppaa           m²a         мъа         belt           p²a         mu         son           p²ec         neut         room           sbab         c6ыб         blister           psa         ncы         soul           psq²a         ncsa         dead body           psa         ncы         soul           ptstepa         ncы         soul           ptya         ncsa         dead body           psa         ncы         soul           ptya         ncsa         dead body           psa         ncы         nxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	mzə	мзы	moon		
mtsa         мца         fire           mtsa         мцы         lie           mtsa         мцы         strong           mtsi         мчы         strong           mtsi         мчы         strong           mtsi         мины         day           msa         мины         day           msa         мины         day           msa         belt         msa           pha         na         son           phae         neut         room           sbab         c6ыб         blister           psqha         ncs         soul           psqha         ncs         soul           psqha         ncs         soul           pya         cheap         pya           pya         nxa         heat           pyda         nxa         heat           pyda         nxa         seep	mzətç	мзыч	tree pitch		
mtsə         мцы         lie           mtcı         мчы         strong           mtşitşət         мшы         day           mşə         мшы         day           m²a         мъа         belt           p³a         па         son           p³e         пещ         room           sbəb         сбыб         blister           psq³a         псха         dead body           psa         псы         soul           psq³a         псы         soul           ptştşə         птштшы         broken           pp³ud         пуд         cheap           pya         пха         heat           pydzə         пха         heat           pydzə         пха         heat           pydzə         пха         seet           pya         пха         heat           pya         пха         heat           pya         пха         seep           pşa         пша         wind           pşadza         пша         wind           pşadza         пша         soft           pşadz         пшба         four <t< td=""><td>mχ<sup>j</sup>æ</td><td>мхьа</td><td>sterile</td></t<>	mχ <sup>j</sup> æ	мхьа	sterile		
mtci         мчы         strong           mtş²tşət         мшітшыт         piece of wood           mşə         мшы         day           m²a         мъа         belt           p³a         па         son           psq²a         па         soul           p\$a         па         na           pyd         па         na           pyd         па         wind           p\$a         па         wind           p\$a         па         wind           p\$a         па <t< td=""><td>mtsa</td><td>мца</td><td>fire</td></t<>	mtsa	мца	fire		
тура         миштинт         piece of wood           тура         мы         day           тура         мы         belt           ра         та         son           ра         па         son           ра         пещ         room           зы         обыб         blister           ра         пещ         room           зы         обыб         blister           ра         пещ         room           зы         обыб         blister           ра         пещ         room           ра         пещ         room           ра         пещ         room           ра         пещ         room           ра         пец         room           ра         гоом	mtsə	мцы	lie		
mss         мины         day           m?a         мьа         belt           pha         па         son           phee         пещ         room           sbab         сбыб         blister           psqha         псхъа         dead body           psa         псы         soul           ptstspa         псы         soul           ptstspa         псы         soul           ptstspa         псы         soul           ptstspa         псы         soul           ptsta         псы         soul           ptsta         псы         soul           ptsta         псы         soul           ptsta         псы         soe           ptta         пха         heat           pyda         пха         see           psa         пш         wind           psa         пт         tooth	mt¢ı	мчы	strong		
m?a         мъа         belt           pha         па         son           phee         пещ         room           sbab         сбыб         blister           psqha         псхъа         dead body           psa         псы         soul           ptsta         псы         soul           pta         псы         sea           pta         пха         heat           pyda         пха         heat           pyda         пха         heat           pyda         пха         see           pya         пха         see           pya         пты         sof           pya         пты         buckle           phat         пты         tooth           sa </td <td>mtş'tşət</td> <td>мшІтшыт</td> <td>piece of wood</td>	mtş'tşət	мшІтшыт	piece of wood		
pha         па         son           phee         пещ         room           sbab         сбыб         blister           psqha         псхьа         dead body           psa         псы         soul           ptştşa         птитшы         broken           ptyta         пха         heat           pyda         пха         seep           pyda         пха         seep           pxda         пша         wind           pyda         пха         seep           pya         пха         seep           psa         пша         soft           psa         пша         soft           pya         пха         see           pya         пха         buckle	mşə	мшы	day		
phes         пещ         room           sbab         сбыб         blister           psqha         псхъа         dead body           psa         псы         soul           ptstsa         птитины         broken           phud         пуд         cheap           pya         пха         heat           pydza         пха         heat           pydza         пха         heat           pydza         пхыз         sleep           pyaz         пхыз         sleep           psa         пша         wind           psdza         пшаза         beautiful           psdza         пшаза         beautiful           pskha         пшка         soft           pspxj         пшка         soft           psayj         пшба         four           phatz         пыджь         buckle           phatz         пыц         tooth           sa         са         I           skhwsa         сквшы         year           skhwsa         сквшы         year           skhwsa         сквшы         year           ska         са	m?a	мъа	belt		
sbəb сбыб blister  psqha псхъа dead body  psə псы soul  ptştşə птштшы broken  phud пуд cheap  pxa пха heat  pxdzə пхдзы sweat  pxtə пхты scab  pxəz пхыз sleep  psa пша wind  psdza пшдза beautiful  pskha пшка soft  psəyi пшыхь breeze  pcba пшба four  phədz пыджь buckle  phəts пыц tooth  sa ca I  skhwsə сквшы year  skhwsəzch сквшызкь thousand years  ssa cca small  staz стажь let me come down  sə сы snow  səs сыс lamb  tc'i ткіьи strict  tdzə тдзы hous  thoph топ ball  tşbəg тшбыг scythe  tşpах тшпсАх to change (imp)  tşpəts тшпыц horse tooth  tşrədz тштый to dip into something (imp)  tşteə тштый to dip into something (imp)  tşxiæ тшхьа forage	p <sup>h</sup> a	па	son		
psqha         псы         soul           ptştşə         птштшы         broken           phud         пуд         cheap           pxa         пха         heat           pxta         пха         heat           pxta         пха         heat           pxta         пха         heat           pxa         пха         heautiful           pxa         пха         heat           pxa         на         heat           pxa         на         не	phec	пещ	room		
psa         псы         soul           ptştşa         птитины         broken           phud         пуд         cheap           pxa         пха         heat           pxa         пха         heat           pxa         пха         heat           pxa         пха         sweat           pxa         пха         sweat           pxa         пха         sweat           pxa         пха         seep           pxa         пха         seep           pxa         пша         wind           pxa         сквины         year           skhwga         сквины         year           skhwgazch         сквины         year <t< td=""><td>sbəb</td><td>сбыб</td><td>blister</td></t<>	sbəb	сбыб	blister		
рұққә         птштшы         broken           р <sup>h</sup> ud         пуд         cheap           рха         пха         heat           рха         пха         sweat           рха         пхазы         sweat           рха         пхыз         sleep           рра         пша         wind           рра         пшба         four           рра         пшба         four           рра         пшба         four           рра         сва         сквиы           ро	psq <sup>h</sup> a	псхъа	dead body		
phud         пуд         cheap           pxa         пха         heat           pxdza         пхдзы         sweat           pxta         пхдзы         sweat           pxta         пхны         scab           pxa         пхыз         sleep           psa         пша         wind           psdza         пша         wind           psdza         пша         soft           psdza         пшка         soft           psdza         пшба         four           psdza         пшка         soft           psdza         пшка         soft           psdza         пшка         soft <td>psə</td> <td>псы</td> <td>soul</td>	psə	псы	soul		
рха         пха         heat           рхдгэ         пхдзы         sweat           рхты         scab           рхэг         пхыз         sleep           рва         пша         wind           рва         пша         beautiful           рва         пша         soft           рва         пшба         four           рва         пшба         four           рва         пшба         four           рва         пшба         four           рва         сва         пша           ква         са         I           ква         са         I           ква         са         I           ква         са         ква           ква         са         ква <td></td> <td>птштшы</td> <td>broken</td>		птштшы	broken		
рхда         пхдзы         sweat           рхд         пхты         scab           рхд         пхыз         sleep           рха         пша         wind           рхда         пша         wind           рхда         пшда         beautiful           рхда         пшда         soft           рхда         пшда         soft           рхда         пшда         beautiful           рхда         пшда         soft           рхда         пшда         soft           рхда         пшба         four           рхда         пшба         four           рхда         пшба         four           рхда         пшба         four           рхда         пшда         tooth           sa         са         I           ка         ка         ка           ка         са	p <sup>h</sup> ud	пуд	cheap		
рхда         пхдзы         sweat           рхд         пхты         scab           рхд         пхыз         sleep           рха         пша         wind           рхда         пша         wind           рхда         пшда         beautiful           рхда         пшда         soft           рхда         пшда         soft           рхда         пшда         beautiful           рхда         пшда         soft           рхда         пшда         soft           рхда         пшба         four           рхда         пшба         four           рхда         пшба         four           рхда         пшба         four           рхда         пшда         tooth           sa         са         I           ка         ка         ка           ка         са	рха	пха	heat		
рхог         пхыз         sleep           рşа         пша         wind           рşdza         пшдза         beautiful           рşbhа         пшка         soft           рşэхі         пшыхь         breeze           рсbа         пщба         four           рhэdz         пыджь         buckle           рhэts         пыц         tooth           sa         ca         I           skhwşə         сквшы         year           skhwşəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сы         snow           səs         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tçzı         тшжы         horse meat           tşpsax         тшпы         horse tooth           tşrədz         тшрыдз         to disappear (imp)		пхдзы	sweat		
р§а         пша         wind           р§dza         пшдза         beautiful           р§kha         пшка         soft           р§bxi         пшка         breeze           рфад         пшба         four           рhadz         пшба         buckle           рhadz         пыджь         buckle           рhats         пыц         tooth           sa         ca         I           skhwşə         сквшы         year           skhwşəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşpax         тшкы         horse meat           tşpax         тшпыд         to rest (imp)           tşpax         тшпыц         horse tooth           tşredz         тшрыдз         to disappear (imp) <td>pχtə</td> <td>пхты</td> <td>scab</td>	pχtə	пхты	scab		
р§dza         пшдза         beautiful           р§дхi         пшыхь         breeze           рсba         пщба         four           рhodz         пыджь         buckle           рhots         пыц         tooth           sa         ca         I           skhwsə         скышы         year           skhwsə         скышызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşbay         тшбыг         scythe           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштыы         to dip into something (imp)           tşteə         тшхьа         forage	рхэг	пхыз	sleep		
р§кhа         пшка         soft           р§эχi         пшыхь         breeze           рва         пщба         four           рhәdz         пыджь         buckle           рhәts         пыц         tooth           sa         ca         I           skhwgə         сквшы         year           skhwgəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжы         horse meat           tşрsах         тшпых         to change (imp)           tşреæ         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштыы         to dip into something (imp)           tşxiæ         тшхьа         forage	pşa	пша	wind		
р§Зχі         пшыхь         breeze           рєва         пщба         four           рhодг         пыджь         buckle           рhот         пыц         tooth           sa         ca         I           skhwşə         сквшы         year           skhwşəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сыс         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпың         to rest (imp)           tşredz         тшрыдз         to disappear (imp)           tşcə         тштыы         forage	pşdza	пшдза	beautiful		
рсва         пщба         four           р <sup>h</sup> әdz         пыджь         buckle           р <sup>h</sup> әts         пыц         tooth           sa         ca         I           skhw şə         сквшы         year           skhw şəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpax         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	pşk <sup>h</sup> a	пшка	soft		
phodz         пыджь         buckle           phots         пыц         tooth           sa         ca         I           skhwşə         сквшы         year           skhwşəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşredz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	pşəχ <sup>j</sup>	пшыхь	breeze		
phəts         пыц         tooth           sa         са         I           skhwşə         сквшы         year           skhwşəzch         сквшызкь         thousand years           ssa         сса         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	p¢ba	пщба	four		
sa         ca         I           skhwgə         сквшы         year           skhwgəzch         сквшызкь         thousand years           ssa         cca         small           staz         стажь         let me come down           sə         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпыд         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tştcə         тштыы         to dip into something (imp)           tştcə         тшхьа         forage	$ m p^h  m ə dz$	пыджь	buckle		
skhwgə         сквшы         year           skhwgəzch         сквшызкь         thousand years           ssa         сса         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпцА         to rest (imp)           tşpats         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tştcə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	p <sup>h</sup> əts	пыц	tooth		
skhw ξəzch         сквшызкь         thousand years           ssa         сса         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tştcə         тштщЫ         to dip into something (imp)           tşx'iæ         тшхьа         forage	sa	ca	I		
ssa         cca         small           staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşx'jæ         тшхьа         forage		сквшы	year		
staz         стажь         let me come down           sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşрsах         тшпсАх         to change (imp)           tşреæ         тшпщА         to rest (imp)           tşрəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşx'jæ         тшхьа         forage	sk <sup>hw</sup> şəzc <sup>h</sup>	сквшызкь	thousand years		
sə         сы         snow           səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           tʰoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpats         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	ssa	cca			
səs         сыс         lamb           tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tştcə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	staz	стажь	let me come down		
tc'i         ткІьи         strict           tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tştcə         тштщЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	sə	СЫ	snow		
tdzə         тдзы         hous           thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштщЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	səs	сыс	lamb		
thoph         топ         ball           tşbəg         тшбыг         scythe           tşzı         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштцЫ         to dip into something (imp)           tşxiæ         тшхьа         forage	tc'i	ткІьи	strict		
tşbəg         тшбыг         scythe           tşzi         тшжьы         horse meat           tşpsax         тшпсАх         to change (imp)           tşpeæ         тшпщА         to rest (imp)           tşpəts         тшпыц         horse tooth           tşrədz         тшрыдз         to disappear (imp)           tşteə         тштщЫ         to dip into something (imp)           tşxiæ         тшхьа         forage		тдзы	hous		
tşzi тшжы horse meat tşpsax тшпсAx to change (imp) tşpeæ тшпщА to rest (imp) tşpəts тшпыц horse tooth tşrədz тшрыдз to disappear (imp) tştcə тштщЫ to dip into something (imp) tşxiæ тшхыа forage	t <sup>h</sup> op <sup>h</sup>	топ	ball		
tspsax тшпсAx to change (imp) tspeæ тшпщА to rest (imp) tspets тшпыц horse tooth tsredz тшрыдз to disappear (imp) tstee тштщЫ to dip into something (imp) tsylæ тшхьа forage	tşbəg	тшбыг	scythe		
tspeæ тшпщА to rest (imp) tspets тшпыц horse tooth tsredz тшрыдз to disappear (imp) tstee тштщЫ to dip into something (imp) tsxjæ тшхьа forage	tşzı				
tspəts тшпыц horse tooth tsrədz тшрыдз to disappear (imp) tstsə тштщЫ to dip into something (imp) tsylæ тшхьа forage	tṣpsax	тшпсАх	to change (imp)		
tsrədz тшрыдз to disappear (imp) tstcə тштщЫ to dip into something (imp) tstylæ тшхьа forage	tşpcæ	тшпщА	,		
tgteə тштщЫ to dip into something (imp) tgxjae тшхьа forage	tṣpəts	тшпыц			
tşҳiæ тшхьа forage	tşrədz	тшрыдз			
	tştçə	тштщЫ			
tsə TIIIbi horse	tşx <sup>j</sup> æ	тшхьа	forage		
	tşə	тшы	horse		

trans	scription orth	ography translation
tşət	тшыт	piece
tşəχ <sup>w</sup> χ	тшыхвх	to wound yourself (imp)
tşəxş	тшыхш	koumiss
tşəşş	тшышш	to make up yourself (imp)
tşəcχ	тшыщх	to kill yourself (imp)
tsəcc	тшЫщщ	to stroke yourself (imp)
t <sup>h</sup> əp <sup>h</sup>	тып	shelter of branches
t <sup>h</sup> əχ	тых	shoo! (to a cat)
χ <sup>w</sup> ba	хвба	five
χ <sup>w</sup> it	хвит	free
χzə	хзы	whey
χра	хпа	three
χερ	хшы	milk
q <sup>hw</sup> da	хъвда	neck
q <sup>hw</sup> daş	хъвдаш	white neck (bird)
q <sup>hw</sup> dzə	хъвдзы	millet
q <sup>hw</sup> dzəts	хъвдзыц	grain
q <sup>h</sup> pşşa	хъпшша	get dry
q <sup>h</sup> tck <sup>w</sup> psa	хъчквпса	lace pillow cover
q <sup>h</sup> t¢i	инч	pillow
q <sup>h</sup> əχ <sup>j</sup>	ХЪЫХЬ	headache
q <sup>h</sup> əş	ХЪЫШ	light
χθ	ХЫ	bullet
χ <sup>j</sup> ap¢	хьапщ	gold
χ <sup>j</sup> zə	хьзы	name
χ <sup>j</sup> ta	хьта	frost
ts'ba	цІба	lack of something
ts, ra	цІгъа	cord
ts'da	цІда	cord
ts'\(\chi\)	цІхы	night
ts'çı	цІщы	sole
tsa		corn bin
tsba	ца цба	six
	· ·	clean
tscæ	цкьа	
tsxa	цха	doubt
tŝ <sub>w</sub> r <sub>j</sub> i teæc	чакь	bull
	чвгъьы	_
tŝ <sup>w</sup> jæ	чвгьа	evil unfortunate
tŝ <sup>w</sup> cæ¢	чвкьащ	
teqa	чхъа	ear
tç'ic	чыкь	shortish
tş'tbzə	шІтбжьы	call
ŝ <sup>w</sup> χə	ШВХЫ	carrot
şʔa	шъа	document
şta	шта	motherland
şşa	шша	fat
çta	щта	track
єχа	щха	bee
çqa	щхъа	pasture
ça	ща	blood

	transcription		orthography		translation
ç?a		щъа		prop	

Appendix 4: List of minimal pairs for the stress research

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