“Brightening” in Ersu, Lizu, Duoxu and neighboring languages

KATIA CHIRKOVA

AND

ZEV HANDEL

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PART I:

Comparative & Methodological Issues

ZEV HANDEL

“Brightening” in “Qiangic”

- Matisoff (2019) is an extremely useful and comprehensive overview of “brightening” in many languages of the region
- Shows great variability in raising/fronting of PTB *-a
  - variation by language
  - variation by lexical item
  - variation by end result (*-ɛ*, *-e*, *-i*, etc.)
- This strongly suggests *multiple instances of historical change*, not a single shared Proto-Qiangic innovation
- This is confirmed when we look at closely related languages within compact subgroups/clusters

Gyalrongic

- Extensive brightening of *-a is found in:
  - Khroskyabs (= Lavrung 拉坞戎) **YES**
  - Horpa (= Stau, Ergong 尔龚, Daofu 道孚) NO (??)
  - Gyalrong (嘉绒)
    - Tshobdun (草登) **YES**
    - Zbu (日部) **YES**
    - Japhug (茶堡) NO
    - Situ (四土)
      - Brag-bar, Kyomkyo, Chuchen, Bragsteng **YES**
      - Cogtse, Somang NO

Gyalrongic “nose”

PTB	Gyalrongic					
		Gyalrong			Situ	
	Khroskyabs (Wobzi)	Zbu	Tshobdun	Japhug	Brag-bar	Somang
*s-n**a**	snæ̂ < *s-nɣ**e**	tə-sɲî < ***ê**	tə**ɕ**n**é**ʔ	tɯ-**ɕ**n**a**	tə-**ɕ**ni**ɛ̄**p	tə-**ɕ**n**á**

PTB *-a >
Proto-Gyalrongic *-a >
Proto-Gyarong *-a >
Proto-Situ *-a

Sources:

- Lai Yunfan 2017
- Gong Xun 218
- Jacques 2004
- Zhang Shuya 2016

Gyalrongic

- Jacques (p.c.): Vowel raising “did not exist in proto-Situ (maybe 500-800 years ago?)”; it occurred late enough to effect relatively recent Tibetan borrowings into Gyalrong
- Matisoff (2019): “[Hsiu’s (2018)] reconstruction of Proto-rGyalrongic scores about zero on the brightness scale.” (i.e. no brightening)

Proto-Ersuic (Proto-ELD)

- Yu (2012) reconstructed Proto-Ersuic (his term for the ELD proto-language, our Proto-ELD)
- He reconstructed Proto-Ersuic *i in a number of words derived from PTB *-a, describing them as examples of Qiangic brightening
- But in 2019 Yu incorporated Duoxu data from Chirkova and revised some Proto-Ersuic roots:

Yu (2019) revisions to “brightened” roots

Gloss/PTB	Ersu	Lizu	Duoxu	Yu 2012	Yu 2019
‘chin’ *ŋam (?)	me^{31}xe^{31}	me^{55}hẽ^{51}	mje^{44}**l**a^{55} < *mje^{44}n**a**^{55}	*mehĩ^{2}	*mehnam^{2}
‘listen’ *g/r-na	^{L}baɲe	^{RP}bæɲi	ba^{53}ɲ**a**^{32}	*bæni^{1}	*bæŋ̊a
‘nose’ *s-na	^{H}sv̩mbv̩	^{LP}tombv̩	ɲ**a**^{32}-ku^{53}	*stim(b)u^{1}	*sŋ̊a
‘rest’ *na	^{EP}ba-ɲe	^{LP}bɹəɲi	ba^{54}ŋ̊**a**^{32}	*breni^{1}	*breŋ̊a
‘ill, ache’ *na	^{H}ɲe	^{RP}de-ɲi	ɲ**a**^{44}	*deni^{1}	*ŋ̊a
‘daughter’ *tsa ≍ *za	^{L}zeje	^{EP}ʑeje	z**a**^{44}-mi^{44}	*zjeji/zijo^{2}	*zan^{2}

Proto-Ersuic (Proto-ELD)

- In these ELD cognate sets Duoxu has a low vowel where Ersu and Lizu have high vowels
- So at least some “brightened” forms in Ersu and Lizu still had low vowels in Proto-Ersuic

The ELD and Gyarongic cases demonstrate that:

- Brightening is common across languages of the region
- But it is highly variable, has occurred multiple times, in some cases quite late
- How to explain?

Causes of raising/fronting of *-a

- Generally, two mechanisms for raising/fronting of *-a are seen cross-linguistically:
  1. Unconditioned sound shift
  2. Conditioned sound change
- As far as I am aware, Type 1 *-a > -i is only seen as part of a *broad chain-shift realignment* of a vowel system, and we have little or no evidence for this in Qiangic languages
- We should attempt to identify conditioning factors and the phonetic mechanisms that cause change *language by language and subgroup by subgroup*

Hypothesis

- Brightening has happened multiple times independently
- The precise conditioning factors (including assimilation and coarticulation effects) have to be determined on a case-by-case basis
- Similarities across Qiangic are probably due to common inheritance of conditioning factors (e.g. *j) from PTB
- Differences across Qiangic are due to
  - differences in presence of conditioning factors due to different phonological histories of each subgroup and language
  - differences in results of sound change related to the different phonological systems in which they occur

Method

- We will explore the conditions for the “brightening” change for the ELD cluster and Shuhi
- We will apply phonetics to historical phonology, presuming: phonetic effects of assimilation and co-articulation are phonologized differently depending on the phonemic system of the language

Tangut

- What about Tangut, the prototypical “brightening” language?
- We lack precise phonetic detail about reconstructed Tangut, and even less about “Pre-Tangut”
- Best to ignore Tangut for now, because we cannot identify conditioning factors with confidence
- (But see Handout Table 1 for Matisoff’s (2019) list of brightened Tangut forms with supplementary data)
- See next slide for example of different reconstructions in systems of Gong Hwang-cherng and Marc Miyake

Tangut data from Matisoff (2019), supplemented

Handout Table 1

	Gloss	PTB	Tangut Gong	V	LFW	Graph	Tangut Miyake 1	Tangut Miyake 2
1	axe	*p-wa	*wjị1*	**i**	5203		*1viq3*	*1vɯiq*
2	cook	*klak ⩙ glak	*ɣjii1*	**i**	4629		*1gha2*	*1ghaᵝ*
14	patch	*s-pʷa	*wjij1/2*	**i**	5602		*2veq3*	*2veq*
13	nose	*s-na	*njii2*	**i**	5700		*2ni'4*	*2ni'*
24	trousers	*s-la	*ljii1*	**i**	1388		*1li'3*	*1lɯi'*
25	wear	*gwa-t	*gjwi2*	**i**	4906		*2gwi4*	*2gwi*
26	come	*la-y	*lj̈1*	**ɨ**	4106		*1lyq3*	*1lɯq*
27	forget	*ma-t	*mj̈2*	**ɨ**	2325		*2myq4*	*2mɬq*
31	cattle	*ŋwa	*ŋwe2*	**e**	0395		*2ngwi1*	*2ngwɪˁ*
32	chew	PLB *m-gʷya²	*kier1*	**e**	0422		*1kir2*	*1kɪᵝr*
33	frog	*s-bal	*pię1*	**e**	0499		*1piq2*	*1pɪᵝq*
34	hoof	*kwa	*kwej1*	**e**	1749		*1kwe1*	*1kwɛ̲ˁ*

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PART II:

ELD & Shuhi

KATIA CHIRKOVA

Ersu, Lizu, Duoxu, Shuhi: Distribution

Languages and Data

- LANGUAGES: Duoxu, Ersu (Ganluo), Lizu (Muli Kala, Jiulong Ga'er, Mianning)

- ETYMA: 25 forms based on Matisoff (2004, 2019), see HANDOUT, Part 2, p. 1
  - 35 etyma (PTB *-a > Tangut -i) +5 (PTB *-a > -e)
  - 6 forms excluded (2 negative forms, 'come', 3 forms appearing not cognate to the PTB forms in Matisoff 2004, 2019)
  - 3 forms added from the remaining two sets of etyma in Matisoff (*s-lya 'tongue', *na 'ill/ache', and *g/r-wa 'rain') for in those forms PTB *-a has become -i or -e in some ELD languages

Preliminary observations

- The “brightened” reflexes essentially fall into two groups:

1. Vowel raising can be correlated with the presence of a glide with high tongue position (j, w) in the reconstructed PTB form

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga’er	Lizu Mianning
‘bee/bird’	*bya	bi^{21}	bʑ̩	bǐ	bi^{33}	`bi
‘wear’	*gwa	ve^{22}	ʒʑ́	(dê-)wu	(da^{33}-)vu^{44}	`(de-)(ɣ)we, `(de-)vʉ

2. Vowel raising can be correlated with the presence of a nasal element

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga’er	Lizu Mianning
‘nose’	*s-na ~ *s-na:r	nja^{22}(ku^{53})	sʏ̃(mbʏ̃)	tô(mbu)	ke^{33}(mɐ^{44})	`ʃti(mbʉ)
‘moon’	*s/g-la	lje^{22}(ma^{53})	ɬá(pʰɛ́)	ɬæ(pʰê)	fjɛ^{44}	`ɬæ(pʰø)

Presence of a glide with high tongue position

- 11 forms (See HANDOUT table 4)

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga'er	Lizu Mianning
-j-						
'bee, bird'	*bya	bi^{31}	bʐ̩	bǐ	bje^{33}(bu^{44}di^{55})	`bi
'eat'	*dzya	dʑi^{31}	dzʐ̩	dzǐ	dzə^{24}	dzɨ
'flesh, meat, animal'	*sya	ʃe^{33}	ʃʐ̩	ʃî	ʃe^{44}	`xɤ
'laugh'	*rya-t^{l}	[xa^{22}xa^{53}]	ɹə́	(dê-)rô	(næ^{33}-)ɹə^{44}	`zɻ
'tongue'	*s-lya	je^{53}(pu^{31})	sʐ̩(pʐ̩)	tê(pî)	ɕi^{33}(pæ^{44})	`ʃti
-w-						
'axe'	*r-p^{w}a	wa^{33}(dzə^{33})	ý(ts^{h}wá)	mbû(ts^{h}ɐ)	bu^{33}(ts^{h}a^{44})	bʉts^{h}ɑ
'patch'	*s-p^{w}a	pe^{33}-pe^{33}	pɛ̀-pɛ̀	pê-pê	pʉ^{33}pʉ^{44}	`pʉtɑ
'snow'	*s-p^{w}a(l)	je^{33}	ʐ̩	jî	y^{33}e^{44}	`ʑy
'tooth'	*s-wa	ɕe^{53}(ma^{31})	ʃʑ̩(má)	xɣ̩(mǽ)	xu^{44}	`xwe
'wear clothes'	*gwa	ve^{22}	(dɛ̀-)ʒʐ̩	(dê-)wɣ̩	(da^{33}-)vu$^{44/53}$	(`de)(ɣ)we (`de)vʉ
'rain'	*g/r-wa	va^{53}	gwà	gwǎ	guɛ^{24}	ɣwæ

Presence of a glide with high tongue position

- Vowel raising in this group can be attributed to the assimilatory effects that glides with high tongue position (j, w, r, l) have on neighboring vowels, as is common both cross-linguistically (e.g. Eastern Arrernte, Kabardian, Ladefoged & Maddieson 1996: 286-288) and in neighboring non-Qiangic languages (Chirkova & Handel 2013b)

Presence of a glide with high tongue position

- Additional examples (See HANDOUT table 4a)

Gloss	PTB	Ersu	Lizu	Duoxu
'star'	*gra:y	ʈʈ̣ʑ́	tʃĭ	ki^{22}
'hear'	PLB *gla^{2}	ɖʈ̣ʑ́	(t^{h}ê-)dʒi	ge^{53}
'many'	*mra ≍ *mya	mjé	mjæ-mjæ̂	mja^{53}
'dragon'	Tib. ? bya	(rʑ̣)dzɛ̀	(ɹʑ̣̂)bje	($ə^{31}$)dʑa^{33}
'foot sole'	*p^{w}a 'palm/ sole'	(ə̀-)pʑ̣	(li-)p^{h}jæ̂	(lje^{33}-)t$ɕ^{h}e^{53}$

Presence of a nasal element

- 11 forms (See HANDOUT table 5)

No.	Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga'er	Lizu Mianning
3	'borrow/lend'	*r/s-ŋ(y)a	ni^{31}	(k^{h}ɛ̀-)xè	(p^{h}êŋgo) h̃e	(k^{h}a^{31}-)hẽ^{44}	hjẽ
5	'chin'	*snV	(mje^{33})na^{53}	(mì)xì	(mê)h̃ê	(mu^{33})n̥u^{44}	ʃti^{55}(p^{h}ɑ^{53})
21	'nose'	*s-na	nja^{22}(ku^{53})	sý̩(mbý̩)	tô(mbu̯)	ke^{33}(mɐ^{44})	ˋʃtimbʉ
17	'listen'	*g/r-na	(ba^{53})nja^{31}	(bà)nì	(bæ)ɲî		(bæ)n̥i
71	'ear'	*g/r-na	njeə̯^{25}(pu^{31})	ná(ký̩)	nɐ(pî)	na^{33}(pe̯^{44})	(ˋæ^{ɪ})nɑ(pi)
25	'rest'	*na	(ba^{53})nja^{31}	(bá̯)ní	(bɻə̂)ɲi	(ɦa^{33})ɲi^{44}	(ˋdebʐe)n̥i (sæ)
73	'ill, ache'	*na	nja^{33}	ní	(de-)ɲî	(da^{33}-)ni^{53}	(de)n̥i
11	'forget'	*ma-t	-	(t^{h}ɛ̀-)mɛ̀	(t^{h}ê-)me	(t^{h}a^{31}-)mʉ^{44}	(ˋk^{h}e)me
18	'moon, month'	*s/g-la	lje^{22}(ma^{53})	ɬá(p^{h}é)	ɬæ̂(p^{h}e)	fjɛ^{44}	ˋɬæ(p^{h}ø)
38	'strength'	*k-ra	ʃo^{53}(tɕ^{h}e^{31})	ʃò(mò)	ʃô(mô)	ʃə^{33}(mu^{44}/^{53})	ˋʂtʂo(mo)
	'frog'	*bal	pa^{22}(ma^{33})	pʐ́(má)	pi(mæ̂)	pe^{33}(mje^{44})	pi(mæ)

*sN clusters in ELD languages

- See HANDOUT table 6

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga'er	Lizu Mianning
'mushroom'	*g/s-məw	$mu^{33}tɕ^hi^{33}$	xə́	ɦɹə̌	$\tilde{h}u^{44}$	$\tilde{h}e$
'ripe'	*s-min	mje^{22}	(dɛ̀-)xí	(dè-)$\tilde{h}$é	$(da^{33}$-)m̥e^{44}	(dè-)$\tilde{h}$í
'nose'	*s-na	$nja^{22}(ku^{53})$	sɣ́(mbɣ́)	tô(mbu)	$ke^{33}(mɐ^{44})$	ˋʃti(mbʉ)
'seven'	*s-ni-s	nje^{22}	sə́ŋ	tɳ̂ ~ kɳ̂	ki^{53}, skŋ̀^{53}	ˋʃtɤ̃

- Coarticulation: the articulatory modification of a given speech sound arising from coproduction or overlap with neighboring sounds in the speech chain (e.g. Recasens 2018)
- See Ohala (1975), Ohala & Ohala (1993), Ohala & Busà (1995), Ohala & Solé (2010), Solé (1992, 2012) for a detailed account of the phonetic basis and the relevant articulatory and aerodynamic factors

Coarticulation

- The degree to which coarticulatory changes are produced and perceived may vary from dialect to dialect, dialects may differ in gestural coordination in consonant sequences in terms of degrees of gestural overlap (Brownan & Goldstein 1991)

- Compared with assimilation, which when applied – applies wherever their environment is met, historical change involving coarticulatory phenomena (e.g. epenthetic stops) is relatively rare and sporadic (Warner 2001: 81)

Contextual vowel nasalization

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga'er	Lizu Mianning
'mushroom'	*g/s-məw	mu^{33}tɕ^{h}i^{33}	xə́	ɦɹə̌	ɦ̃u^{44}	ɦ̃e
'ripe'	*s-min	mje^{22}	(dɛ̀-)xí	(dè-)ɦ̃é	(da^{33}-)m̥e^{44}	(dè-)ɦ̃í
'nose'	*s-na	nja^{22}(ku^{53})	sɣ̍(mbɣ̍)	tô(mbu)	ke^{33}(mɐ^{44})	`ʃti(mbʉ)
'seven'	*s-ni-s	nje^{22}	sə́ŋ	tŋ̂ ~ kŋ̂	ki^{53}, skŋ̍^{53}	`ʃtɤ̃

- Perceptual effects of contextual vowel nasalization

Contextual vowel nasalization

- Cross-linguistically we observe that nasalization can lead to the lowering of high vowels and the raising of low vowels (e.g. Wright 1980, Beddor 1983, Carignan et al. 2011)

- This is because an effect on spectral changes along F1 similar to that caused by nasalization can also be independently achieved through changes in oral configuration (tongue height and jaw position) (e.g. Beddor et al. 1986; Krakow et al. 1988: 1146; Carignan et al. 2011: 670; Shosted et al. 2012)

- ELD: vowel raising can be explained as a misinterpretation of contextual nasalization in terms of oral configuration

Coarticulation

- Coarticulation is generally systematic and can be factored out by listeners based on the context

- If the source of coarticulation is lost in the transmission from speakers to listeners, while its coarticulatory effects remain, and/or if listeners fail to recognize the variation as totally predictable from context, listeners may incorporate it into their own mental lexicons, and base their own pronunciation of the new norm (e.g. Ohala 1993, Beddor 2009)

Contextual vowel nasalization

- Examples
  - *sna > stã / staŋ > sti(ŋ)

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga'er	Lizu Mianning
'nose'	*s-na	nja^{22}(ku^{53})	sy̰(mby̰)	tô(mbu)	ke^{33}(mɐ^{44})	`ʃti(mbʉ)

- Anticipatory nasalization

'moon, month'	*s/g-la	lje^{22}(ma^{53})	ɬá(p^{h}ɛ́)	ɬâ̰(p^{h}e)		`ɬæ(p^{h}ø)
'strength'	*k-ra	ʃo^{55}(tɕ^{h}e^{31})	ʃò(mò)	ʃô(mô)	ʃə^{33}(mu$^{44/53}$)	`ʂtʂo(mo)
'frog'	*bal	pa^{22}(ma^{33})	pá̰(má)	pi(mâ̰)	pe^{33}(mje^{44})	pi(mæ)

Coarticulation

- The nasal change in F1 seems to be compensated for in ELD languages through lingual articulation
- Some resistance to the phonologization of vowel nasalization
- Lack of the oral-nasal distinction in vowels

Loanwords with nasals in ELD

- See HANDOUT table 7

Gloss	Mandarin	SW Mandarin	Ersu	Lizu	Duoxu
'in the street, downtown' 街上	*jiē shang*	kai^{44} ʂaŋ^{21}	kuáʃá	kêʃê	ke^{22}ʃa^{33}
'potato' 洋芋	*yángyù*	iaŋ^{21}y^{213}	--	jɐjû	ja^{22}ju^{53}
'dried noodles' 挂面	*guàmiàn*	kua^{213}mian^{213}	kwàmì	--	kwa^{22}mi^{53}
	WT	**WT**			
'master, teacher'	*slob dpon*	སློབ་དཔོན་	sò^{h}pú	sópú	--
'official'	*dpon*	དཔོན་	^{h}pú	pémbó	--
'north'	*byang (phyogs)*	བྱང་ཕྱོགས་	tsá(tɕ^{h}ó)	tɕá(ntʃ^{h}òkæ̀)	ja^{22}(tɕ^{h}o^{33})

ELD: Interim summary

- In ELD languages, vowel raising (and fronting) can be linked to two unrelated conditioning factors:
  - assimilatory effects of glides with high tongue position
  - perceptual effects of contextual vowel nasalization
- The latter factor can be further linked to the system of contrasts (lack of an oral-nasal distinction in vowels)

Shuhi

- See HANDOUT table 9

Gloss	PTB	Shuhi
'edge'	*m-dzya	dʑ̊yɛ^{35}
'bird'	*bya	dʑ̊yɛ^{35}
'tongue'	*lya	ʃɻ̩^{55} / ʂɻ̩^{51}
'eat'	*dzya	dzɐ^{35}/dzɜ^{35}, dzu^{35}
'hundred'	*gya	(dʑ̊i^{33})ɕɐ^{55} / (dʑ̊i^{33})ɕɜ^{55}
'patch'	*s-p^{w}a	p^{h}i^{33}ʔu^{53}
'axe'	*r-p^{w}a	bi^{55}(mi^{31})
'satiated'	*k-wa	(du^{33})gu^{55}
'wear clothes'	*gwa	gu^{53}
'rain'	*rwa	xu^{55} zɑ^{55}/xu^{55} zɐ^{55}
'tooth'	*swa	vɐ^{55} / vɜ^{55}

Shuhi

- See HANDOUT table 9

Gloss	PTB	Shuhi
'rest'	*na	ʎɐ^{55}-ɲɐ^{33}
'arrow'	*b/m-la	ʎɐ^{55}sɛ̃^{31} / lɜ^{55}si^{33}
'son'	*za	zɔ̃^{35}
'put, place'	*s-ta	mjɛ^{33}-tɕỹ^{53} / tɕɐ^{55} / bə^{33}-tɕɜ^{55}
'chin'	*m-ka	mɐ^{33}kɛ^{55}
'moon'	*s/g-la	ɬe^{33}mi^{35} / l̥ɐ^{33}mu^{33}ts^{h}u^{55}

ELD exceptions & Shuhi forms

- See HANDOUT table 8

Gloss	PTB	Duoxu	Ersu	Lizu Kala	Lizu Ga'er	Lizu Mianning
'child, son'	(*tsa ⨯) *za	ʑi^{31}	zʐ̩	zî	i^{33}ze^{44}	`zɨ
'put, place'	*s-ta	tɕi^{33}	pʑ́	(de)-tɕî	ʁɑ^{53} [^{44}]	`tɕi(tæ)
'salt'	*tsa	tɕ^{h}i^{33}	ts^{h}ʐ̩	ts^{h}î	ts^{h}ə^{44}	`ts^{h}ɨ

'son'	*za	zɔ̃^{35}
'put, place'	*s-ta	mjɛ^{33}-tɕỹ^{53} / tɕɐ^{55} / bə^{33}-tɕɜ^{55}

“Brightening” in Ersu, Lizu, Duoxu and neighboring languages

PART III:

Conclusions

Summary

- In the set of “brightened” etyma, we identified two types of conditioning factors (assimilatory effects of glides with high tongue position & contextual vowel nasalization) which can plausibly (phonetically) lead to vowel raising
- highly variable and context sensitive
- The more faithfully a language preserves the original syllable cannon (and hence the original conditioning environment), the less pronounced the “brightening” effects will be
- The extent of variation within a language (group of languages) is further related to the system of vowel contrasts in that language

10. Conclusions

- Matisoff (2019): “Is brightening indeed a valuable criterion for subgrouping in this complex linguistic area? Is this phenomenon our best bet for establishing Qiangic as a legitimate subgroup of the family?”
- Answer: **No**. Brightening in “Qiangic” is a set of independent changes that have occurred at different times in different languages, conditioned by similar factors
- To the degree that brightening is seen in cognates across languages of the region, this is likely due to (1) shared inheritance of *conditioning factors* (like *j or *sN) (e.g. ‘nose’) and/or (2) areal contact (e.g. ‘son’)

10. Conclusions

- To more fully understand the history of brightening in the region, we should see if this kind of “micro-level approach” to brightening phenomena can be of value when applied to other language clusters in the area.