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Towards a Reconstruction of Proto-Japonic

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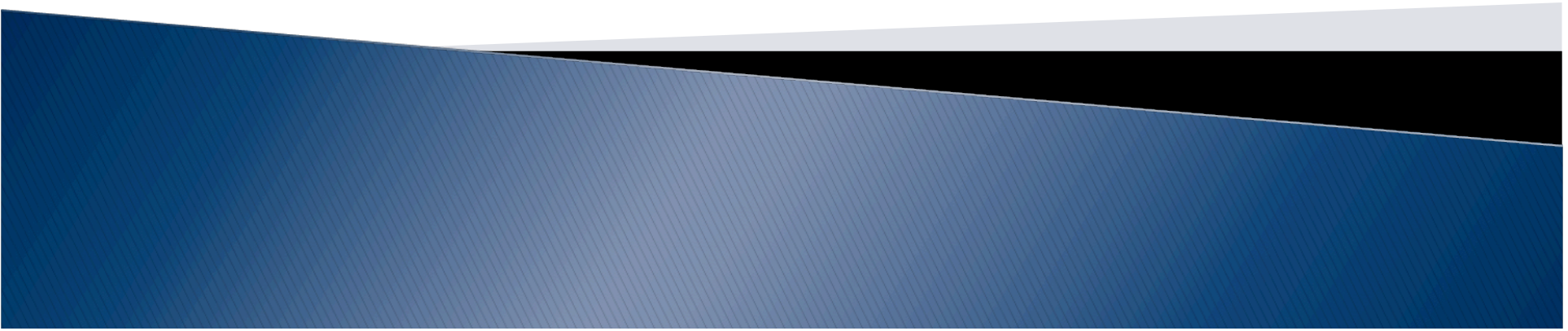
BATJ Seminar
24 October 2009



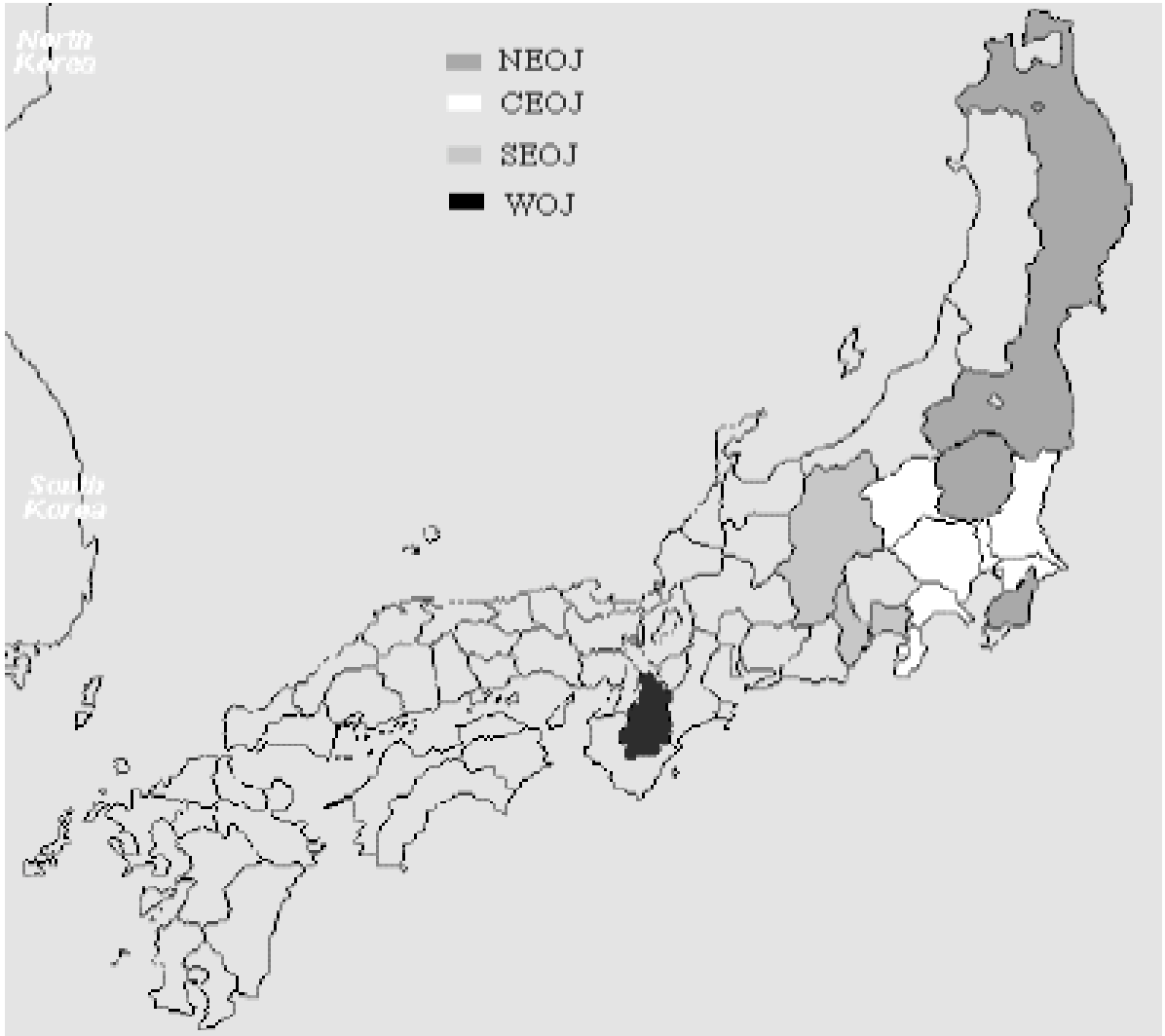
Overview

- Proto-Japonic background
- Methodology
- Old Japanese (OJ)
  - Western Old Japanese (WOJ)
  - Eastern Old Japanese (EOJ)
- Ryukyuan Languages
  - Central (Shuri)
  - Northern (Yamatoma)
  - Southern (Hirara)
- Proto-Japonic Morphology

Proto-Japonic

- Background
  - The Japonic language family
    - Japanese
    - Ryukyuan

Old Japanese



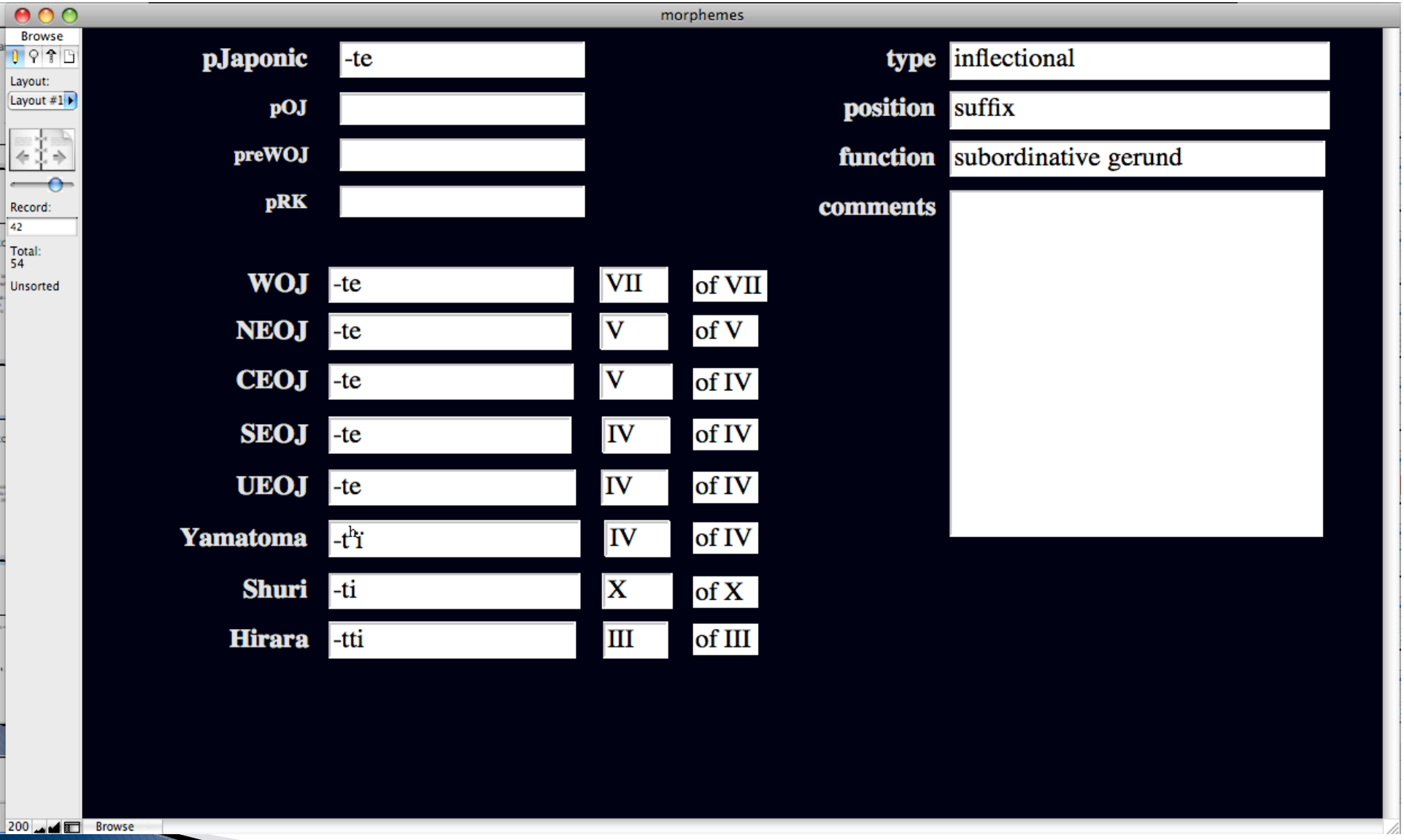
Ryukyuan Languages

Proto-Japonic

- Methodology
  - Proto-language
    - Reconstructed language
    - Comparative method
      - Cognates
      - Basic vocabulary
      - Loanwords
      - Regular and systematic sound correspondences

Proto-Japonic

- Methodology
  - Data
    - Sources
    - Morphemes
      - Internal reconstruction
        - Pre-language
        - Identification of stems and affixes
      - Morpheme position in verbal string
        - fixed order for morphemes
        - VStem- I - II - III - IV - V - VI - VII - VIII - IX - X
    - Databases


morphemes
Browse
Layout:
Layout #1
Record:
42
Total:
54
Unsorted
pJaponic
-te
pOJ
preWOJ
pRK
type
inflectional
position
suffix
function
subordinative gerund
comments
WOJ
-te
VII
of VII
NEOJ
-te
V
of V
CEOJ
-te
V
of IV
SEOJ
-te
IV
of IV
UEOJ
-te
IV
of IV
Yamatoma
-tʰi
IV
of IV
Shuri
-ti
X
of X
Hirara
-tti
III
of III
200
Browse

Western Old Japanese

WOJ

- Sources
  - Primary
  - Secondary

WOJ Texts

- *Kojiki* "The Records of Ancient Matters"
  - Compiled 712 CE
  - *Kojiki kayō*: 112 or 113 songs

WOJ Texts

- *Nihonshoki* "The Annals of Japan"
  - Compiled 720 CE
  - *Nihonshoki kayō*: 128 songs
  - The phonetic values for these characters are based on Chang'an Late Middle Chinese (LMC) not EMC

WOJ Texts

- *Bussoku seki ka* "Songs about the Stone with the Buddha's Footprints"
  - Compiled around 756 CE
  - 21 poems

WOJ Texts

- *Man'yōshū* "Collection of Ten Thousand Leaves"
  - Compilation date is unknown
  - Contains 4,516 poems divided into 20 scrolls

WOJ Phonology

		Labial	Dental	Palatal	Velar
Stops	Voiceless	p	t		k
	Prenasalized voiced	Np [ᵐb]	Nt [ⁿd]		Nk [ᵑg]
Fricatives	Voiceless		s		
	Prenasalized voiced		Ns [ⁿz]		
Nasals		m	n		
Liquid			r [ɾ]		
Glides		w		y	

WOJ Phonology

î [i]	ï [ɨ]		u [u]
ê [e]	ë [əy]	ö [ə]	ô [o]
	a [a]		

WOJ Phonology

î [i]	ï [ɨ]		u [u]
ê [e]	ë [əy]	ö [ə]	ô [o]
	a [a]		

WOJ Phonology

- WOJ Morphophonemic Rules
- Constraint against V-V sequences
  - Vowel deletion
  - Diphthongization > Monophthongization

WOJ Phonology

- Deletion
  - Group I
    - polysyllabic word + monosyllabic word: …V1 + V2 > …V2
      - **ukë-u* > *uku* 'floats
    - polysyllabic word + polysyllabic word: …V1 + V2… > …V2…
      - *apa umî* > *apumî* [place name]
  - Group II
    - monosyllabic word + polysyllabic word: (C)V1 + V2… > (C)V1…
      - *yama nö upë* > *yamanupë* 'on top of a mountain'
  - Group III
    - vowel final verb stem + verbal suffix: (C)V1 + V2… > (C)V1…
      - **ukë-an-* > *ukën-* 'does not float it'
    - unless V2 is /u/, in which case: (C)V1 + V2… > (C)V2…
      - *ukë-uNpë-* > *ukuNpë-* 'it probably floats'

WOJ Phonology

- Diphthongization > Monophthongization
  - *a+î > ë
    - **naga* 'long' + *ikî* 'breath' > *nagëkî* 'sigh'
  - *î+a > ê
    - **sakî* 'bloom' + *ari* 'exist' > *sakêri* 'is blooming'
  - *ö+î > ë
    - **tönö* 'palace' + *iri* 'enter' > **tönëri* > töneri 'attendant'
  - *ö+î > ï
    - **opö* 'big' + *isi* 'rock' > **opïsi* 'big rock'
  - *u+î > ï
    - **waku* 'young' + *iratukô* '[term of veneration (male)] > *wakïratukô*
  - *u+ö > ô
    - **situ* 'ancient type of native weaving' + *ori* 'weave' > *sitôri* '(id.)'
  - *u+a > ô
    - **kaNsu* 'number' + *apë* 'to join' > *kaNsôpë* 'to count'

WOJ

- The gerund -te

佐加志賣遠阿理登岐加志弖
sakasi mê-wo ar-i tö kîk-as-i-te
wise woman-ACC exist-FIN PART hear-HON-INF-GER
Having heard that there existed a wise woman... (KK 2)

WOJ

- The negative -an-

佐祢耐據茂　阿黨播怒介茂誉

sa-ne-N-tökö atap-an-u kamo yö

PREF-sleep/NML-COP-place give-NEG-ATT EMPH EMPH

[My wife] will not give me a place to sleep.

(NSK 4)

WOJ

- The negative -aNs-

阿比淤母波受阿良牟

apî-omöp-aNs-u-ar-am-u

REC-love-NEG-INF-exist-TENT-FIN

It is probably [the case] that [they] do not love each other.

(KK 60)

Eastern Old Japanese

EOJ

- Sources
  - Primary
  - Secondary

EOJ Texts

- *Man'yōshū* "Collection of Ten Thousand Leaves"
  - Books XIV (*Azuma uta*) and XX (*Sakimori uta*) of the *Man'yōshū*
    - But only 234 of the 450 poems found in these books were recorded in EOJ

EOJ

- Dialects
  - NEOJ – Area A
    - Kazusa, Mutsu, and Shimotsuke
  - CEOJ – Area B
    - Hitachi, Izu, Kōzuke, Musashi, Sagami, and Shimōsa
  - SEOJ – Area C
    - Shinano, Suruga, and Tōtōmi
  - UEOJ – Unknown

EOJ Phonology

- Consonants are same as WOJ
- Vowel correspondences with WOJ vary by dialect

NEOJ Vowels

- Vowels
  - /ï/ [ɨ] is only found in Kazusa (/pï/ and /Nkï/)
  - Mutsu lacks /ë/
  - otherwise same as WOJ

CEOJ/SEOJ/UEOJ Vowels

- Same vowels as WOJ

WOJ : EOJ vowels

- Correspondences with WOJ
  - Available on iTunes U

EOJ

- The gerund -te

比多知散思　由可牟加里母我　阿我古比乎

志留志弖都祁弖　伊母爾志良世牟

pîtati sas-i yuk-am-u kari mö Nka a-Nka kôpî-wo sirus-i-te tukê-te

imö-ni sir-ase-m-u

[place name] point-INF go-TENT-ATT wild geese PART NOM

I-NOM love/NML-ACC write-INF-GER attach/INF-GER

lover-DAT know-CAUS-TENT-FIN

I wrote and attached [a letter] to the wild geese flying towards

Hitachi, and [to] let my lover know [my feelings]. (MYS XX: 4366-Hi)

EOJ

- The negative -an-

道乃長道波　由伎加弖努加毛

MITI n-ö NANKATI pa yuk-î-kate-n-ô kamô

road COP-ATT long road TOP go-INF-able-NEG-ATT EMPH

The road, being a long road, [I] will not be able to go.

(MYS XX: 4341-Su)

EOJ

- The negative -aNs-

古非都都安良受波

kôpï-tutu ar-aNs-u pa

love/INF-COOR exist-NEG-ATT TOP

I long for [him] while [he] is not here.

(MYS XX: 4347-Ka)

Ryukyuan

Central Ryukyuan

Shuri

- Sources
  - Primary
  - Secondary

Video: Lesson 1

Video: Lesson 2

Shuri Phonology

		Labial		Dental		Palatal		Velar		Glottal
			gem		gem				gem	
Stops	voiceless	p	pp	t	tt			k	kk	ʔ
	voiced	b		d				g		
Fricatives	voiceless			s	ss	(ş)	(ç)			h
	voiced			(z)						
Affricates	voiceless			č	čč					
	voiced			ž						
Nasals		m		n						
Liquids				r						
Glides		w				y				

Phoneme	Phonetic Value	Allophones
/p/	voiceless unaspirated bilabial stop	[p] in all environments
/t/	voiceless unaspirated dental stop	[č] following /i/ [ç] preceding /u/ [t] elsewhere
/k/	voiceless unaspirated velar stop	[k] in all environments
/č/	voiceless dental affricate	[č] in all environments
/ç/	voiceless palatal central fricative	[č] preceding /i/, /e/, and /y [ç] elsewhere
/s/	voiceless dental fricative	[š] preceding /i/, /e/, and /y/ [s] elsewhere
/ş/	voiceless palatal grooved fricative	[š] preceding /i/, /e/, and /y/ [s] elsewhere
/ʔ/	glottal stop	[ʔ] in all environments
/h/	glottal fricative	[ç] preceding /i/ and /y/ [f] preceding /u/ and /w/ [h] elsewhere

Shuri Phonology

Phoneme	Phonetic Value	Allophones
/b/	voiced bilabial stop	[b] in all environments
/d/	voiced dental stop	[ž] following /i/ [d] elsewhere
/g/	voiced velar stop	[g] in all environments
/ʒ/	voiced dental fricative	[ž] following /i/, /e/, and /y/ [ʒ] elsewhere
/ž/	voiced dental affricate	[ž] in all environments

Shuri Phonology

Phoneme	Phonetic Value	Allophones
/m/	[m] - bilabial nasal stop	[m] in all environments
/n/	[n] - dental nasal stop	[ɲ] preceding /i/ and /y/ [ŋ] before /k/ and /g/ [n] elsewhere

Shuri Phonology

- Liquid and glides
  - /r/ [ɾ] in all environments
  - /y/
    - Occurs before /a/, /u/, /o/, follows /p/, /b/, /m/, /n/, /h/, /ʔ/, and [’]
  - /w/
    - Occurs before /i/, /e/, /a/ and follows /h/, /ʔ/, /’/, /k/ and /g/
  - [’] (predictable, not a phoneme)
    - Occurs before vowels, glides, and /n/ in initial position in cases where no other consonants occur

Shuri Phonology

- Proto-RK > Shuri
- Palatalization of *k and *t adjacent to *i
  - */k/ and */t/ > /č/
    - */ki/ and */ti/ merge to /či/
  - /ki/ and /ti/ exist in Shuri
    - From *ke and *te
    - Stage One: The rule that proto-RK */k/ and */t/ become */č/ when adjacent to */i/ applies: proto-RK *ki and *ti become /či/.
    - Stage Two: The previous rule is no longer necessary and no longer a productive rule in the language.
    - Stage Three: proto-RK */e/ raises to */i/, the syllables */ke/ and */te/ become Shuri /ki/ and /ti/. Since the rule described in Stage One is no longer a productive rule /ki/ and /ti/ do not become /či/.

Shuri Phonology

- Proto-RK > Shuri
- Palatalization of */k/ and */t/ adjacent to */i/
  - proto-RK *sita 'below' > Shuri siča 'id.'
  - proto-RK *ika 'squid' > Shuri iča 'id.'
  - proto-RK *tika- 'near' > Shuri čika- ~ čiča- 'id.
- Palatalization of */g/ and */d/ also occurs
  - */gi/ > /ži/, */di/ > /ži/
  - Shuri /gi/ and /di/ from proto-RK */ge/ and */de/

Shuri Phonology

- Proto-RK > Shuri
- *p > f / _i
- *p > h / elsewhere

Shuri Phonology

- Proto-RK > Shuri
- Double consonants
  - /pp/, /tt/, /kk/, /ss/, and /čč/
  - Result of vowel loss between consonants
  - proto-RK *pito > *pičo > *piču > *pču > Shuri čču

Shuri Phonology

- Proto-RK > Shuri
- */ri/ > /i/
  - proto-RK *tori 'bird' > Shuri *tui 'id.'
  - /ri/ from proto-RK */re/
  - Stage One: The rule that proto-RK */r/ is deleted when followed by */i/ applies; proto-RK */ri/ becomes Shuri /i/.
  - Stage Two: The previous rule is no longer necessary and no longer a productive rule in the language.
  - Stage Three: proto-RK */e/ raises to */i/, the syllable */re/ becomes Shuri /ri/. Since the rule described in Stage One is no longer a productive rule /r/ is not deleted here.

Shuri Phonology

Short Vowels

i	u
a	

Long Vowels

i:	u:
e:	o:
a:	

Shuri Phonology

- Long vowels
  - /e:/ and /o:/ from */ai/ and */au/
  - Monosyllabic words are lengthened

Shuri Phonology

- Proto-RK > Shuri
  - Shuri /i/ is from */i/, */u/, */e/
  - Shuri /u/ is from */u/ and */o/

Shuri

- The gerund -ti

syurei mon-kara massugu nka-ti ʔnzi kankai mon di či ʔu-zo:-nu ʔai-bi:-t-a-s-e: ya:

[name] gate-ABL straight turn-GER go out/INF [name] gate DV say HON-door-NOM exist-POL-PERF-PST-do-CONJ TAG

From Shurei Gate, when [you] exited and went straight and [you] were at the door called Kankai Gate, right? (Kokuritsu Kokugo Kenkyūjo 1982: 261)

Shuri

- The negative -ran(-)

wa-tta:-ga: ʔui-bi-ran sa:
I-PL-NOM think/INF-POL-NEG TAG
We do not think [that], right?
(Kokuritsu Kokugo Kenkyūjo 1985: 305)

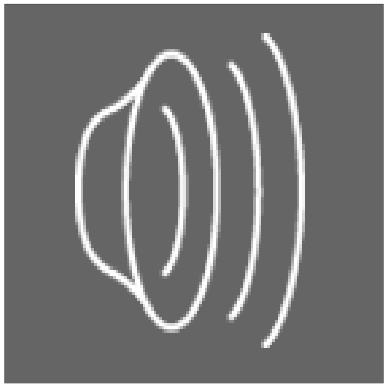
Northern Ryukyuan

Yamatoma

- Sources
  - Primary
  - Secondary

Amami audio sample

Amami audio sample



Yamatoma Phonology

		Labial		Dental			Palatal		Velar			Glottal
			dbl		dbl	asp				dbl	asp	
Stops	voiceless	p	pp	t	tt	t^h			k	kk	k^h	ʔ
	voiced	b		d					g			
Fricatives	voiceless			s	ss		ç	çç				h
	voiced			z								
Nasals		m		n								
Liquids				r								
Glides		y										ʾ

note: *dbl* = a double consonant, *asp* = an aspirated consonant

Phoneme	Phonetic Value	Allophones
/p/	voiceless unaspirated bilabial stop	[p] everywhere
/t/	voiceless unaspirated dental stop	[č] preceding /i/ and /y/ or following /i/ [t] elsewhere
/k/	voiceless unaspirated velar stop	[k] everywhere
/ç/	voiceless palatal fricative	[tž] preceding /i/ and /y/ [tz] elsewhere
/s/	voiceless dental fricative	[š] preceding /i/ and /y/ [s] elsewhere
/ʔ/	glottal stop	[ʔ] everywhere
/h/	glottal fricative	[ç] preceding /i/ and /ya/, /yo/, and /yu/ [k^h] preceding /e/, /ï/, and /ye/ [ɸ] preceding /w/ [h] elsewhere

Yamatoma Phonology

Phoneme	Phonetic Value	Allophones
/b/	voiced bilabial stop	[b] in all environments
/d/	voiced dental stop	[dž] preceding /i/ and /y/ [d] elsewhere
/g/	voiced velar stop	[g] in all environments
/z/	voiced dental fricative	[dž] preceding /i/ and /y/ [dz] elsewhere

Yamatoma Phonology

Phoneme	Phonetic Value	Allophones
/m/	[m] - bilabial nasal stop	[m] in all environments
/n/	[n] - dental nasal stop	[ɲ] preceding /i/ and /y/ [ŋ] before /k/ and /g/ [n] elsewhere

Yamatoma Phonology

- Liquid and glides
  - /r/ [ɾ] in all environments
  - /y/
  - /w/
  - /’/
    - *ʔurï-* 'go down, descend' *’urï-* 'break, fold'
    - *ʔya* 'arrow' *’ya* 'house'
  - Not only initial:
    - *kʰa’i* 'rice gruel'
    - *a’omi* 'blue'

Yamatoma Phonology

- Proto-RK > Yamatoma
  - */p/ > /h/ morpheme initially, except before */e/ where */p/ > /hw/ [ɸ]
  - *k > *k^h > h / $V_{[-high]}$ _ $V_{[-high]}$
  - *ti > çi
  - *tu > çï

Yamatoma Phonology

proto-RK	Stage 1 Aspiration	Stage 2 Raising	Stage 3 Assimilation	Stage 4 /k/ > /h/	gloss
**ke*	**k^{h}e*	*k^{h}ï*	———	———	'tree'
**woke*	**wok^{h}e*	**wuk^{h}ï*	**wïk^{h}ï*	*wïhï*	'bucket'
**kokoro*	**k^{h}ok^{h}oro*	———	———	*k^{h}ohoro*	'heart'
**te*	**t^{h}e*	*t^{h}ï*	———	———	'hand'
**peto*	**hwet^{h}o*	*hwït^{h}u*	———	———	'dolphin'
**mot-*	**mot^{h}-*	*mut^{h}-*	———	———	'hold'
**yak-*	**yak^{h}-*	*yak^{h}-*	———	———	'burn'

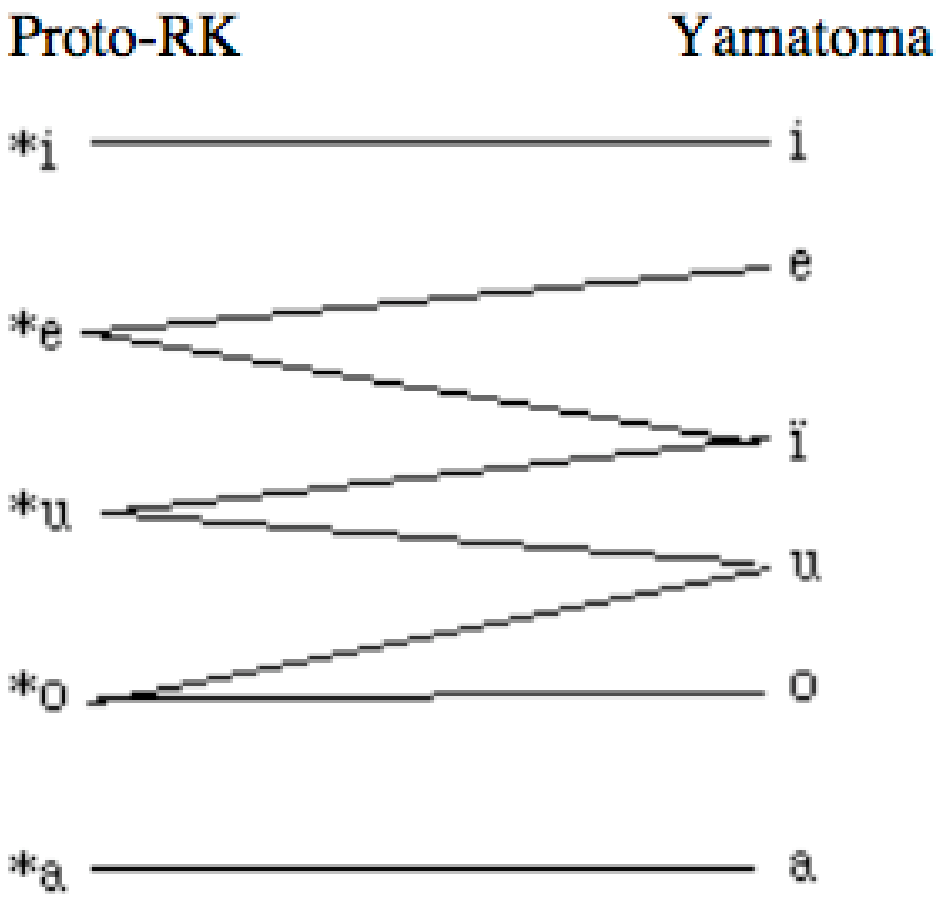
Yamatoma Phonology

i	ï	u
e	o	
	a	

Yamatoma Phonology

- Vowels
  - Long and short
  - Monosyllabic words are not always long

Yamatoma Phonology



Yamatoma Phonology

- Proto-RK > Yamatoma
  - */u/ > /ï/ following coronal consonants
  - */e/ and */o/ sometimes raise to /ï/ and /u/, but not always

Yamatoma

- The gerund -tï

ʔin-nin ku'w-at-tï ʔitya-sari

dog-DAT bite-PASS-GER painful-FIN

[I] was bitten by a dog and it hurt.

(Osada et al. 1980: 502)

Yamatoma

- The negative -yan(-)

ʼwan na: ʔikh-yan
I TOP go-NEG
I am not going.
(Osada et al. 1980: 501)

Yamatoma

- The negative -azï

hon nin ’yum-azï ʔasï-dï be:ri ’ur-i
book even read-NEG play-GER just sit-FIN
[You] don't even read books, [you] just play and sit.
(Osada et al. 1980: 501)

Southern Ryukyuan

Hirara

- Sources
  - Primary
  - Secondary

Hirara Phonology

		Labial	Labiodental		Dental		Palatal		Velar	Glottal
				dbl		dbl		dbl		
Stops	voiceless	p			t	tt			k	
	voiced	b			d	dd			g	
Fricatives	voiceless		f	ff	s	ss	ç	çç		h
	voiced		v	vv	z	zz				
Nasals		m			n					
Liquids					r					
Glides		w					y			

note: *dbl* = a double consonant

Hirara Phonology

- Double consonants

Hirara	<	proto-RK	Gloss
avva	<	*abura	grease, oil, fat
ffa	<	*kuwa	child
fuzza	<	*Guzira	whale
maddī	<	*maziri	to mix
ssu	<	*siro	white
turra	<	*tori-wa	bird-TOP

Hirara Phonology

Phoneme	Phonetic Value	Allophones
/p/	voiceless unaspirated bilabial stop	[p] in all environments
/t/	voiceless unaspirated dental stop	[t] in all environments
/k/	voiceless unaspirated velar stop	[k] in all environments
/f/	voiceless labiodental fricative	[f] in all environments
/ç/	voiceless dental fricative	[č] preceding /i/ and /y/ [ç] elsewhere
/s/	voiceless dental fricative	[š] preceding /i/ and /y/ [s] elsewhere
/h/	glottal fricative	[h] in all environments

Hirara Phonology

Phoneme	Phonetic Value	Allophones
/b/	voiced bilabial stop	[b] in all environments
/d/	voiced dental stop	[d] in all environments
/g/	voiced velar stop	[g] in all environments
/v/	voiced labiodental fricative	[v] in all environments
/z/	voiced dental fricative	[ž] preceding /i/ and /y/ [z] elsewhere

Hirara Phonology

Phoneme	Phonetic Value	Allophones
/m/	[m] - bilabial nasal stop	[m̥] preceding /m/ [n̥] preceding /n/ [m] elsewhere
/n/	[n] - dental nasal stop	[ɲ̊] preceding /s/ and word finally [m] preceding /m/, /p/, and /b/ [ŋ] preceeding /k/ and /g/ [n] elsewhere

Hirara Phonology

- Liquid and glides
  - /r/
    - [*ɾ*] before consonants and word finally
    - [r] elsewhere
  - /rr/
    - [*ɾɾ*]
  - /y/
    - Only before /a/, /o/, /u/
    - Can occur word initially or follow any consonant
  - /w/
    - Before /a/ or /o/
    - /kwa/ and /gwa/

Hirara Phonology

- Proto-RK > Hirara
  - *k > h / _u
    - Hirara /ku/
      - Stage One: The rule that proto-RK */k/ becomes */h/ before */u/ applies.
      - Stage Two: The previous rule is no longer necessary and is no longer a productive rule in the language.
      - Stage Three: The proto-RK vowel */o/ raises to */u/. At this time the syllable */ko/ becomes */ku/. Since the rule described in Stage One is no longer productive, there is no motivation for */ku/ to change further.
  - *$C_{[+voice]}$aka > $C_{[+voice]}$aa

Hirara Phonology

- Proto-RK > Hirara
  - *p > h / _u
    - Results in a merger of Proto-RK */pu/ and */ku/
    - Hirara /pu/ can be from either Proto-RK */pu/ and */ku/

Hirara Phonology

- Proto-RK > Hirara
  - *t > ç / _i, u
    - /ti/ and /tu/ come from PRK */te/ or */to/

Hirara Phonology

- Proto-RK > Hirara
  - */ri/ and */ru/ > /ï/
    - Stage One: Proto-RK */i/ backs to /ï/ following /r/, Proto-RK */u/ fronts to /ï/ following /r/
      - Result is a merger: */ri/ and */ru/ > */rï/
    - Stage Two: The rule in stage one is no longer productive
    - Stage Three: Proto-RK */e/ raises to /i/ and */o/ raises to /u/
      - Result: /ri/ and /ru/
    - Stage Four: Last, /r/ is deleted preceding /ï/ and /i/
      - Result is /ï/ and /i/

Hirara Phonology

- Proto-RK > Hirara

proto-RK	*bir	*bur	*zir	*zur	*gir	*gur	*sir	*sur	*kir	*kur
Hirara	bi(r)	vv	zz	zz~çç	gï(r)	vv	ss	ss	kïs	ff

Hirara Phonology

Short Vowels

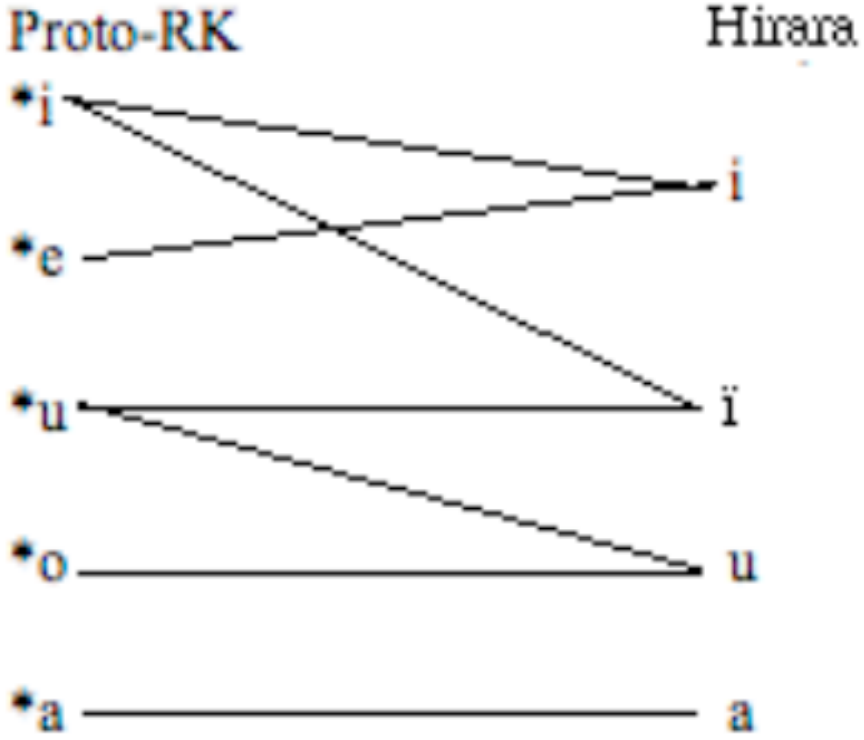
i	ï	u
	a	

Long Vowels

i:	ï:	u:
	o:	
	a:	

Hirara Phonology

- PRK > Hirara



Hirara Phonology

- PRK > Hirara
  - *i > i / #_, n_ *i > ï elsewhere
  - *e > i
  - *u > ï / $C_{[+coronal]}$_ *u > u elsewhere
  - *o > u
  - *a > a

Hirara

- The gerund -tii

mi:-tti kara munu: irab-i
look/INF-GER ABL thing/ACC choose-IMP
Look and then choose one.
(Hirayama 1983: 187)

Hirara

- The negative -an

panas-ai-s-u ga zï:-ya kak-ai-n
talk-POT/INF-do-FIN but letter-TOP write-POT-NEG/FIN
[He] can talk, but he cannot write letters.
(Hirayama 1983: 184)

Proto-Japonic

Proto-Japonic

PJ	OJ	Yam.	Shuri	Hirara
*/p/	/p/	/h/ initial position /f/ before */e/ /p/ elsewhere	/f/ before */i/ /h/ elsewhere	/f/ before */u/ /p/ elsewhere
*/Np/	/Np/	/b/	/w/	/v/ before */u/ /b/ elsewhere
*/t/	/t/	/ç/ before */i/ */u/ /t^h/ before a non-high vowel or between non-high vowels /t/ elsewhere	/č/ before or after */i/ /t/ elsewhere	/ç/ before */i/ */u/ /t/ elsewhere
*/Nd/	/Nt/	/d/	/d/	/d/
*/s/	/s/	/s/	/s/	/s/
*/z/	/z/	/z/	/ž/	/z/

Proto-Japonic

PJ	OJ	Yam.	Shuri	Hirara
*/k/	/k/	/h/ between non-high vowels /k^h/ before non-high vowels /k/ elsewhere	/č/ before or after */i/ /k/ elsewhere	/f/ before */u/ /k/ elsewhere
*/g/	/Nk/	/g/	/g/	/v/ before */u/ /g/ elsewhere
*/ʔ/		/ʔ/	/ʔ/	
*/m/	/m/	/m/	/m/	/m/
*/n/	/n/	/n/	/n/	/n/

Proto-Japonic

PJ	OJ	Yam.	Shuri	Hirara
*/r/	/r/	/r/	Ø before */i/ /r/ elsewhere	/r/
*/w/	/w/	/w/	/w/	/w/
*/y/	/y/	/y/	/y/	/y/
*/'/		/'/		

PJ	OJ	NEOJ	CEOJ	SEOJ	UEOJ	Yam.	Shuri	Hirara
*/i/	/ï/ [i]	/ï/	/ï/	/ï/	/ï/	i	/i/	/i/ after nasals and word initially /ï/ elsewhere
*/e/	/ê/ [i+a]	/ê/	E	/ê/	E	/ï/ or /e/		/i/
	/ë/ from [a+i] [ö+i]	E		/ë/ or /ö/				
*/o/	/ô/ [o]	/ô/	/ô/ or /u/	/ô/	/ô/	/u/ or /o/	/u/	/u/
*/ə/	/ö/ [ə]	/ö/	/ö/	/ë/ or /ö/	/ë/			
*/u/	/u/ [u]	/ô/ after labials /u/ elsewhere	/ô/ or /u/	/ô/ or /u/	/ô/ or /u/	/ï/ after coronals /u/ elsewhere		/ï/ after coronals /u/ elsewhere
*/a/	/a/ [a]	/a/	/a/	/a/	/a/	/a/	/a/	/a/

Proto-Japonic

- The gerund *-te

WOJ	NEOJ	CEOJ	SEOJ	UEOJ	Yam.	Shuri	Hirara
-te	*-te*	*-te*	*-te*	*-te*	*-t^{h}ï*	*-ti*	*-tti*

Proto-Japonic

- The negative *-an-

WOJ	NEOJ	CEOJ	SEOJ	UEOJ	Yam.	Shuri	Hirara
-an-	*-an-*	*-an-*	*-an-*	*-an-*	*-yan-* *< -ran-*	*-ran-*	*-an-*

Proto-Japonic

- The negative *-aNs-

WOJ	NEOJ	CEOJ	SEOJ	UEOJ	Yam.	Shuri	Hirara
-aNs-	*-aNs-*	*-aNs-*	*-aNs-*	*-aNs-*	*-azï*		

Conclusion

- Where to go from here?
- References:
  - http://www2.hawaii.edu/~krussell/files/russell.dissertation.pdf.zip
  - http://www2.hawaii.edu/~krussell/files/references.pdf

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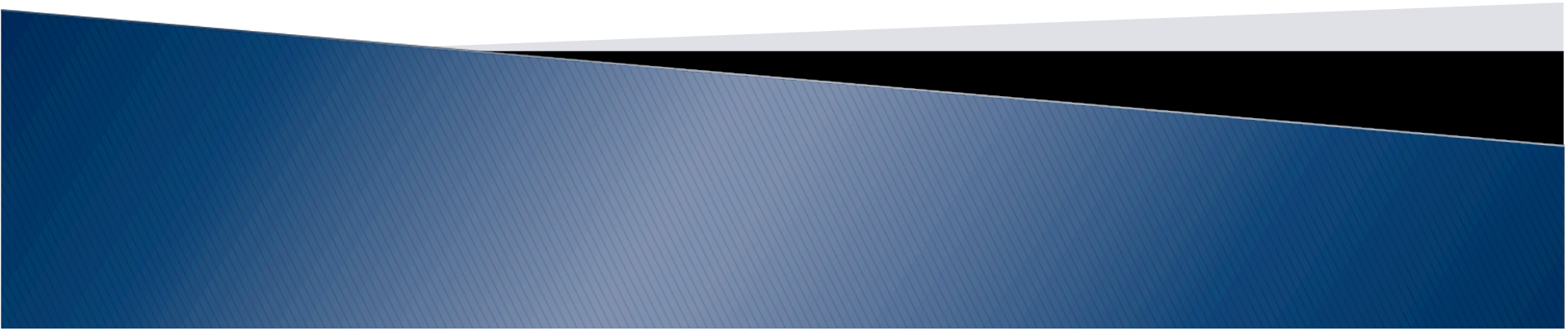
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