

Munji Phonological Analysis

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Introduction and Methodology

The Munji language (ISO 639-3: [mnj] *aka* Munjani, Munjiwar, Munjigi) is spoken in the Kuran Munjan district of Badakhshan province in Afghanistan. Munji is classified as an Indo-European, Indo-Iranian, Iranian, Eastern, Southeastern, Pamir language.¹ There are about 5,300 Munji speakers (Beyer and Beck, 2011). There are two main dialects which divide into the North and South halves of the valley. These dialects exhibit some regular sound changes and a small percentage of lexical differences. Munji speakers are aware of the differences, but there is no trouble in mutual understanding. Previous research was done by Morgenstierne (1938), Grjunberg (1972), and Beyer and Beck (2011).

The following phonological analysis is the product of four years of exposure and study of the Munji language. We first started working with the Munji community in August, 2010 when we started working with the community to set up a language development project. The initial draft of this paper was completed in 2011, but then we made periodic additions and corrections over next few years as we worked with the Munji Language Development Project. The data in this paper comes from a lexical database of over 3,000 lexical items collected from natural texts and language learning sessions. We are grateful for the help of our Munji colleagues in this project: Abdul Salaam, Ghulam Ali, Abdul Jabar, Nek Mohammad, and Doost Mohammad. They have selflessly worked for the benefit of their community and nation and shown us much hospitality and kindness. Their dedication and help have made this paper possible.

¹ Lewis, Paul M. (2009) *Ethnologue: Languages of the World*, 16th edition, Dallas: SIL International, 324.

Consonant Phonemes

	Labial	Dental	Post-alveolar	Retroflex	Palatal	Velar	Uvular
Plosive	p b	t d			c ɟ	k g	(q)
Fricative	f v	s z	ʃ ʒ	(ʂ) (ʐ)	ç	x ɣ	
Affricate		(tʃ) (dʒ)	(tʃ̣) (dʒ̣)	(tʃ̣̥) (dʒ̣̥)			
Nasal	m	n					
Flap		r					
Approx.	w	l			j		(h)

(Rare or marginal phonemes are in parenthesis.)

One of the distinguishing characteristics of the Munji sound system is its use of palatal consonants. Besides the palatal approximate /j/, Munji has three other prominent palatal consonants /ç/, /c/, and /ʃ/. Skjærvø states that the palatals are very palatalized.²

According to Skjærvø³, Munji uses [q] and [χ] and [h] in loan words. Our research never found a clear example of [χ]. But concerning [q] and [h], we found that educated speakers will pronounce [q] and [h] in Arabic loan words (*e.g.* [haq] ‘*a right*’). In fast speech, the sound [h] of Arabic loan words tends to become [ʔ]. For most Munji words, any word beginning with a vowel may have either [ʔ] or [h] before it. This follows the pattern noted by Edelman and Dodykhudoeva (Windfuhr 2009, 777) that Pamir languages tend to be characterized with rough breathing [h] in words with word initial vowels. The sound [q] only occurs in borrowed words, but there are numerous examples of this sound in regular use in the language. Some speakers do change the /q/ to [k]; but educated speakers will pronounce them differently. Thus, we have granted /q/ status as a marginal phoneme.

Two additional sounds are used, but we consider them to be special cases and not phonemes:

trill r [r] [qəɾ:as kəɾə] ‘*to purr* (a sound a cat makes)’

bilabial trill [B] [BBB] ‘(sound used by shepherds to call sheep)’

² Prods O. Skjærvø, *Yidgha and Munji*. 4.2.2.3.2.

³ Prods O. Skjærvø, *Yidgha and Munji*. 4.2.2.3.2.

Contrast of Suspicious Consonant Pairs

Suspicious Pairs	Munji	English Gloss
/p/ /f/	/pia/ /fia/ or /fiɔ/ ⁴	<i>by, with</i> <i>shovel</i>
/p/ /b/	/pʊnd/ /bʊnd/	<i>advice</i> <i>dam</i>
/f/ /v/	/fia/ or /fiɔ/ /via/	<i>shovel</i> <i>be.PST.3SG</i>
/v/ /w/	/vaj/ /waj/	<i>him/it</i> <i>they</i>
/b/ /v/	/bɔr/ /vɔr/	<i>full</i> <i>wooden beam</i>
/t/ /d/	/tul/ /dul/	<i>long (time, distance)</i> <i>funnel</i>
/ts/ /s/	/tsɔrəɣə/ /sɔɣə/	<i>type of bird</i> <i>shade</i>
/ts/ /tʃ/	/tsɔrəɣə/ /tʃɔrə/	<i>type of bird</i> <i>well</i>
/tʃ/ /c/	/caj/ /tʃaj/	<i>house</i> <i>tea</i>
/tʃ/ /dʒ/	/tʃaj/ /dʒaj/	<i>tea</i> <i>place</i>
/s/ /z/	/sar/ /zar/	<i>tomorrow</i> <i>injured</i>
/s/ /ʃ/	/sɔl/ /ʃɔl/	<i>year</i> <i>a long, thick head scarf (shawl)</i>
/ç/ /ʃ/	/çuli/ /ʃula/	<i>Tili (village name)</i> <i>rice pudding</i>
/ç/ /x/	/çuli/ /xulə/ /piçɔ/ /sixɔ/	<i>Tili (village name)</i> <i>hat</i> <i>bullet</i> <i>knitting needle</i>
/ʃ/ /x/	/ʃɔl/ /xɔl/	<i>thin shawl</i> <i>spot</i>

⁴ The pronunciation [fia] represents the south dialect and [fiɔ] represents the north dialect.

/ʃ/ /ʒ/	/ʒiə/ /ʃiə/	<i>to hit</i> <i>to become</i>
/z/ /ʒ/	/wɪzɪt/ /wɪʒɪt/	<i>stay.PRS.3SG</i> <i>watch.PRS.3SG</i>
/d/ /r/	/dɪftə/ /rɪfə/	<i>to fight</i> <i>broom</i>
/VdV/ /VrV/	/bədəl/ /ərə/	<i>fake</i> <i>saw</i>
/c/ /k/	/caɪ/ /kaɪ/	<i>house</i> <i>who</i>
/c/ /ʒ/	/fɪs/ /sɪʒ/	<i>whistle.PRS</i> <i>child born out of wedlock</i>
/g/ /k/	/gəʃ/ /kəʃ/	<i>greet by kissing.PRS</i> <i>split open.PRS</i>
/g/ /ʒ/	/ʃtɪŋ/ /sɪʒ/	<i>thing</i> <i>child born out of wedlock</i>
/x/ /k/	/kəʃ/ /xəʃ/	<i>split.IMP</i> <i>lather</i>
/x/ /h/	/xeɪjə/ /heɪ ⁵ /	<i>wall</i> <i>O (vocative marker)</i>
/x/ /ɣ/	/xuɪ/ /ɣuɪ/	<i>happy</i> <i>meat</i>
/ɣ/ /g/	/ɣəʊndəm/ /gəʊndəl/	<i>wheat</i> <i>wood stove</i>
/n/ /m/	/nəʊm/ /məʊm/	<i>name</i> <i>grandmother</i>

Consonant Environments and Conventions

/p/ [p] [p^h]

This phoneme is the voiceless bilabial stop.

⁵ This is also pronounced with a glottal stop /ʔ/

Environment	Phonemic	Phonetic	Gloss
Word Initial	pə'ga	p ^h ə'ga	<i>morning</i>
Word Final	pɔp	p ^h ɔp ^h	<i>grandfather</i>
Intervocalic	'apɪr	'ʔap ^h ɪr	<i>front</i>

Voiceless stops /p/, /t/, and /k/ are aspirated when followed by a vowel. In the word final position they are released or slightly aspirated.

/b/ [b] [p^ʔ]

This phoneme is the voiced bilabial stop.

Environment	Phonemic	Phonetic	Gloss
Word Initial	'bɒbʊk	'bɒbʊk	<i>hoopoe bird</i>
Word Final	kəb	kəp ^ʔ	<i>a little</i>
Intervocalic	'abəʃ	'ʔabəʃ	<i>rake</i>

Comment: /b/ is sometimes slightly aspirated word initially.

The phoneme /b/ is sometimes realized as [p^ʔ] word final. Thus, the underlying word final /p/ contrasts with /b/. The phoneme /b/ is realized as either [p^ʔ] or [b] word final, but the phoneme /p/ is either [p] or [p^h] word final.

/f/ [f]

This phoneme is the voiceless labial-dental fricative.

Environment	Phonemic	Phonetic	Gloss
Word Initial	'fɪɔ	'fɪɔ	<i>shovel</i>
Word Final	dɪf	dɪf	<i>fight.PRS</i>
Intervocalic	'ɾɪfə	'ɾɪfə	<i>broom</i>

/v/ [v] [f]

This phoneme is the voiced labial-dental fricative.

Environment	Phonemic	Phonetic	Gloss
Word Initial	vɪn	vɪn	<i>below</i>
Word Final	surv	surv/surf	<i>hole</i>
Intervocalic	'nəvi	'nəvi	<i>rain</i>

The phoneme /v/ sometimes devoices to various degrees in the word final position; thus being realized as [f]. This follows the pattern of word final devoicing found in other voiced plosives and fricatives.

/t/ [t], [tʰ]

This phoneme is a voiceless alveolar/dental stop.

Environment	Phonemic	Phonetic	Gloss
Word Initial	tamusi	tʰamusi	<i>fallow</i>
Word Final	skwit	skwit	<i>stick</i>
Intervocalic	'batik	'batʰik	<i>a type of pudding</i>

/d/ [d] [tʰ]

This phoneme is the voiced alveolar/dental stop.

Environment	Phonemic	Phonetic	Gloss
Word Initial	dɪ'qin	dɪ'qin	<i>dull</i>
Word Final	awd	ʔawd	<i>body of water</i>
Intervocalic	'idir	'ʔidir	<i>other</i>

Comment: /d/ often is realized as [tʰ] word finally. This is especially true when the directly preceding consonant is a voiceless fricative. There are no examples of word final [d] when preceded by a voiceless consonant. After a vowel and in the word final position, the phoneme /d/ is realized as either [d] or [tʰ], but the phoneme /t/ is either [t] or [tʰ].

The phoneme /d/ is most likely to resist word final devoicing when it is directly preceded by a voiced consonant.

There is a characteristic shift of d* to [l] in some East Iranian languages. This was evidenced in the ancient languages of Amyrgian Saka and Bactrian⁶. Today it is evidenced in Pashto and Munji.

Dari IPA	Munji IPA	English Gloss
dest	lɔst	<i>hand</i>
dar-am	lɔr-əm	<i>I have</i>

⁶ *Encyclopaedia Iranica*, "Bactrian Language" (accessed online Accessed April 16, 2012 <http://www.iranicaonline.org/articles/bactrian-language>). Also, Skjaervo (1989), 381.

dona	lɔnəyə	<i>grain (single kernal)</i>
dandən	lɔndə	<i>tooth</i>
dɔr-	lɔr-	<i>have.PRS-</i>
dum	ləm	<i>tail</i>
du	lə	<i>two</i>
dɔxtar	ləyɔdə	<i>daughter</i>
darwaza	ləvər	<i>door</i>
dur	lərə	<i>far</i>
duʃidan	ləyɔdɔ/luʒ-	<i>to milk</i>
dɔman	lɔndə	<i>skirt, hem</i>
de (dama*)	ləmə	<i>village</i>
dam (damaka*)	ləməga	<i>snare</i>

Also, in South Munji /d/ becomes [l] before /r/:

North Munji [d]	South Munji [l]	<i>English gloss</i>
wɪdrɔjɔ	wɪlrɔjɔ	<i>to sleep</i>
mɪdrayə	mɪlrəgə	<i>bead</i>

/tʃ/ [tʃ]

This phoneme is a voiceless alveolar affricate.

Environment	Phonemic	Phonetic	Gloss
Word Initial	tʃiwas	tʃiwas	<i>chirp (like a sparrow)</i>
Word Final	--	--	--
Intervocalic	tʃutsəni	tʃutsəni	<i>a type of bird</i>

This phoneme is not rare nor is it common.

For some speakers of the south dialect [tʃ] goes to [tʃ̥]:

[tʃ̥ɔrəyɔ] *a type of bird* (from AJ who is from the north dialect.)

[tʃ̥ɔrəgə] *a type of bird* (from NM who is from the south dialect.)

and:

[tsəbd] *pinch*.PST.3SG (from AJ who is from the north dialect.)

[tʃəbd] *pinch*.PST.3SG (from NM who is from the south dialect).

/dʒ/ [dʒ]

This phoneme is a voiced alveolar affricate.

Environment	Phonemic	Phonetic	Gloss
Word Initial		--	
Word Final		--	
Intervocalic	əḍziə	ʔəḍziə	<i>skin container</i>

Our research found that [dʒ] occurs very rarely. We only found one clear example, and then only in the north dialect: [ʔəḍziə] refers to a skin container used for making yogurt or inflated to make floats used for river crossing. The some south dialect pronounced the same word: [ʔəḍzia].

/tʃ/ [tʃ]

The phoneme /tʃ/ occurs as [tʃ] (voiceless alveo-palatal affricate) word initial, word final, and between vowels.

Environment	Phonemic	Phonetic	Gloss
Word Initial	tʃal	tʃal	<i>wet</i>
Word Final	pɪtʃ	pɪtʃ	<i>lukewarm</i>
Intervocalic	zatʃəgə	zatʃəgə	<i>woman who has recently had a baby</i>

[dʒ] /dʒ/

The phoneme /dʒ/ occurs as [dʒ] (voiced alveo-palatal affricate) in word initial, word final, and between vowels.

Environment	Phonemic	Phonetic	Gloss
Word Initial	dʒənd	dʒənd	<i>very</i>
Word Final	pəndʒ	pəndʒ	<i>five</i>
Intervocalic	'ladʒəm	'ladʒəm	<i>reigns and bridle</i>

Both $\widehat{tʃ}$ and $\widehat{dʒ}$ are pronounced a little further back than in English sounds.

$\widehat{tʃ}/$ $[\widehat{tʃ}]$

The phoneme $/\widehat{tʃ}/$ occurs as $[\widehat{tʃ}]$ (voiceless retroflex affricate). It is a very rare phoneme only occurring in one example in our data.

Environment	Phonemic	Phonetic	Gloss
Word Initial	--	--	--
Word Final	--	--	--
Inervocalic	$p\widehat{tʃ}\text{ə}$	$p\widehat{tʃ}\text{ə}$	<i>lukewarm</i>

Even in this example of $[\widehat{tʃ}]$, some speakers seem to be using the alveo-palatal $[\widehat{tʃ}]$ sound. We found no clear examples of $[\widehat{dʒ}]$; Grjunberg listed $[r\text{ə}\widehat{dʒ}]$ ‘*difficult*’. But we found the speakers will often use the alveo-palatal affricate $[\widehat{dʒ}]$ for this word. The words that Grjunberg listed for $[\widehat{tʃ}]$ and $[\widehat{dʒ}]$ were very few. When we elicited these words, we found that many speakers are using $[\widehat{tʃ}]$ and $[\widehat{dʒ}]$ instead of their retroflex counterparts. It may vary from speaker to speaker or just be free variation.

$/s/$ $[s]$

The phoneme $/s/$ occurs as $[s]$ (voiceless palatal sibilant) in all its environments.

Environment	Phonemic	Phonetic	Gloss
Word Initial	spi	spi	<i>white</i>
Word Final	$w\text{əs}$	$w\text{əs}$	<i>now</i>
Inervocalic	${}^h p\text{us}\text{ə}$	${}^h p\text{us}\text{ə}$	<i>head</i>

$/z/$ $[z]$

The phoneme $/z/$ occurs as $[z]$ (voiced palatal sibilant) in all its environments.

Environment	Phonemic	Phonetic	Gloss
Word Initial	zit	zit	<i>yellow</i>
Word Final	fiz	fiz	<i>chest</i>
Inervocalic	${}^h v\text{ɔ}z\text{ə}r\text{y}\text{ə}$	${}^h v\text{ɔ}z\text{ə}r\text{y}\text{ə}$	<i>wing</i>

/ʃ/ [ʃ], [ʂ]

The phoneme /ʃ/ occurs as [ʃ] (voiceless alveo-palatal sibilant) in all its environments. Some speakers also use the retroflex sibilant [ʂ]. There is no lexical or grammatical contrast between [ʃ] and [ʂ]; nor do they occur in mutually exclusive environments. The phonetic difference seems to be a case of individual accents and free variation.

Environment	Phonemic	Phonetic	Gloss
Word Initial	ʃɛnd	ʃɛnd	<i>drink.PRS.3SG</i>
Word Final	wiʃ	wiʃ	<i>hay</i>
Inervocalic	baʃɪʃ	baʃɪʃ	<i>woven pad</i>

/ʒ/ [ʒ], [ʒ]

The phoneme /ʒ/ is pronounced as [ʒ] (voiced alveo-palatal sibilant). The voiced retroflex sibilant [ʒ] also occurs as an idiolectal or free variant.

Environment	Phonemic	Phonetic	Gloss
Word Initial	ʒiə	ʒiə	<i>hit.PST.3SG</i>
Word Final	iʒ	ʔiʒ	<i>snake</i>
Inervocalic	jərʒə	jərʒə	<i>beard</i>

/r/ [r] [ɹ]

The phoneme /r/ occurs as [r] (voiced alveolar flap) and [ɹ] (voiced retroflex approximate).

Environment	Phonemic	Phonetic	Gloss
Word Initial	rəzgi	rəzgi	<i>small</i>
Word Final	mɛr	mɛr	<i>man</i>
Intervocalic	'mirɔ	'mirɔ	<i>sun</i>

/r/ is pronounced as [ɹ] when it occurs directly before a /t/ or /d/. For example:

/lurt/ [lu.ɹd] run away.PST.3SG

There is also an alternation between the north and south dialects for 3rd person singular in which verbs ending in /-irt/ ([-i.ɹd]) go to [-id].

South Munji	North Munji	Gloss
[ʒi.ɹd]	[ʒid]	<i>sew.PRS.3SG</i>
[nird]	[nid]	<i>go out.PRS.3SG</i>

[vriɪd]	[vrid]	<i>break.PRS.3SG (intransitive)</i>
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/c/ [cʰ], [c̟]

The phoneme /c/ is realized as [cʰ] (voiceless palatal stop with a palatal off-glide) word initially and word finally.

Between vowels /c/ may be realized as either [cʰ] or [c̟]. The only difference being that one has a palatal release and the other has a fricative release.

When /cʰ/ occurs after a nasal both phonetic realizations are also attested:

/kuncikə/ girl [ˈkʊncʰikə]

/kuncikə/ girl [ˈkʊnc̟ikə]

This alternation is a case of free variation or idiolectal variation a not a standard alternation between the north and south dialects.

Environment	Phonemic	Phonetic	Gloss
Word Initial	caj	cʰaj	<i>house</i>
Word Final	spuɟc	spuɟcʰ	<i>brown</i>
After a Nasal	ˈkuncikə	ˈkʊnc̟ikə ˈkʊncʰikə	<i>girl</i>
Intervocalic	kwicə	kwicʰə kwic̟ə	<i>short</i>

The phoneme /c/ contrasts with the phonemes /k/ and /tʃ/:

/caj/ *house*

/kaj/ *who.OBL*

/tʃaj/ *tea*

The phoneme /c/ also contrasts with the sequence of /k/ + /i/:

/caj/ *house*

/kiɛm/ *which*

There is a class of masculine nouns ending in [-ɔ] in the north dialect and [-a] in the south dialect. When this class of nouns takes a suffix beginning with a vowel, the north dialect inserts [c] and the south dialect inserts [k].

North Munji	South Munji	Gloss
mirɔ-c-an	mirɔ -k -an	<i>sun.OBL.M.SG</i>
zupɰɰɰɔ -c-an	zupɰɰɰɔ -k -an	<i>boy.OBL.M.SG</i>
xʃirɔ-c-an	xʃirɔ -k -an	<i>milk.OBL.M.SG</i>

/ʃ/ [ʃ], [ʃj]

The phoneme /ʃ/ is pronounced as [ʃ] (voiced palatal plosive with a palatal off-glide) and [ʃj] (voiced palatal affricate). The phoneme /ʃ/ functions in a parallel way to its voiceless counterpart /ç/. With the significant difference being that it rarely occurs word initial. The phoneme /ʃ/ is realized as [ʃj] or [ʃ] when it occurs after a nasal. In word final position devoicing often occurs as well.

Environment	Phonemic	Phonetic	Gloss
Word Initial	ʃɪb	ʃɪb	<i>lost</i>
Word Final	vanʃ	vanç/ vançç	<i>long, tall (SG)</i>
Intervocalic	--	--	--
After a Nasal	zupɰɰɰɰ	'zupɰɰɰɰk/'zupɰɰɰɰk	<i>boy</i>

This phoneme sometimes exhibits word final devoicing as seen in /vanʃ/ → [vanç]. The underlying phoneme is clearly /ʃ/. The evidence of this comes when a plural suffix is added and we see that phoneme retains its voicing: /vanʃ/ + /-i/ = [vanʃi] long.PL.

There is a regular sound change between the North and the South dialects where /ʃ/ becomes /j/ preceding /l/.

North Munji	South Munji	Gloss
[tɔʃɔ]	[tɔljɔ]	<i>to slaughter</i>
[pɔʃɔ]	[pɔljɔ]	<i>kick</i>
[alʃaxɔ]	[aljɔxɔ]	<i>next to</i>

/ç/ [ç]

The phoneme /ç/ is realized as [ç] (voiceless palatal fricative) in all environments.

Environment	Phonemic	Phonetic	Gloss
Word Initial	çraj	çraj	<i>three</i>

Word Final	miç	miç	<i>day</i>
Intervocalic	pi'zaçi	pi'zaçi	<i>sheep</i>

Another common example is the village in the upper Munjan valley called /çuli/.

/l/ [l]

The phoneme /l/ is pronounced [l] (voiced alveolar lateral approximate) in all environments.

Environment	Phonemic	Phonetic	Gloss
Word Initial	lə	lə	<i>two</i>
Word Final	fel	fel	<i>lie, deceit</i>
Intervocalic	'pala	'pala	<i>leg</i>

/k/ [k]

This phoneme is the voiceless velar stop.

Environment	Phonemic	Phonetic	Gloss
Word Initial	kɔp	k ^h ɔp	<i>fish</i>
Word Final	'pɔcɪk	'p ^h ɔcɪk	<i>woman's head scarf</i>
Intervocalic	akɔndi	akɔndi	<i>thorn</i>

/k/ and /c/ contrast:

[kaj] 'who'

[caj] 'house'

[pɪcə] 'back' or 'cat'

[pəʃkə] 'sheep dung'

/g/ [g]

This phoneme is the voiced velar stop.

Environment	Phonemic	Phonetic	Gloss
Word Initial	gə'zar	gə'zar	<i>ford (shallow place in a river)</i>
Word Medial	pi'ga	pi'ga	<i>morning</i>
Word Final	pɔrg	pɔrk/pɔrg (South Munji) pɔrx/pɔry (North Munji)	<i>mouse</i>

Word final /g/ is often devoiced, especially at the end of a phrase or utterance.

There is a regular phonetic alternation between the North and South Munji dialects between [g] and [ɣ].⁷ In the north dialect, word medial and word final [g] becomes [ɣ]. In both dialects, these two phonemes always contrast word initial, but in the north dialect there is only [ɣ] occurs word medial and word final.⁸

North Munji	South Munji	English Gloss
'mæɣɪka	'mæɣɪka	<i>ant</i>
'pɪɣə	'pɪɣə	<i>hair</i>
'namɔɣa	'namɔɣa	<i>salt</i>
'jɔwɣə	'jɔwɣə	<i>water</i>
zviɣ	zvug	<i>tongue</i>

/x/ [x]

This phoneme is the voiceless velar fricative.

Environment	Phonemic	Phonetic	Gloss
Word Initial	'xəjə	'xəjə	<i>wall</i>
Word Final	mɔx	mɔx	<i>1PL (pronoun)</i>
Inervocalic	'waxə	'waxə	<i>root</i>

/ɣ/ [ɣ]

This phoneme is the voiced velar fricative.

Environment	Phonemic	Phonetic	Gloss
Word Initial	ɣə'niɣə	ɣə'niɣə	<i>sneeze</i>
Word Final	miɣ	miɣ	<i>cloud</i>
Inervocalic	ɔɣaj	ʔɔɣaj	<i>come.PST.3SG</i>

/q/ [q]

This phoneme is the voiceless uvular plosive.

⁷ This regular sound change was well documented in Beck and Beyer (2008).

⁸ This is a general pattern, but occasionally speakers from the north dialect will use [g] in word medial or final position.

Environment	Phonemic	Phonetic	Gloss
Word Initial	qul	qul	<i>puddle</i>
Word Final	buq	buq	<i>bump</i>
Intervocalic	dɪ'qin	dɪ'qin	<i>sad</i>

According to Skjærvø (1989), Munji uses [q] only for loan words. These are all Arabic loan words that have come to Munji via Dari. Morgenstierne pointed out that speakers tend to pronounce the /q/ as [k]. Our research agrees, but also found that many native speakers are using the [q] in their pronunciation. This is likely the result of Arabic and Dari influence over many centuries of language contact. This pronunciation seemed common enough to consider /q/ as a genuine phoneme. Here are some examples of Munji words using [q].

Munji	English Gloss
/səqɔw/	<i>water carrier</i>
/wɔq/	<i>greedy</i>
/qɔsit/	<i>marriage arrangement process</i>
/qətan/	<i>crane (type of bird)</i>
/qɪlmətʃ/	<i>tease</i>
/haq/	<i>right</i>
/qatan/	<i>sheep pen</i>
/qap ʒɪɔ/	<i>to snatch</i>
/qɔwzə/	<i>a handful</i>

/m/ [m] ([n] [ɲ] [ŋ])

The phoneme /m/ is realized as [m] (voiced bilabial nasal). It also assimilates to the place of articulation of the following stop.

Environment	Phonemic	Phonetic	Gloss
Word Initial	miç	miç	<i>day</i>
Word Final	mɔm	mɔm	<i>grandmother</i>
Intervocalic	pəmə	pəmə	<i>avalanche</i>

The phoneme /m/ succumbs to the power of place assimilation. For example, the present tense stem /ʃɔm/ (drink) is realized as [ʃɛnd] in the third singular (from /ʃɔm/ + /-d/).

Occasionally some speakers show resistance to place assimilation, but this does not seem to be the norm. For example, some speakers may say [ʃɛmd] sometimes, but most say [ʃɛnd].

/n/ [n] [ɲ] [ŋ] [m]

The phoneme /n/ is realized as [n] (voiced alveolar nasal) in word initial, word final, and intervocalic environments.

Environment	Phonemic	Phonetic	Gloss
Word Initial	nɛnə	nɛnə	<i>mother</i>
Word Final	mən	mən	<i>OBL. 1SG</i> (pronoun)
Intervocalic	tʊ'nʊk	tʊ'nʊk	<i>thin</i>

The phonetic sounds [ɲ] and [ŋ] only occur directly before a stop of the same place of articulation. This is classic nasal place assimilation.

Environment	Phonemic	Phonetic	Gloss
before /b/	anbʊrə	ambʊrə	<i>pliers</i>
before /c/	kʊncɪkə	'kʊncɪkə	<i>girl</i>
before /ʃ/	aminʃə	aminʃʃə	<i>apple</i>
before /k/	ʒɪnkə	ʒɪŋkə	<i>woman</i>
before /g/	qʊŋgɔlə	qʊŋ'gɔlə	<i>fiance.F</i>

Nevertheless, some speakers sometimes showed resistance to nasal place assimilation. For example, /dʒɪŋgɛl/ is sometimes pronounced as [dʒɪŋgɛl] (not as [dʒɪŋgɛl]), and /anbura/ is sometimes pronounced [ʔanbura] (not as [ʔambura]). But once again, the resistance to nasal place assimilation does not seem to be the norm.

There is a regular sound change between the North and the South dialects involving *n-deletion*.⁹ Before /d/ and sometimes /g/ the south dialect deletes /n/, but the north dialect retains it.

North M.	South M.	English Gloss
vzɛndɔ	vzɛdɔ	<i>to know</i>
lɔnd	lɔd	<i>tooth</i>
'ɣɔndum	'ɣɔdum	<i>wheat</i>
tʃɛnd	tʃɛd	<i>how many</i>
ziŋg	zug	<i>knee</i>

This rule of *n-deletion* is predictable before /d/, but only rarely occurs before /g/.

⁹ This regular sound change was also documented by Beck and Beyer (2011).

In all of the following examples both dialects retain sequence of /ŋg/ realized as [ŋg]. Possible examples of /g/ retention:

Munji	English Gloss
dɔŋg	<i>walking stick</i>
qungalə	<i>fiance</i>
ḍʒɪŋgəl	<i>forest</i>
tʃɪŋgə	<i>bent</i>

/j/ [j] [ʔ]

The phoneme /j/ is realized as [j] (voiced palatal approximate) and [ʔ] (glottal stop). In the word initial position, if the following vowel is /i/, then the phoneme /j/ is most pronounced as the glottal stop [ʔ], but speakers occasionally do retain the [j] pronunciation, and they would say that this is the “proper” pronunciation.

/jist/ [ʔist] ‘*he takes*’

/ji/ [ʔi] ‘*husband’s brother*’

/jida/ [ʔida] ‘*small boy*’

If the following vowel is any other than [i], /j/ is pronounced as [j]:

/jɔsp/ [jɔsp] ‘*horse*’

When /j/ occurs between two vowels and the following vowel is an /i/, it may be realized as either [j] or the [ʔ]. Otherwise, /j/ is pronounced [j]. This includes word initial and intervocalic positions.

Environment	Phonemic	Phonetic	Gloss
Word initial	jixə	jixə	<i>sister</i>
Word initial before [i]	jist	ʔist	<i>bring.PRS.3SG</i>
Intervocalic	najin	najin	<i>to her</i>
Word Final	bɔj	bɔj	<i>uncle</i>

The sequence, V + /j/ could be interpreted as a diphthong: /VV/, or this sequence could be interpreted as a vowel plus consonantal coda of a syllable: /VC/. The morpho-phonemics of Munji show that VV sequences are not allowed in a syllable nucleus, thus this sequence is understood as /VC/ (see section on consonant insertion).

/w/ [w]

This phoneme /w/ is realized as [w] (voiced labio-velar approximate) in the word initial, intervocalic, and word final positions.

Environment	Phonemic	Phonetic	Gloss
Word Initial	wirɜ	wirɜ	<i>string</i>
Word Final	sɔw	sɔw	<i>mistake</i>
Intervocalic	ɣɔwə	ɣɔwə	<i>cow</i>

The phonemes /k/ and /n/ occur with /w/ in consonant cluster onsets:

/kw/	/kweka/	‘rock’
	/kwer/	‘cave’
/nw/	/nwɔst/	‘lie down.PST.3SG’

The sequence, V + w could be interpreted as a diphthong: /VV/, or this sequence could be interpreted as a vowel plus consonantal coda of a syllable: /VC/. But as with /j/, the morphophonemics of Munji show that this sequence is best understood as /VC/.

/h/ [h] [ʔ]

The phoneme /h/ occurs as [h] (voiceless glottal fricative) and [ʔ] (glottal stop). The [h] and [ʔ] sounds are in free variation preceding words beginning with a vowel. It is also pronounced in loan words by speakers educated in Dari and Arabic. In every case the [h] and [ʔ] are in free variation. This follows the observation of Edelman and Dodykhudoeva: “A common typical feature of the Pamir languages is the absence of an independent phoneme /h/, and the conditioned, non-phonemic “rough breathing” sound [h] before a word- or syllable-initial vowel” (Edelman and Dodykhudoeva, 777).

Environment	Phonemic	Phonetic	Gloss
Word Initial	/haq/	[haq] [ʔaq]	<i>(a) right</i>
Word Final	--	--	
Intervocalic	--	--	

Vowel Phonemes

	Front	Central	Back
Close	i		u
Near-Close	ɪ		ʊ
Mid	ɛ	ə	ɔ
Open		a	

Munji has eight phonemic vowels: i, ɛ, ɪ, u, ʊ, ɔ, a, ə.¹⁰ Five of the vowels are long in duration: i, u, ɛ, ɔ, a. And the three central vowels are short in duration: ɪ, ʊ, ə. The short vowels are neutralized in unstressed syllables, so that even native speakers are not aware of which specific vowel they are using.

Suspicious Pairs	Munji	English Gloss
/i/ /ɪ/	/ɣrivd/ /ɣrivd/ /vind/, /vid/ /vid/	<i>get.PRS.3SG</i> <i>get.PST.3SG</i> <i>take.PRS.3SG</i> <i>take.PRS.3SG</i>
/i/ /u/	/pɪr/ /pʊr/	<i>old</i> <i>son</i>
/i/ /ɛ/	/'pɪrə/ /'pɛrə/	<i>before</i> <i>hip</i>
/ɛ/ /ə/	/'nɛnə/ /'nənə/	<i>mother</i> <i>husband's sister</i>
/ɛ/ /ɪ/	/'d̪ɜ̃ɛftɔ/ /'d̪ɜ̃ɪftɔ/	<i>to send (a person)</i> <i>a two legged kick (like a donkey)</i>
/ʊ/ /ə/	/xʊ'sʊr/ /'xəsɾ/	<i>father-in-law</i> <i>self</i>
/u/ /ʊ/	/pʊr/ /pʊr/	<i>son</i> <i>full</i>

¹⁰ Grjunberg (1972) also identified eight phonemic vowels but wrote them a little differently: i, e, ə, ū, u, o, ā, a. We have used different symbols in an attempt to describe Munji Phonology using the International Phonetic Alphabet system.

/u/ /ɔ/	/tutə/ /tɔt/	<i>throat</i> <i>father</i>
/a/ /ɔ/	/bɔr/ /bar/ /pɔrg/ /barg/ /mɔf/ /maf/	<i>load</i> <i>beside, side</i> <i>mouse</i> <i>leaf</i> <i>2PL.NEAR (pronoun)</i> <i>3PL.OBL.NEAR (pronoun)</i>
/a/ /ə/	/man/ /mən/ /-əm/ /-am/	<i>3SG.OBL.NEAR</i> <i>1SG.OBL</i> <i>1SG verb agreement</i> <i>1PL verb agreement</i>
/a/ /ɛ/	/'sari/ /'seri/	<i>dawn</i> <i>unit of weight.PL</i>

/i/ [i]

This phoneme /i/ is the front close unrounded vowel.

Environment	Phonemic	Phonetic	Gloss
Word Initial	'inə	'ɪnə	<i>blood</i>
Word Medial	'miwə	'miwə	<i>fruit</i>
Word Final	'akɔndi	'akɔndi	<i>thorn</i>

There is a set of words that show an alternation between /i/ in the North dialect and /u/ in the South dialect.

North M.	South M.	English Gloss
zviɣ	zvug	<i>tongue</i>
tʃfir	tʃfur	<i>four</i>
ʔi'dir	ʔi'dur	<i>other</i>
ziŋg	zug	<i>knee</i>
wiʃ	wuʃ	<i>hay</i>
wirɜ	wurɜ	<i>string</i>

There is also a set of words that show an alternation between /i/ in the north dialect and /əj/ in the south dialect. This alternation only occurs word finally.

North M.	South M.	English Gloss
wi	wəj	<i>wind</i>
li	ləj	<i>smoke</i>

/ɛ/ [ɛ]

The phoneme /ɛ/ is the front open-mid vowel.

Environment	Phonemic	Phonetic	Gloss
Word Initial	ɛ	hɛ/?ɛ	<i>(vocative marker)</i>
Word Medial	'nɛnə	'nɛnə	<i>mother</i>
Word Final	ɛ	hɛ/?ɛ	<i>(vocative marker)</i>

Throughout the grammar of the language there is a special relationship between /ɛ/ and /ɔ/. For a certain set of verbs, /ɔ/ forms the nucleus of the present tense stem and /ɛ/ forms the nucleus of the past tense stem¹¹. For example:

PRS stem	PST stem	English Gloss
ʃɔm	ʃɛnd	<i>drink</i>
vzɔn	vzɛnd	<i>know</i>
lɔr	lɛt	<i>have</i>

The causative suffix also makes a contrast between the present /-ɔv/ and the past tense /-ɛvd/.¹²

For example:

PRS stem	PST stem	English Gloss
jəxsɔv-	jəxsɛvd-	<i>teach (cause to learn)</i>
tʃandɔv-	tʃandɛvd-	<i>knock over (cause to fall over)</i>
muɜɔv-	muɜɛvd-	<i>shake (cause to move)</i>

/ɪ/ [ɪ]

This phoneme is the near-close front unrounded vowel [ɪ].

¹¹ The uninflected past tense stem is used for the 3rd person singular.

¹² Henk Courtz (*personal communication*) has noted that this tendency to have front vowels instead of back vowels in past tense stems, may be explained from history. Since the Indo-European perfect participle was marked with [-it-], the [i] in this suffix may have pulled back vowels in the stem (as seen in the present tense) to the front.

Environment	Phonemic	Phonetic	Gloss
Word Initial	ixtiər	ʔix'tiər	<i>desire, right</i>
Word Medial	rɪfə	rɪfə	<i>broom</i>
Word Final	--	--	--

This vowel tends to be a little further back than cardinal [ɪ] and it is lower than [i]. The lips are neither very rounded nor unrounded.

/u/ [u]

The phoneme /u/ is the close back rounded vowel [u].

Environment	Phonemic	Phonetic	Gloss
Word Initial	utəj kəɾə	ʔutəj kəɾə	<i>to iron (clothes)</i>
Word Medial	kəbut	kəbut	<i>blue</i>
Word Final	ju	ju	<i>one</i>

/u/ contrasts with /ə/ in identical environments:

[ku] where

[kə] RELATIVIZER

/ʊ/ [ʊ]

This phoneme is the near-close back rounded vowel.

Environment	Phonemic	Phonetic	Gloss
Word Initial	'ʊmr	'ʔʊmr	<i>age</i>
Word Medial	xʊ'sʊr	xʊ'sʊr	<i>father-in-law</i>
Word Final	--	--	--

The clearest examples we have of this word are in Dari borrows. In Munji, the Dari /ʊ/ tends to drift toward /ə/.

/a/ [a]

The phoneme /a/ is the central front unrounded vowel [a]. It is somewhere in between cardinal [a] and cardinal [ɑ], and the mouth is much more open than in the pronunciation of [ə].

Environment	Phonemic	Phonetic	Gloss
Word Initial	'aminʒə	'ʔaminʒə	<i>air</i>
Word Medial	'sastə	'sastə	<i>mountain</i>
Word Final	'fiə	'fia (south Munji)	<i>shovel</i>

/ɔ/ [ɔ]

The phoneme /ɔ/ is the open-mid back rounded vowel [ɔ].

Environment	Phonemic	Phonetic	Gloss
Word Initial	ɔx'ʃə	ʔɔx'ʃə	<i>six</i>
Word Medial	pɔp	p ^h ɔp	<i>grandfather</i>
Word Final	pɔ	p ^h ɔ	<i>all</i>

/ə/ [ə] [ɛ] [ʊ]

The phoneme [ə] is the middle central unrounded vowel.

Environment	Phonemic	Phonetic	Gloss
Word Initial	'ələ	'ʔələ	<i>here.MID</i>
Word Medial	'pədiw	'pədiw	<i>glove</i>
Word Final	'ələ	'ʔələ	<i>here.MID</i>

/ə/ and /a/ will sometimes go to [ɛ] after a palatal sound.¹³

/niŋj/ + /ə/ → [niŋjɛ]

bring up.PST + 3SG → “*He brought (something) up.*”

/ə/ goes to /ʊ/ after [w]:

/wələ/ → [wʊlə]

wife → ‘*wife*’

Concerning the short vowels Morgenstierne wrote, “There really appears to be a certain instability in the articulation, especially of the short vowels, in Y-M [Yidgha-Munji]. They often tend towards a neutral ə...”¹⁴ Accordingly, we also observed that the precise quality of central vowels is difficult to consistently distinguish — both for the linguist and the native speaker.

¹³ This is also observed by Grjunberg. (Skjærvø, 4.2.2.3.1).

¹⁴ Morgenstierne, 88.

Diphthongs

True diphthongs do not occur in Munji. Nevertheless, the following ambiguous sequences occur in Munji: [aj] [əj] [uj] [uj] [ɔj] [aw] [ɔw] [iw].

They are ambiguous because /j/ could be interpreted as /i/, and /w/ could be interpreted as /u/.

In other words, is this a sequence of VV or VC?

Here are some real language examples of these sequences.

[baj kəɾɔ] ‘to ask a price’

[bəj] ‘kiss.PRS’

[buj kəɾɔ] ‘to smell (transitive)’

[bɔj] ‘uncle’

[pədiw] ‘glove’

[naw] ‘nine’

[dɔw] ‘in there’

We analyze all of these diphthongs as actually being /VC/ and not /VV/. The second vowel is always a high vowel which could be analyzed as an approximate /j/ or /w/. The main evidence for this comes from the lack of consonant insertion in the morphophonemics (see section below on consonant insertion). The conclusion is that Munji does not allow VV sequences in the same syllable.

Vowel Length

Munji has five long vowels (i, u, ε, ɔ, a) and three short vowels (ɪ, ʊ, ə). The long vowels are either front or back and the short vowels are all central. Vowel length is not contrastive, but it does play a role in aiding the perceptual differences between some vowels. This is especially the case for distinguishing /a/ and /ə/.

Consonant Clusters

A particular language’s segmental inventory by itself does *not* imply that every segment can co-occur with any other in any environment. In Munji, there are patterns and restrictions about which sequences of phonemes occur in the various parts of a syllable. Sonority is one feature which proves useful on both accounts.

The phonological feature of sonority is often invoked in the domain of the syllable to explain the distributional tendencies and restrictions of phonemes in a particular language. In particular, sonority provides an explanation of the distribution of segments in consonant clusters.

The phonological property of sonority is defined as “a unique type of relative, *n*-ary (non-binary) feature-like element that potentially categorizes all speech sounds into a hierarchical scale” (Parker 2011). One common sonority scale posits five levels based on natural classes related to the manner of articulation: vowel > glide > liquid > nasal > obstruent (Clements 1990).

Table 1 Syllable Onset Clusters in Munji

C ₁ C ₂ → ↓		stop	fricative		nasal	liquid	glide
			- sibilant	+ sibilant nt			
stop		kp pt kt ptʃ	px tf tʃf	pʃ		pl pr br kl tr dr gl kr gr	pj dw kw ʃw
fricative	-sibilant	ft fk ftʃ	fx fʃ	xs vz xʃ		fr vr ʏr	
	+sibilant	sp st ʃt sk ʃc ʃk	sx zy ʃf			ʃl sr	
nasal						ml nr	nj nw
liquid							
glide							

In this table, the lighter shading shows sonority plateaus and the darker shading shows sonority reversals. The unshaded portion shows CC clusters that follow the Sonority Sequencing Principle. This table modifies the basic five level sonority scale in two ways. It splits obstruents into two levels of sonority: fricatives and stops. This follows a common pattern seen in many

other languages. Phonologists have often analyzed languages as having a crucial sonority difference between fricatives and stops (Parker, 2002).

This chart splits fricatives into sibilants and non-sibilants; nevertheless, this analysis continues to view them as having the same level of sonority. The sibilants are considered a type of fricative. The typologically unique behavior of sibilants (especially on word edges) warrants this specialized space in this table.

The resulting sonority scale posited for Munji is:

Vowel (V) > Glide (G) > Liquid (L) > Nasal (N) > Fricative (F) > Stop (P)

The following chart is like the one above but shows the distribution of coda clusters.

Table 2 Syllable Coda Clusters in Munji

C ₁ C ₂ → ↓		stop	fricative		nasal	liquid	glide
			- sibilant	+ sibilant			
stop		bd	qf (Ar.)	ks (Ar.)		ql (Ar.)	
fricative	-sibilant	ft vd çt vg xt yd		fs vz xʃ	zm zn		
	+sibilant	sp st ʃt zd sk ʃc					
nasal		mb nd ¹⁵ nd̥ʒ ɲʃ ŋg	nf (Ar.)				
liquid		rk rg ld rd rʃ̥ lq	lf lv rv rx	rs rz rʒ	rm		
glide		wd wq jt jb		wz	wn	wl wr jl jr	

Syllable onsets sequences of three consonants only occur word initially, and with strong restrictions.

- The first consonant must be a voiceless sibilant. In a CCC cluster, this segment always violates the Sonority Sequencing Principle by causing a sonority reversal. Sibilants in this position are considered extra-syllabic.
- The second consonant must be a voiceless plosive (no affricates or fricatives).

¹⁵ In the southern Munji dialect, /n/ deletes before /d/ and /d̥ʒ/ and sometimes before /ʃ/ and /g/.

- The third consonant must be a glide. The one exception is the borrowed word (from English), /skret/ ‘cigarette’ which would extend the category to include both glides and liquids.

CCCV sequences:

[skwet] ‘stick’
 [skret] ‘cigarette’ (borrowed word)
 [ʃkwɒd̪ɜ̃-i] ‘he looks for’

Syllable coda CCC sequences are licensed by the syllable and may exhibit a sonority plateau.

They also have fewer restrictions:

- The first segments cannot be stops.
- The last segment must be a stop.

VCCC sequences:

VGFO [ʔawsp] ‘long pole that connect the yoke to a plow or threshing sled’
 VFFO [xɛfst] ‘he comes down’
 VNNO [ʃkɛmnd] ‘he lifts’

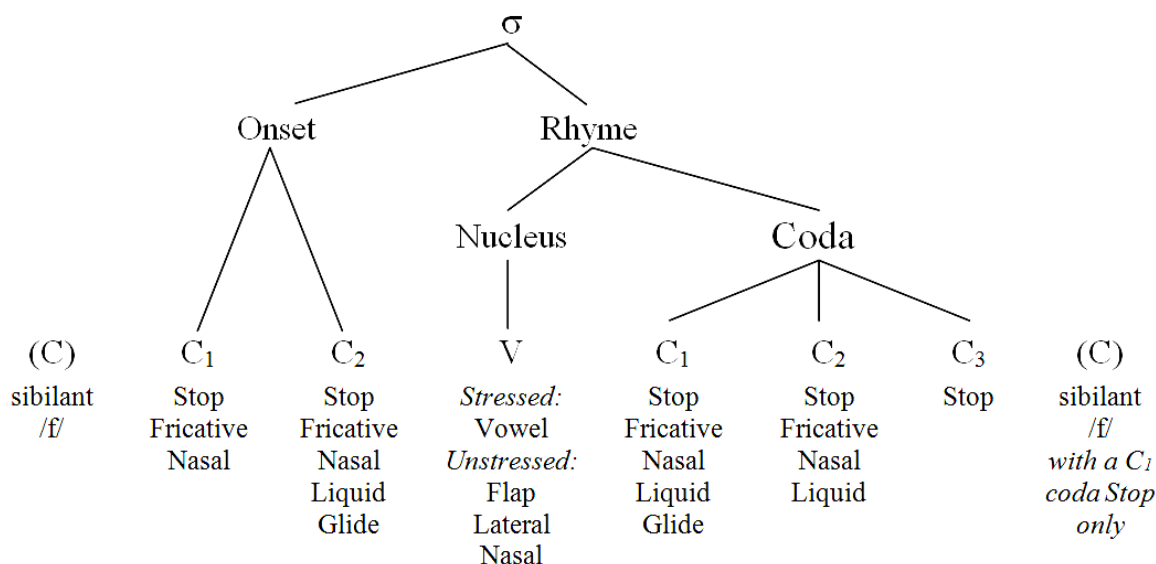
Syllable Template

The maximum number of segments in a single syllable is five. There are two possible combinations:

1. CCVCC [vrɪʃc] ‘broke’
2. CVCCC [xɛfst] ‘he comes down’

The C₁ onset position is limited to stops, fricatives, and nasals. Extra-syllabic consonants are allowed at the word edges. At the beginning of the word both (C)CC and (C)C are allowed, but at the end of words, the extra-syllabic consonant may only occur with a single stop: C(C) . Only /f/ and voiceless sibilants may be extra-syllabic. Tri-consonantal sequences word initial always consist of an extra-syllabic sibilant + voiceless stop + glide. The C₃ position of CCC codas must be a stop.

Figure 1. The Munji maximum syllable template with restrictions



Stress

For nouns, stress is usually on the first syllable. But there are a few examples of stress playing a part in distinguishing lexical items:

/pɪ 'gɑ/ 'morning'

/'pɪgə/ 'hair'

For verbs, stress is on the stem. If the stem is two syllables, then the stress is on the second syllable of the stem.

This often corresponds to the difference between the present and past tense stems:

/'wɪʃc-əm/ 'I rise'

/wɪʃ'cɔj-əm/ 'I rose'

/'pəf-əm/ 'I blow'

/pəf'ɔj-əm/ 'I blew'

/'fən-əm/ 'I pant'

/fən'ɔj-əm/ 'I panted'

In a few places, stress in Munji is grammatically contrastive. There is a group of Munji verbs which use stress to distinguish the present from the past tense. The present tense takes the stress on the first syllable and the past tense takes the stress on the second syllable. In the

following example, we have use the first person singular to show this grammatically contrastive stress.

Present Tense	Past Tense
'avər-əm ' <i>I bring</i> '	a'vər-əm ' <i>I brought</i> '
'zəvər-əm ' <i>I chase</i> '	zə'vər-əm ' <i>I chased</i> '
'wəzər-əm ' <i>I watch</i> '	wə'zər-əm ' <i>I watched</i> '
'nəvər-əm ' <i>I take out</i> '	nə'vər-əm ' <i>I took out</i> '

Stress is also grammatically contrastive in distinguishing the difference between the perfect tense feminine singular and the masculine participle forms. So by way of explanation, the participle suffix is /-əγə/. The masculine singular form takes an additional null suffix /-Ø/: /-əγə/ + /-Ø/ = [-əγə]; the feminine singular form takes an additional suffix /-ə/ with an epenthetic [γ]: /-əγə/ + [γ] + /-ə/ = [-əγəγə]. The perfect tense feminine singular form consists of the perfect tense feminine suffix /-əγ/ plus the feminine singular suffix /-ə/. Thus, the surface forms may have the same phonetic segments: [-əγə] and [-əγə]. But in these cases the stress is grammatically contrastive. The perfect tense keeps the stress on the verbal root, but the participle form takes the stress on the suffix.

Perfect Tense: wə 'njɔst -əγ-ə “She has sat down.” (AJ October 2014)

Participle: wə njɔst -ə'γə “He is seated.” (AJ October 2014)

Other than participles, stress occurs on the roots of words and not on their suffixes. The negative prefix, however, always takes the primary stress:

/ˈvzɔn-əm/ ‘*know.PRS-1SG*’

/ˈ(ɪ)-vzɔn-əm/ ‘*NEG-know.PRS-1SG*’

Phonological Processes

Word final devoicing for plosives and fricatives

Word final devoicing for stops is common but the true character of the underlying form comes out with the addition of a suffix.

/pɔrg/	→	[pɔrk]	‘mouse’
/pɔrg/ + /-i/	→	[pɔrgi]	‘mice’
/lɔnd/	→	[lɔt]	‘tooth’ (south dialect)
/lɔnd / + /-i/	→	[lɔdi]	‘teeth’ (south dialect)

At the end of words, clusters consisting of fricative + consonant usually retain their voicing, but sometime they will devoice at the end of an utterance.

/ɣrivd/ → [ɣrivd] or [ɣrift] ‘*grab*.PRS.3SG’

Voicing

A certain class of verbs takes a /-t/ suffix for the present tense third person singular. After a vowel or after a voiceless consonant the /-t/ suffix is realized as [t].

[zvɪt] ‘*chase*.PRS.3SG’

[tʃɔst] ‘*fall*.PRS.3SG’

[niçt] ‘*sit*.PRS.3SG’

[dʒɛft] ‘*send*.PRS.3SG’

[nwiʃt] ‘*write*.PST.3SG’

But after a voiced consonant the /-t/ suffix is realized as [d].

[wind] ‘*see*.PRS.3SG’

[plɛrd] ‘*sell*.PRS.3SG’

[muʒd] ‘*move*.PRS.3SG’

[ɣrivd] ‘*get*.PRS.3SG’

[dild] ‘*give*.PRS.3SG’

[bɔyd] ‘*divide*.PST.3SG’

[tʃɪbd] ‘*sting*.PST.3SG’

[nəmezd] ‘*pet*.PRS.3SG’

Consonant Insertion

Munji syllable structure strictly forbids sequences of vowel + vowel (VV). When a stem ends in a vowel and a suffix begins with a vowel, a consonant is inserted to turn the syllable structure from VV to VCV.

/ləra/ /-an/ → [ləra-ɣ-an]
 far -OBL.M.SG → ‘*far.OBL.M.SG*’

redundant

So then, when stems end in a consonant, there is no change when they take suffixes beginning with a vowel:

/tʃəm/ /-i/ → [tʃəm-i]
 eye -PL → ‘*eye.DIR.PL*’

/ləst/ /-af/ → [ləst-af]
 hand -PL.OBL → ‘*hand.OBL.PL*’

If however, the word ends in a vowel and the suffix begins with a vowel, an epenthetic consonant is inserted in the pronunciation. The epenthetic consonant takes various forms depending on dialect, the grammatical part of speech, and/or the historic source of the lexical item.

As a rule, nouns and adjectives ending in a vowel insert [g]/[ɣ] before a suffix beginning with a vowel. South Munji uses [g] and north Munji uses [ɣ].¹⁶

/wɔlu/ /-i/ → [wɔlu-g-i]/ [wɔlu -ɣ-i]
 wedding -DIR.PL → ‘*wedding.DIR.PL*’

However, there is a certain class of masculine nouns which are an exception to this. This class of masculine nouns ends with [ɔ] in the north Munji dialect but with [a] in the south Munji

¹⁶ Dari also uses commonly uses [g] as an epenthetic consonant. /zinda/ ‘*alive*’ plus the nominalizing suffix /-i/ makes [zindagi] ‘*life*’.

dialect. These nouns use [k]/[c] before a suffix starting with a vowel. The south Munji dialect inserts the consonant [k], and the north Munji dialect inserts [c].

/fiɔ/ /-i/ → [fia-k-i]/ [fiɔ-c-i]
 shovel -PL → ‘*shovel.PL*’

/mirɔ/ /-an/ → [mira-k-an]/ [mirɔ-c-an]
 sun -OBL.SG → ‘*sun.OBL.SG*’

The other exception is the class of words ending in the high front vowel [i]. When a suffix beginning with a vowel is added to a stem ending in a high front vowel, the consonant [j] is inserted in between.

/turki/ /-i/ → /turki-j-i/ → [turkiji]/[turki:]
 fat tailed sheep -DIR.PL → fat tailed sheep-C-PL → ‘*fat tailed sheep.DIR.PL*’

/turki/ /-af/ → /turki-j-af/ → [turkijaf]
 fat tailed sheep -DIR.PL → fat tailed sheep-C-PL → ‘*fat tailed sheep.DIR.PL*’

Summary Plural Nouns in the Direct Case

English gloss	SG	SUFFIX	PL	Explanation
<i>eye</i>	tʃəm	-i	tʃəm-i	Masuline consonant final stems add /-i/.
<i>leg</i>	pal-ə	-i	pal-i	Feminine nouns ending in consonants take the /-ə/ suffix in the singular and the /-i/ suffix in the plural.
<i>shovel</i>	fɔ	-i	fɔ-ci	Historic Munji nouns ending in /ɔ/ take [c] (or [k] in South Munji) before the suffix. ¹⁷
<i>kidney</i> <i>wedding</i>	wɪlga wɔlu	-i -i	wɪlga-ɣi wɔlu-ɣi	Other nouns ending in a vowel (not /-i/) insert [ɣ] (or [g] in South Munji) before the plural suffix.
<i>fat tailed</i> <i>sheep</i>	turki	-i	turki-ji / turki-:	Nouns ending in /-i/ insert /-j/ before the suffix /-i/. The sequence of /iji/ is often realized as [i:].

One exception to these rules is the personal clitics. The personal clitics always use [j] when the stem ends in a vowel and the suffix begins with a vowel. Note that in the following example when the word /hisa/ takes a nominal suffix, it uses [g] as the epenthetic consonant. But when the word /hisa/ takes a pronominal clitic, it uses [j] as the epenthetic consonant.

bad vaj lə **hisa** -g -i ʔikit
 then 3SG.OBJ.MID two portion -C -PL do.PRS.3SG
 kə wə və ju **hisa** -j -ɪʃ nə pur -an -ɪʃ dild
 COMP 3SG.FAR OBJ one portion -C -3SG to son -OBL.M.SG 3SG give.PRS.3SG
 wə ju hisa nə pɪʃc -an -ɪʃ dild
 and one portion to cat -OBL.M.SG -3SG give.PRS.3SG

Free: “Then she divided it into two portions so that she could give her son his portion and one portion to the cat.” (GA; *Cat and the Widow Text*)

¹⁷ South Munji uses [a] instead of [ɔ] for these nouns. North Munji speakers will insert [c] instead of [k] before the suffix.

Also, Dari borrowed words ending in [ɔ] take the epenthetic [j].

ja badar ʃi nə **dario** **-(j) -an**.
 3SG.MID leave go.PST.3SG to river -C -OBL.MASC.SG

Free: “*He set out toward the river.*”

The processes involved in Dari borrows

Dari words follow some patterns as they take new shapes in Munji.

The sound [a] in Dari words often goes to [ə] when the word is adopted into Munji (Grj., 401).

Dari	Munji	Gloss
[jax]	[jəx]	<i>ice/cold</i>
[daf]	[dəf]	<i>drum</i>

This is a general tendency rather than a hard and fast rule.

Generally, the Dari [e] phoneme goes to [i] in Munji.

Dari	Munji	English Gloss
mewa	miwə	fruit
deu	diw	monster
ser	sir	a measure of weight (about 15 pounds)
tez	tiz	sharp, fast
ʃer	ʃir	lion

The Dari [o] goes to [u] in Munji.

Dari	Muni	English Gloss
poʃ	puʃ	cover, lid
aroz	aruz	every day

There is also a tendency for the Dari [ʊ] sound to go to [ə] in Munji (Grj., 401). But some speakers retain more of a distinction.

As Dari verbs are adopted into Munji, there are some regular patterns:

- The present tense stem of the Dari verb is used as the stem for all tenses in Munji.

- The Munji the Dari /me-/ prefix becomes /bĩ-/ . In Dari, the /me-/ prefix is used to indicate progressive aspect, but as it moves to Munji it loses its status as a suffix and becomes part of the stem.
- Munji generally adds the /-ɔj/ suffix to make borrowed words past tense.

/me/ + Dari PRS stem	Munji PRS stem	Munji PST stem	Gloss
me-daw-	bĩdaw	bĩdaw-ɔj	<i>run</i>
me-larz-	bĩlarz	bĩlarz-ɔj	<i>shake</i>
me-kan-	bĩkan	bĩkan-ɔj	<i>dig</i>

There are some exceptions to the pattern of using /-ɔj/ to form the past tense. In these cases the past tense stem from Dari is used.

[me] + Dari PRS stem	Munji PRS stem	Dari PST stem	Munji PST stem	English Gloss
me-rez-	bĩriz	rext-	bĩrixt	<i>pour</i>

There is evidence that the short vowel [ĩ] is actually epenthetic. For example, the short vowel is absent when the syllable structure changes.

waj bĩxend -i
 3PL read -PL
 “*They are literate.*”

waj tʃr- pxend -i
 3PL NEG- read -PL
 “*They are illiterate.*”

When stops and fricatives occur in consonant clusters they always agree in voicing (even across syllables), so when the /b/ and the /x/ come together, the /b/ devoices to [p] so that the resulting consonant cluster agrees in voicing [px].

When a Dari word has the Dari causative morpheme [-ɔn], the Munji form retains the Dari causative morpheme. That is, it does not replace the Dari causative [-ɔn] with the Munji causative [-ɔv]. For example:

[bĩdawɔn-] ‘*cause to run.PRS*’

[bʲirizɔn-] ‘cause to be poured.PRS’

[bʲitʃɔrɔn-] ‘cause to graze.PRS’

[bʲitʃɔspɔn-] ‘cause to stick.PRS’

In Munji there are possible two possible forms for the past tense causative suffix to take. These are /-ɛvd/ and /-ɛnd/. The most common of these is /-ɛvd/, but Dari words using the causative suffix always take the form /-ɛnd/ when they are borrowed into Munji. The present tense words listed above are thus rendered in the past tense:

[bʲidawɛnd-] ‘cause to run. PST’

[bʲirizɛnd-] ‘cause to be poured.PST’

[bʲitʃɔrɛnd-] ‘cause to graze.PST’

[bʲitʃɔspɛnd-] ‘cause to stick.PST’

In South Munji, the causative suffix /-ɛnd/ is realized as [-ɛd].

Summary of Causative suffixes:

	PRS	PST
Normal Dari Causative	-ɔn	-ɔn
Normal Munji Causative	-ɔv	-ɛvd
Munji Causative from words borrowed from Dari	-ɔn	-ɛnd /-ɛd

There is an alternation in words ending with /ɣɪn/ in the north dialect becoming /gna/ in the South dialect:

North Munji	South Munji	Gloss
/naɣɪn/	/nagna/	<i>bread</i>
/ruɣɪn/	/rugna/	<i>oil</i>

Summary of Phonological Constraints and Processes in Munji

- Nasal Place Assimilation
- Consonant Devoicing Word Final
- Consonant insertion
 - [k/c] insertion on nouns stems ending in [ɔ/a]

- [g/ɣ] insertion
- [j] insertion
- Consonant Clusters agree in voicing (liquids and glides are the exception)
- VV* in one syllable; that is, two vowels do not occur in the same syllable.

Appendix 1: Munji Dialect Variation Summary

Phonological Alterations	North Munji IPA	South Munji IPA	Munji Orthography	English Gloss
[nd] = [d]	lɔnd	lɔd	لاند	<i>tooth</i>
[ŋg] = [g]	ziŋg	zug	زينگ	<i>knee</i>
[ɣ] = [g]	jɔwɣə	jɔwgə	ياوگه	<i>water</i>
[i] = [u]	wiɟ	wuɟ	ويش	<i>hay</i>
[i] = [ɔj]	wi	wəj	وي	<i>wind</i>
[ɔ] = [a]	fiɔ	fia	فيا	<i>shovel</i>
[ɬ] = [lɟ]	pəlɟə	pəlɟə	پلگه	<i>kick</i>
[VdrV] = [VlrV]	widrɔjɔ	wilrɔjɔ	ودرايا	<i>sleep</i>
[ɣn] = [gna]	nayn	nagna	ناعن	<i>bread</i>

Appendix 2: Munji Transcriptions

A comparison of Munji Transcription systems from Williamson and Williamson (W. And W.), Grjunberg (Grj.) , Morgenstierne (Morg.), and the Munji working orthography.

W&W IPA	Grj. Phonetic	Grj. Orthography	Morg. Phonetic	W&W Roman	2014 Working Orthography
p	p	p	p	p	پ
b	b	b	b	b	ب
t	t	t	t	t	ت
d	d	d	d	d	د
c	ć	ć	ć	ky	ک
ʃ	š	š	š	gy	گ
k	k	k	k	k	ک
g	g	g	g	g	گ
q	q	q	q	q	ق
f	f	f	f	f	ف
v	v	v	v	v	ق
s	s	s	s	s	س

z	z	z	z	z	ز
ʃ	š	š	š	sh	ش
ʒ	ž	ž	ž	zh	ژ
ʂ	ṣ̣	ṣ̣	ṣ̣	--	--
ʐ	ṣ̣̣	ṣ̣̣	--	--	--
ç	č	č	č	x	چ
x	x	x	x	kh	خ
ɣ	gh	gh	ɣ	gh	غ
h	h	h	h	h	ه
ts̄	c	--	c	ts	ش
d̄z	ʒ	--	ʒ	dz	--
t̄ʃ	č	č	č	c	چ
d̄ʒ	ǰ	ǰ	ǰ	j	ج
t̄ʂ	ṣ̣	ṣ̣	ṣ̣	--	--
d̄ʐ	ǰ̣	--	ǰ̣	--	--
m	m	m	m	m	م
n	n	n	n	n	ن
ɲ	ń	ń	ń	--	--
ŋ	--	--	ŋ	--	--
r	r	r	r	r	ر
j	y	y	y	y	ی/ی
w	w	w	w	w	و
l	l	l	l	l	ل
i	i	i	ī	i/ii	ی/ی
ɛ	e	e	e	e	ې
u	ū	ū	ū	oo	ؤ
ʊ	u	u	u	u	--
ɪ	ə	ə	i	i	--
ɔ	o	o	o	o	آ/ا
a	ā	ā	a	a	أ/ه
ə	a	a	ə	a/u	ه/ا/ا

Diphthongs:

W&W IPA	Grj. Phonetic	Grj. Orthography	Morg. Phonetic	W&W Roman	W&W Test Orthography
-aj	-āy	-āy	-ay	-ay	أى-
-əj	-ay	-ay	-iy	-ay	ى-
-ɔj	-oy	-oy	-oy	-oy	اى-
-uj	-ūy	-ūy	-ūy	-uy	ؤى-
-iw	-iw	-iw	-īw	-iw	يو-
-aw	-āw	-āw	-aw	-aw	أو-
-ɔw	-ow	-ow	-ow	-ow	او-

Appendix 3: Orthography Summary

Phonetic Consonant Sounds including both Phonemes and Allophones

	Labial	Labial- dental	dental	Alveolar	Post- alveolar	Retroflex	Palatal	Velar	Uvular	Glottal
Plosive	p b p ^h p ^ʔ		t d t ^h d ^ʔ				c ^j ɟ ^j	k g k ^h g ^ʔ	q	ʔ
Fricative		f v		s z	ʃ ʒ	ʂ ʐ	ç	x ɣ		h
Affricate				ts dz	tʃ dʒ	ʈʂ ɖʐ	cç ɟɟ			
Nasal	m			n			ɲ	ŋ		
Flap				r						
Approx.						ɻ	j	w		
Lateral Approx.				l						

Consonant Orthography Summary:

	Labial	Labial-dental	dental	Alveolar	Post-alveolar	Retroflex	Palatal	Velar	Uvular	Glottal
Plosive	پ ب		ت د				خ گ	ک گ	ق	
Fricative		ف ق		س ز	ش ژ		بن	خ ع		
Affricate				خ	چ ج					
Nasal	م			ن						
Flap				ر						
Approx.							ی	و		
Lateral Approx.				ل						

Other consonant letters from Dari used in words with Arabic etymology:

ث ح ذ ص ض ط ظ ع ه

Vowel Summary:

	Orthography		
	Front	Central	Back
Close	ی		و
Near-Close	ø		/ø
Mid		ه/ø/ا	
Open-Mid	ی		آ/ا
Open		أ/ه	

Appendix 4: Consonant Cluster Example Words

Consonant Clusters in Syllable Onsets

Munji IPA	English Gloss
brayikə	<i>'sparrow'</i>
drawevdə	<i>'to scare'</i>
dwəzdə	<i>'twelve'</i>
ʃci	<i>'neck'</i>
ʃlax	<i>'naked'</i>
ʃtig	<i>'something'</i>
fcen	<i>'rolling pin'</i>
ʃʃɪrdə	<i>'brief'</i>
fraydə	<i>'pile of wheat ready to be winnowed'</i>
ftə	<i>'2.SG.OBJ' (pronoun)</i>
ftʃɪʃcə	<i>'to split open'</i>
ptʃɪʃcə	<i>'to split apart'</i>
fxatiə	<i>'to agree'</i>
ɣraj	<i>'dust'</i>
gribən	<i>'collar'</i>
klul	<i>'round'</i>
kpər	<i>'lip'</i>
kritʃə	<i>'stone hut in the high summer pasture'</i>
ksətə	<i>'flat wicker basket for flour'</i>
ktju	<i>'book'</i>
kwijə	<i>'bull'</i>
mlemtʃi	<i>'middle'</i>
njəst	<i>'he/she/it sat'</i>
nrizdə	<i>'lick'</i>
nwəst	<i>'he/she/it slept'</i>
pʃəj	<i>'ripe'</i>
pjəz	<i>'onion'</i>
plerd	<i>'he/she/it sells'</i>
privɾ	<i>'barn'</i>
ptʃuj-əm	<i>'I am cold'</i>

ptɪftə	<i>'to persuade'</i>
pxəft	<i>'tired'</i>
sɑŋgləwi	<i>'otter'</i>
ʃfi	<i>'husband'</i>
skɑpɪr	<i>'in front of'</i>
ʃcuɡə	<i>'tea,' 'liquid'</i>
ʃkə	<i>'whose'</i>
spi	<i>'white'</i>
sɹɪp	<i>'strong'</i>
stəri	<i>'star'</i>
sxuʝə	<i>'to slide'</i>
tʃɪr	<i>'four'</i>
tfevdə	<i>'to light a fire'</i>
trem	<i>'around.NR'</i>
vriyə	<i>'eye brow'</i>
vzəndə	<i>'to know'</i>
xʃɪrə	<i>'milk'</i>
xsərə	<i>'harm'</i>
zyəvdə	<i>'walk, move in a direction'</i>

Consonant Clusters in Syllable Codas

Munji IPA	English Gloss
əɡuɲɟ	<i>'dough'</i>
ajb	<i>'flaw'</i>
arz kərə	<i>'to make a legal complaint'</i>
avezd	<i>'he/she/it brought'</i>
awd	<i>'body of water'</i>
azm kərə	<i>'to digest'</i>
bʊks ʒiə	<i>'punch'</i>
dawɹ liə	<i>'to spin (something)'</i>
dild	<i>'he/she/it gives'</i>
dʒɛft	<i>'he/she/it sends'</i>
ɣafs	<i>'thick, fat, large'</i>
gəɹm	<i>'warm'</i>

qajt	<i>'off'</i>
zɪf	<i>'lock of hair in front of the ears'</i>
ɣɔlv	<i>'dog'</i>
gʊrz	<i>'club'</i>
halq	<i>'uvula'</i>
jɔsp	<i>'horse'</i>
jeɲɟ	<i>'he/she/it ground'</i>
jɪrv	<i>'mouth'</i>
jəxsevd	<i>'he/she/it taught'</i>
juvg	<i>'spear'</i>
kɔsk	<i>'barley'</i>
kind	<i>'he/she/it does' (North Munji)</i>
lɔst	<i>'hand, arm'</i>
lavz	<i>'language'</i>
murtʃ	<i>'pepper'</i>
naql	<i>'story'</i>
niçt	<i>'he/she/it sits'</i>
nird	<i>'he/she/it comes out'</i>
lirs	<i>'goat hair'</i>
pɔndʒ	<i>'five'</i>
pɔrg / pɔrk	<i>'mouse'</i>
piʃqɔwz	<i>'(big) knife'</i>
qɔwl	<i>'promise'</i>
razn	<i>'elbow'</i>
sajl kɔrɔ	<i>'to watch'</i>
saqf	<i>'ceiling'</i>
sawn	<i>'co-wife'</i>
sɪmb	<i>'hoof'</i>
sɪnf	<i>'class'</i>
tɔwq	<i>'collar, loop'</i>
tʃarx	<i>'wheel'</i>
tʃɔʃt	<i>'noon'</i>
tʃixt	<i>'wooden hook'</i>
tʃɪrk	<i>'dirty'</i>
tiʒd	<i>'he/she/it carves'</i>

tsəbd	<i>'he/she/it pinched'</i>
wirɜ	<i>'string'</i>
wʊʃkwəyd	<i>'he/she/it searched'</i>
xajr	<i>'good'</i>
xiʃc	<i>'he/she/it pulls'</i>
ziŋg	<i>'knee'</i>

Appendix 5: List of Abbreviations

1	first person
2	second person
3	third person
AJ	Abdul Jabar, north Munji dialect speaker
C	consonant (non-syllabic segment)
DIM	diminutive
DIR	direct case
F	fricative
G	glide
GA	Ghulam Ali, south Munji dialect speaker
Grj.	Grjunberg (1972)
L	liquid
Morg.	Morgenstierne (1938)
N	nasal
NM	Nek Mohommad, south Munji dialect speaker
NR	deictically near
O	obstruent (plosives and/or affricates)
OBL	oblique case
OBJ	direct object
P	plosive or stop
PL	plural
PRS	present (non-past) tense
PST	past tense
SG	singular
σ	syllable
V	vowel (syllabic segment)
W&W	Williamson and Williamson (authors)

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