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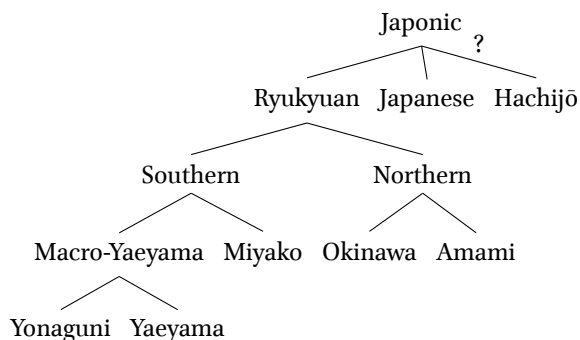
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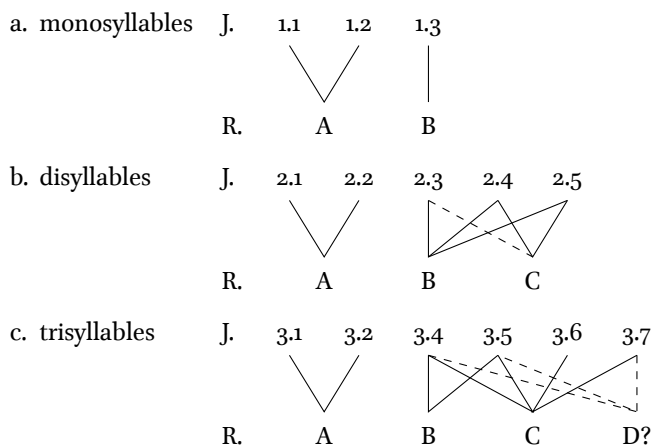
Typological and historical-comparative perspectives on tone and vowel length in Ryukyuan

1 Introduction

(1) The Japonic language family (Pellard 2015)



(2) Tone class correspondences between Japanese and Ryukyuan (Hattori 1958; Matsumori 1998, 2000, 2001; Uwano 2000)



2 The heart of the problem

- (3) Northern Ryukyuan (Hattori 1932, 1958, 1979a,b):
- several dialects have unexpected long vowels, i.e. not deriving from monophthongization
 - correlation between those vowels and tone classes
 - C-class dissyllables: CV:CV :: CVCV̄

*All linguistic forms cited are given in a unified IPA notation. The notation of tones thus follow the common international standard instead of the idiosyncratic practices of Japanese phonology:

- High → H, $\acute{\mu}$ (= ●, ○, [○, ...]), H:, $\acute{\mu}$: (= ●●, ○○, [○○, ...])
- Low → L, $\grave{\mu}$ (= ○, ⊙, [○, ...]), L:, $\grave{\mu}$: (= ○○, ⊙○, [○○, ...])
- Mid → M, $\check{\mu}$ (= ⊙, !○, ...), M:, $\check{\mu}$: (= ⊙⊙, !○○, ...)
- Falling → F, $\hat{\mu}$ (= ●, ○], ...), F:, $\hat{\mu}$: (= ●○, ○○, ○]○, ...)
- Rising → R $\check{\mu}$ (= ●, [!○, ...), R:, $\check{\mu}$: (= ○●, ○○, ○[○, ...)

The symbol “ μ ” stands for a mora. The level pattern (High? Mid?) of Shuri is left unmarked. I apologize if any error happened in the conversion process, but this likely has no influence on the conclusions presented here. Also, my use of “tone” is rather liberal, and it can broadly refer to “pitch” or “melody”.

(4)	Asama	Kametsu	Nakijin	Shuri	
	LR:	LH	LR:	HH MM	
B 2.3	‘island’	sìmə̃:	sìmə́	çìmə̃:	çìmə
B 2.4	‘shoulder’	kàtã:	kàtá	hàt’ã:	kata
B 2.5	‘rain’	ʔàmĩ:	ʔámí	ʔàmĩ:	ʔami
	L:H	HL	HL(:)	H:H M:M	
C 2.3	‘jar’	kà:mí	kámì	há:mì	ka:mi
C 2.4	‘breath’	ʔí:kì	ʔíkì	ʔíte’ì	ʔi:tei
C 2.5	‘shadow’	kà:gí	kágì	há:gì	ka:gi

(5) Hypotheses:

- vowel length goes back to proto-Japonic, and tonogenesis occurred several times independently in the Japanese archipelago (Hattori 1979a,b; Shimabukuro 2007; Vovin 1993)
- vowel length goes back (at least?) to proto-Northern Ryukyuan (Lawrence 2009, 2016; Matsumori 1996, 1998)
- vowel length is a secondary development from a *HL pattern (Boer 2010: 208–246; Hirayama et al. 1966: 173; Kindaichi 1960, 1984; Pellard 2009, 2012)
- vowel length is a secondary development from *HL in pNR (Thorpe 1983: 128–152)

3 Typology of tone-length historical interactions

3.1 Length > tone

3.1.1 Short > High, Long > Low

(6) Hu (Mon-Khmer, Svantesson 2001):

	Hu	Lamet	
a.	*V _[-high]	> V̇	jám jãm ‘to die’
b.	*V _[-high]	> V̇	jàm jã:m ‘to cry’

(7) Cantonese (Sinitic):

bipartition of the “Upper Entering” (Tone 7, 陰入) tone class according to vowel length

- 七 *cat*¹ [ts^hət̚] ‘seven’
- 八 *baat*³ [pa:t̚] ‘eight’

3.1.2 Short > Low, Long > High

(8) Cheyenne (Algonquian, Frantz 1972; Leman 1981):

- *weθkweni > /hèʔè/ ‘liver’
- *eθkwe’wa > /hèʔé/ ‘woman’

(9) Sani Ryukyuan (Amami, Uwano 1996a, 2000):

- *po:ki > pók’ì ‘broom’
- *to:ra > tórà ‘straw bag’

3.2 Tone > length

(10) Czech (Slavic, Kortlandt 1975: 19, but see Kapović 2005):

- a. *vòl'ā [vòl̩a:] > vùle ['vu:lɛ] 'will'
- b. *kòžā [kòž̩a:] > kùže ['ku:ʒɛ] 'skin'

(11) Noto Japanese (Hirako 2015):

Bessho Hannoura
 2.5 *LF > M̄L:H(-L) L:H
 *àmê > à:mé à:mé 'rain'

(12) Iwate Japanese, Kunohe dialect (Uwano 1996b):

2.4 ∪ 2.5 CV_[-high]CV_[+high] *HL > R:L | L:H | M̄L:H
 *mátù > mǎ:dzuù | mà:dzuù | mà:dzuú

4 More problems and solutions

(13) Some dialects have long vowels in classes other than C

	Asama	Kametsu	Wadomari	Nakijin	Kin	Shuri
A 'cow'	ʔúsí:	ʔúsí(-H)	ʔúéí	φùéí:	ʔúéí	ʔúéí
B 'island'	sìmǎ:	sìmá(-L)	èimǎ:	èimǎ:	éi:mǎ:	èima
C 'pan'	nà:bí	nábì	nàbí	nábì	nà:bí	na:bi

(14) Some dialects have long vowels in trisyllables too

	Asama	Kame.	Wadom.	Nakijin	Kin	Shuri
A 'smoke'	kìbù:sí	kìbúéí	çìbúéí	kìbú:éi	kìbúéí	kìbúéi
B 'mirror'	kàgàmǐ:	kàgámí	hàgànǐ:	kàgà:mí:	kágámǐ:	kaganj
C 'knife'	kàtà:ná	kàtánà	hàtánà	hàt'à:ná	kàtánà	katana

(15) Thorpe (1983):

A /ú/ *H /úμ/ *HH· /úμμ/ *HH·H ?
 B /μ/ *R /μμ/ *LH·, *LL·H /μμμ/ *LLH·, *LLL·H ?
 C /ú/ *L·H(-L) /úμμ/ *LH·L ?
 a. no explanation for the development of length
 b. C-class becomes characterized by second position from the left instead of penultimate
 c. thus unable to account for quadrisyllables like *sutomete C 'morning' (Asama sítumè:tí, Nakijin cìtimíti)

(16) Uwano (1996b: 32): C *L:H > M̄L:H > F·H > HL

(17) Matsumori (1996): tone and vowel length are independent

B *LR:, LL-H > HR:, HL-H > HH > LH > LH > LR:
 C *L:H > F:H > H:L > R:L > HL > LH

(18) Lawrence's (2016) pNR reconstruction:

A *HH:, *HH:L 2nd vowel long, first 2 moras High
 B *LR:, *LLR: final vowel long, final mora High
 C *R:H, *LR:H penultimate vowel long, final 2 moras High
 a. tone and vowel length are independent
 b. length not predictable from a simple generalisation
 c. natural system?

5 Geography

(19) C-class dissyllables

- a. initial length in 3 areas: Tokunoshima, North Okinawa, Central & South Okinawa

- b. HL pattern in Amami Ōshima, Kikai, Yoron, Tokunoshima, North Okinawa (and Southern Ryukyuan)
- c. short vowels everywhere else

(20) Argument from parsimony:

- a. vowel shortening: at least 4 times independently
- b. vowel lengthening: around 3 times independently

6 Distribution of vowel length

(21) C-class is well-attested for nouns only

- a. no reason for vowel length to be restricted to nouns
- b. verbs and adjectives commonly display fewer tonal or accentual patterns than nouns
- c. restriction naturally explained is length is secondary

(22) If vowel length is original:

- a. why does Shuri preserve it in C-class dissyllables only?
- b. why does Nakijin lose it in C-class dissyllables only?
- c. why does Kin lose it in A-class dissyllabic nouns and B- & C-class trisyllables only? and what about the length in the first syllable of B-class dissyllables?
- d. vowel length is clearly correlated with both tone class (i.e. tone pattern) and length, which are independently required

7 Lengthening and shortening in Northern Ryukyuan

(23) Iambic lengthening in Nakijin (Lawrence 1990; Ogawa 2012): vowels are lengthened when they are the head of an iambic foot (i.e. in even-numbered syllables), and not adjacent to an accent in the case of high vowels

- a. /(cu-ci)k'a/ [tɕ'ùtɕ'ì:k'á] 'one bundle'
- b. /(hici)-(cìk'a)/ [çìtɕ'ìtɕ'ìk'à:] 'five bundles'

(24) Sani (Uwano 1996a, 2000): CV:CV > CVCV̄, but no such correspondence for C-class words!

- a. *po:ki > pók'ì 'broom'
- but b. *iki (C) > ʔik'í 'breath' (Shuri ʔítei)
- cf. c. *ame (B) > ʔàwí 'rain'

(25) Shodon: unexpected vowel losses and lengthening if we follow Lawrence's (2016) reconstruction

A ?*kubi: k'úp 'neck'
 ?*putu:ka φút.kà '2nd day'
 B ?*kagami: kágám 'mirror'
 ?*omote: ʔùmò:tí 'face'
 C ?*kata:na kát.nà 'knife'

8 Vowel length and morphology

(26) Asama: prosodically lengthened vowels often shorten in compounds, but not etymologically long ones

- a. há:- 'red' + cà:tá 'sugar' → há:dzàtà 'brown sugar'
- b. ǎ: 'hand' + mù:tú 'origin' → tímùtù: 'at hand'
- c. dò:gú 'tool' + hákú: 'box' → dò:gùbá:kù 'toolbox'
- d. sìmǎ: 'island' + tò:φú 'tofu' → sìmàdò:φú 'local tofu'

(27) Shuri: prosodically lengthened vowels often shorten in compounds, but not etymologically long ones

- a. ju: ‘night’ + na:ka ‘middle’ → junaka ‘midnight’
- b. na:bi ‘pan’ + ke: ‘spoon’ → nabige: ‘ladle’
- c. tea: ‘tea’ + do:gu ‘tool’ → teado:gu ‘tea set’
- d. ?áǵì ‘frying’ + to:φu ‘tofu’ → ?áǵìdò:φù ‘fried tofu’

(28) Asama: shift of the location of length between derived words

- a. k’ú:rù ‘black’ (n.) ↔ k’ù:rù:háj ‘black’ (adj.)
- b. sí:rù ‘white’ (n.) ↔ sì:rù:háj ‘white’ (adj.)

(29) Asama: length alternations within verb paradigms

Conclusive ↔ Converb

- a. k’jǵúú ↔ k’ítǵè ‘cut’
- b. nàjǵúú ↔ nà:tí ‘become’

9 B-class words with initial long vowels

(30) pNR (pR?) *pjaaku (B) ‘hundred’

Asama Wadomari Yoron Nakijin Ie Kin Shuri
 èà:kǵú: çà:kú: pjà:kú pjà:kú: t’jà:φú há:kǵú: ça:ku

(31) Proto-Okinawan *po:tu (B) ‘pigeon’ and *ka:me (B) ‘turtle’

Ie Nakijin Kin Shuri

- a. *pot’u pò:t’ú pò:t’ú: hó:túú ho:tu
- b. *ka:me hà:mí hà:mí: kà:mǵi: ka:mi:

(32) Such words imply that:

- a. B & C cannot have been distinguished by vowel length only
- b. otherwise there could not be any B-class word with an initial long vowel
- c. why do ‘hundred’, ‘turtle’, ‘pigeon’ keep their long vowel?

10 C-class words without initial long vowels

(33) Some C-class dissyllables:

- a. shift to class A in Asama & Okazen and class B in Kin
- b. have a HL/F pattern in Nakijin, Ie or Wadomari
- c. all are cases of dissyllables reduced to monosyllables, without initial long vowels
- d. suggest earlier *HL (or at least *R:L), and not *R:H or *L:H

(34) Okazen: Falling reduced dissyllables (not †L:H, not †R:)

- a. *kage > kà:gí ‘shadow’
- but b. *keu > k’jǵú: ‘today’
- c. *naka > nâ: ‘middle’
- d. *u(w)a > w’â: ‘pig’

(35) Wadomari: some reduced dissyllables point to earlier *HL

- a. *kage > hàǵí hàǵí ‘shadow’
- but b. *keu > çú: çú: ‘today’
- c. *ko(w)e > φúú φúú ‘voice’

(36) *uwa (C) ‘pig’:

Asama Okazen Kametsu Wadomari Ie Nakijin Kin Shuri
 w’â: w’â: w’â: w’â: w’â: w’â: w’â: w’â:

- a. vowel length should have prevented contraction
- b. should appear as †?u:wa in Asama, Okazen, Kin and Shuri

11 More internal reconstruction

(37) C-Class dissyllables have split reflexes in Asama and Okazen according to the presence or absence of initial glottalization

Asama Okazen

- a. *kage kà:gí kà:gí ‘shadow’
- but b. *iki ?i:kí ?i:kí ‘breath’
- c. *usu ?ú:sí ?ú:sí ‘mortar’

(38) Possible reconstructions:

- a. *L:H | *R:H > H:L | L:H in Asama???
- b. *L:H | *R:H > H:H | L:H in Okazen???
- c. I suggest *HL > R:L > Asama L:H | H:L, Okazen L:H | H:H

(39) B-class and particles:

Asama, Okazen Kanami, Yonama

LR:, LL:-H LR:, LR:-L

- a. in some dialects, rightward tone spread occurs onto a following particle, resulting in an “unaccented” pattern
- b. but other dialects have a fall between the noun and the particle
- c. *LH(-L) is the most likely origin
- d. problematic for if B-class was “unaccented”, with a final H (e.g. Thorpe 1983)

12 Final Remarks

(40) Summary:

- a. initial vowel length in C-class dissyllables is likely a secondary development
- b. B- & C-class dissyllables must have been distinguished by their tone pattern
- c. we can probably dispense with reconstructing vowel length, but tone patterns are definitely required
- d. comparative and internal evidence point to earlier *HL

(41) General correspondence for B- & C-class words between:

- a. the location of the “rising accent” in Yoron
- b. the location of the fall (accent?) in Kametsu
- c. the location of the vowel length in Asama & Okazen, with H shifted one mora to the right
- d. the location of the last Low in Wadomari & Kin (i.e. H occurs one mora later than in Yoron & Kametsu)
- e. vowel lengthening is concomitant with tone change, i.e. the last syllable before tone change is lengthened
- f. but A-class is special

(42) Yoron Kametsu Asama Wadomari Kin

1 A	μ:	M̃L:	μ:	H:	H:	μ:	H:	μ:	H:
B	μ’:	R:	μ’:	F:	R:	μ’:	R:	μ’:	R:
2 A	μμ	ML	μμ	LH(-H)	HH:	μμ	LH(-H)	μμ	HH
B	μ’μ’	LF	μ’μ’	LH(-L)	LR:	μ’μ’	LR:	μ’μ’	H:R:
C	μ’μ	HL	μ’μ	HL	L:H	μ’μ	LH(-L)	μ’μ	L:H
3 A	μμμ	MML	μμμ	LHH(-H)	HH:L	μμμ	LHH	μμμ	HHH
B	μ’μ’μ’	LLF	μ’μ’μ’	LLH(-L)	LLR:	μ’μ’μ’	LLR:	μ’μ’μ’	HHR:
C	μ’μ’μ	LHL	μ’μ’μ	LHL	LL:H	μ’μ’μ	LLH	μ’μ’μ	LLH

(43) Tentative pNR reconstruction (close to Matsumori's 2001 & 2009 suggestions)

A unaccented	μ μμ μμμ
B final accent	μ̂ μ̂μ̂ μ̂μ̂μ̂
C penultimate accent	μ̂μ μ̂μμ
(D initial accent	μ̂μμ)

(44) Explanation for lengthening:

- delayed rise, i.e. rightward H shift
- Yoron: "the accented location is often realized as Rising [...] or Mid [...], with a following High" (Uwano 1999: 183–182)
- i.e. /μ̂μ/ → HL | RL | RF
- contour tones are longer
- cf. also *HL > R:L | L:H | M̂L:H in Kunohe (12)

(45) Remaining questions:

- distinctive rise ("ascending kernel")? fall ("lowering kernel")?
- A-class: L*H⁺ (Kam. & Wad.)? M(M)L (Yoron) ? H(H)L (Shuri)?

(46) Relationship with Japanese:

- rejecting vowel length ⇒ 8 disyllabic classes in pj
- more than in any modern variety
- we need to consider the possibility that some Japanese classes might be due to secondary splits

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