Ryukyuan perspectives on the Proto-Japonic vowel system

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1. Introduction

The Ryukyuan languages are a family of (at least) five endangered languages spoken in the Ryūkyū Islands, an archipelago stretched between Kyūshū and Taiwan and naturally delimited by the Kuroshio current (Figure 1). They form a sister branch to Japanese, and both derive from a common ancestor, Proto-Japonic (PJ). Ryukyuan can be divided into a Northern branch that includes Amami and Okinawan, and a Southern branch comprising Miyako, Yaeyama and Yonaguni (Pellard 2009).

Traditionally, Japanese historical linguistics has been virtually synonymous with philology, and the reconstruction of PJ has thus exclusively relied on the evidence from the Old Japanese (OJ) texts of the 8th c. CE. Comparative data from the Ryukyuan languages is nevertheless of great importance for this topic, though this importance is still too often underestimated.

In particular, it is known since Hattori (1932, 1978–1979) that the Ryukyuan vowels do not straightforwardly correspond to the Old Japanese ones, and a careful comparison of Ryukyuan and OJ requires reconstructing more vowels in Proto-Japonic than usually posited.

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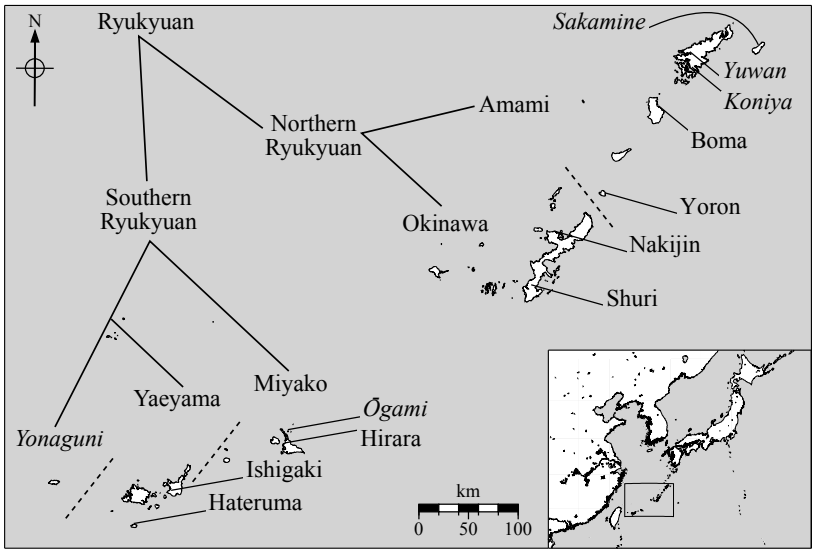


FIGURE 1 The Ryukyuan languages

Based on data I collected in the field and from existing sources,[1] I adduce new comparative evidence from several Ryukyuan languages that add further support to the reconstruction of six vowels in Proto-Japonic, and I propose to reconstruct a new diphthong, namely *oi.

2. The reconstruction of the PJ vowel system

2.1. The four-vowel hypothesis (4VH)

The application of the method of internal reconstruction to the vowel alternations and vowel crasis phenomena of OJ has led many scholars to reconstruct, more or less independently, only four vowels in PJ (Miller 1967, Matsumoto 1975, Ōno 1977, Whitman 1985, Martin 1987), represented in Figure 2. The other vowels of OJ and later Japanese are said to be later developments of diphthongs constituted of the above four primary vowels: i_2 < PJ *ui, *əi; e_1 < *ia, *iə; e_2 < *ai, *əi; o_1 < *ua, *au, *uə.

[1] The map in Figure 1 gives the location of the different dialects mentioned in this study. Varieties for which I have first-hand data coming from my own fieldwork (Sakamine, Yuwan, Koniya, Ōgami, Yonaguni) are indicated in italics. In addition, I have used the following sources: Koniya: Uchima and Arakaki (2000), Yoron: Kiku and Takahashi (2005); Boma: Nakama (1992); Nakijin: Nakasone (1983); Shuri: Kokuritsu kokugo kenkyūjo (1963); Hirara: Nevskij (1922–1928 [2005]); Ishigaki: Miyagi (2003); Hateruma: Miyanaga (1930); Yonaguni : Ikema (2003).

FIGURE 2 The four-vowel hypothesis

This reconstruction is however problematic since it does not take into consideration any comparative data from the Ryukyuan languages, and in fact is not able to account for it, as will be shown below.

2.2. The PJ six-vowel hypothesis (6VH)

Previous works on the comparative reconstruction of Ryukyuan and Japanese (Hattori 1978–1979, Thorpe 1983, Serafim 1999, 2008, Pellard 2008, 2009) have led to the the addition of two mid vowels, *e and *o, to the 4VH (Figure 3).

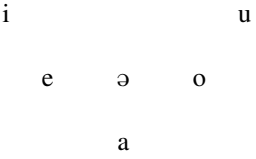


FIGURE 3 The 6-vowel hypothesis

For several decades, this hypothesis has been mostly rejected, and the 4VH has remained, and still does for some scholars, the common *doxa* in Japanese historical linguistics. It is only recently, more than thirty years after Hattori's (1978–1979) commanding comparative study of Ryukyuan and Japanese, that it has begun to gain general acceptance.[2]

The fact few examples were given in support of this hypothesis, with Proto-Ryukyuan (PR) and PJ reconstructions and correspondences sometimes given without clear explanation, probably explains why the 6VH has been rejected so far. The following sections will propose new and straightforward Ryukyuan evidence[3] for the 6VH and counter-evidence to Whitman (1985)'s criticisms.[4]

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[2] See Frellesvig and Whitman (2008a), Vovin (2010).

[3] This reconstruction is also partly supported by data from Eastern Old Japanese (EOJ, *Azuma uta*, *Sakimori uta*) and some archaic dialects like Hachijō (Hino 2003, Pellard 2008). See also Miyake (2003) for a summary of the subject.

[4] Whitman has since accepted the reconstruction of *e and *o (Frellesvig and Whitman 2008a).

3. The PJ mid vowels *e and *o

3.1. PJ *e

The reconstruction of PJ *e has been the most controversial one. There are indeed few examples, and further examples of *e can only be discovered by a minutious examination of the Ryukyuan data. The supporting correspondences are summarized in Table 1.

TABLE 1 Reflexes of PJ *i and *e

OJ <	PJ	> PR >	Am. ::	Ok. ::	Mi. ::	Ya. ::	Yo.
i$_1$ ⟨	*i	> *i >	ʔi, N ::	ʔi, ʲi, N ::	ɻ, ɯ, s, N, ∅ ::	ɻ, N, ∅ ::	i, N, ∅
	*e	> *e >	ʰi, i ::	ʰi, i ::	i ::	i ::	i

Whitman (1985) made the important remark that in all the examples proposed by Hattori (1978–1979) and Thorpe (1983),[5] *e always appears before a sonorant or a voiced/prenasalized obstruent followed by a high vowel, while *ə never does. He thus proposed to account for *e by the following fronting rule:

(1) PJ *ə > PR *e, OJ *i*$_1$ / __$C_{[+voiced]}V_{[+high]}$

There are nevertheless counter-examples to Whitman's (1985) fronting hypothesis, such as *to*$_2$*ri* 'bird' or *no*$_2$*ri* 'seaweed', that do not have alternating shapes and thus should simply be reconstructed as *təri and *nəri (Miyake 2003:94). Such words cannot be reconstructed with a final *əi, as shown by their Ryukyuan reflexes (ex: Miyako-Ōgami *tuɯ*, *su-nuɯ*, see section 4). Moreover, Arisaka's (1934b) second law states *ə and *u do not coexist in a disyllabic root, so there is little chance these words come from *tərui and *nərui. Anyway, *tərui and *nərui would have shifted to ✗tiri and ✗niri in OJ according to Whitman's fronting rule. Hattori's (1978–1979) and Thorpe's (1983) examples thus remain valid.

Table 2 illustrates a minimal pair PJ *piru 'daytime' vs. *peru 'garlic', which are homophoneous in OJ but are distinguished in most varieties of Ryukyuan. Other examples where I propose to reconstruct *e include PJ *erə 'color', which can be reconstructed from the correspondence OJ *iro*$_2$ :: Ōgami *iru* (cf. 'put in' OJ *ire* :: Ōgami *ɯri* < PJ *irV), and PJ *neNkə 'get muddy', from the correspondence OJ *nigo*$_2$*r-* :: Yuwan *nigurɨr-* (cf. 'grasp' OJ *nigi*$_1$ :: Yuwan *nigij-* < PJ *niNkir-).

[5] PJ *eNtu 'which', *keNtu 'wound', *memeNsu 'earthworm', *meNtu 'water', *peru 'garlic', *peNsi 'elbow'. Serafim (1999), quoted in Miyake (2003), proposed several examples of *e appearing in other environments, but the comparative data underlying his reconstructions remains unkwnown, and my own data does not agree with most of his reconstructions.

TABLE 2 PJ *i vs. *e: PJ *peru 'garlic'

		'daytime'	'garlic'
OJ		*pi₁ru*	*pi₁ru*
Amami	Koniya	çiɾ	ɸiɾ
Amami	Yoron	pjuː	piɾu
Okinawa	Nakijin	pˀiɾuː	pʰiɾuː
Miyako	Ōgami	psː-ma	piɯ
Yaeyama	Ishigaki	pɻːɾɻ	piŋ
Yonaguni		tsˀuː	çiɾu
PR		*piru	*peru

3.2. PJ *o

The reconstruction of *o is less problematic and is supported by many examples of a correspondence OJ *u* :: PR *o. As listed in Table 3, PJ *u tends to drop or assimilate to a contiguous nasal, contrary to *o, whose reflex is regularly *u*. These two different reflexes are exemplified by PJ *mukap- 'to face' vs. *moNki 'wheat' (Table 4), *mukaNtV 'centipede' vs. *moko 'bridegroom' (Table 5), *uma 'horse' vs. *omi 'sea' (Table 6).[6]

TABLE 3 Reflexes of PJ *u and *o

OJ <	PJ	> PR >	Amami	::	Okinawan	::	Miyako	::	Ishigaki	::	Yonaguni
u ⟨	*u	> *u >	ˀu, N	::	u, N	::	u, N, ∅	::	u, N, ∅	::	u, N, ∅
	*o	> *o >	ʰu	::	u	::	u	::	u	::	u

PJ *u also has a special fronted reflex after coronals in most Ryukyuan varieties, which can be seen in the reflexes of PJ *usu 'mortar', while *o is always *u*, as in *kusori 'medicine' (Table 7).

Another example is PJ *ori 'melon', which can be reconstructed from the comparison 'melon' OJ *uri* :: Ōgami *uɯ* (cf. 'sell' OJ *ur-i* :: Ōgami *vv*).

4. PJ diphthongs: Where have all the *oi gone?

From morphophonemic alternations occuring in OJ, it is possible to reconstruct two different PJ sources of OJ i_2:

- *ui, for OJ cases where OJ i_2 alternates with *u*, e.g. *tuku-yo₁* 'moon(light)' ~ *tuki₂* 'moon' or *sugus-* 'pass (transitive)' ~ *sugi₂* 'pass (intransitive)';
- *əi, where i_2 alternates with o_2, like in *ko₂dati* 'stand of trees' ~ *ki₂* 'tree' or *oko₂s-* 'raise' ~ *oki₂* 'rise'.

[6] See Pellard (2008) for more details on this last reconstruction.

TABLE 4 PJ *u vs. *o (1): PJ *moNki 'wheat'

		'to face'	'wheat'
OJ		*mukap-*	*muɡi*$_1$
Amami	Sakamine	mutɕui	muŋi
Okinawa	Shuri	ŋkeː	mudʑi
Miyako	Ōgami	ŋkai	mukɯ
Yaeyama	Ishigaki	ŋkai	muŋ
Yonaguni		ŋkai	muŋ
PR		*mukae	*mogi

TABLE 5 PJ *u vs. *o (2): PJ *moko 'bridegroom'

		'centipede'	'bridegroom'
OJ		*mukade* (MJ)	*mo*$_1$*ko*$_1$ > *muko*
Amami	Sakamine	mukadʑi	muku, mukka
Okinawa	Shuri	ŋkadʑi	muːku
Miyako	Ōgami	ŋkati	muku
Yaeyama	Ishigaki	ŋkadza	muku
Yonaguni		ŋkadi	muɡu
PR		*mukade	*moko

TABLE 6 PJ *u vs. *o (3): PJ *omi 'sea'

		'horse'	'sea'
OJ		*(m)uma*	*umi*$_1$
Amami	Sakamine	ma	ʔumi
Amami	Yuwan	mʔa	ʔuŋ
Amami	Yoron	uma	uŋ
Okinawa	Nakijin	mʔaː	ʔumi
Yaeyama	Ishigaki	ɱma	iŋ ~ umɻ
Yonaguni		ɱma	iŋ ~ unnaɡa
PR		*uma	*omi

TABLE 7 PJ *u vs. *o (4): PJ *kusori 'medicine'

		'mortar'	'medicine'
OJ		*usu*	*kusuri*
Amami	Yuwan	ʔusɨ	kʔusui
Amami	Koniya	ʔusɨ	kusuɾ
Amami	Sakamine	usu	sui
Okinawa	Nakijin	ʔuɕi	kʰusui
Miyako	Ōgami	us	ffuɯ
Yaeyama	Ishigaki	usɻ	ɸuɕiɾɻ
Yonaguni		utɕi	tsʔuri
PR		*Usu	*kusori

As first noticed by Arisaka (1934a), and then fully demonstrated by Hattori (1932),[7] the Shuri dialect preserves this distinction, but this is also the case with many other Ryukyuan varieties[8] (Table 8). The fact that Ryukyuan faithfully preserves a distinction already lost in Japanese in the 8th c. and only recoverable through internal reconstruction suffices to establish beyond reasonable doubt the two have split *at least* before the beginnings of Japanese history.

TABLE 8 PJ *ui and *əi in Ryukyuan

	*ui		*əi	
	'moon'	'pass'	'tree'	'rise'
OJ	*tuki*$_2$ (~ *tuku*-)	*sugi*$_2$ (~ *sugus*-)	*ki*$_2$ (~ *ko*$_2$)	*oki*$_2$ (~ *oko*$_2$*s*-)
Am. Yuwan	tsɨki	sɨgi-	kʰiː	xɨːr-
Ok. Nakijin	ʨitʨiː	ʨidʑiːruŋ	kiː	ɸukiruŋ
Ok. Shuri	tsitʨi	sidʑijuŋ	kiː	ʔukijuŋ
Mi. Ōgami	ksks	sɯki	kiː	uki
Ya. Ishigaki	tsɻkɻ	sɻgiruŋ	kiː	ukiruŋ
PR	*tuki	*sugi	*ke	*oke

In Ryukyuan, PJ *ui and *i merge as PR *i but stay distinct from the merged reflexes of PJ *əi and *e (as well as *ai and *ia, PR *e). On the other hand, in OJ, the primary vowels *i and *e generally merge as *i*$_1$ (see however subsection 5.2) and stay distinct from *i*$_2$, the merged reflex of the diphthongs *ui and *əi. These evolutions are summarized in Figure 4.

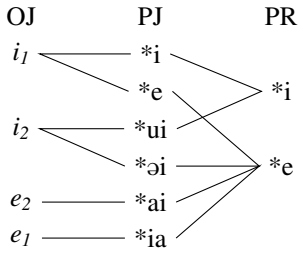


FIGURE 4 OJ and PR reflexes of the PJ diphthongs

[7] Arisaka's paper appeared *after* Hattori's, but Hattori acknowledged it was Arisaka's discovery.

[8] In Southern Ryukyuan, *ui-ending polysyllabic verb stems have been reshaped by analogy with the *əi-ending ones, and the *ui/*əi distinction is thus well-preserved in nominals only.

The PJ system however surprisingly lacks a diphthong *oi. I propose that in fact some of the *ui and *əi usually posited should rather be reconstructed as *oi, and that *oi merges with *ui and not *əi in Ryukyuan to give PR *i.

4.1. From *ui to *oi

OJ $u \sim i_2$ apophonic stems usually have Ryukyuan cognates that exhibit a similar *u ~ *i alternation, and are thus reconstructed as *ui in PJ. See for instance *padui 'shame' (Table 9) or *mui 'body, flesh' (Table 10).

However, some $u \sim i_2$ apophonic nouns, traditionally reconstructed as *ui, have an alternating shape (*hifukukei*) that should be reconstructed with a stem-final *o rather than *u, as is clear from their Ryukyuan reflexes. They should thus be reconstructed with a diphthong *oi in PJ.

This is the case of 'yellow' (Table 11), which appears in OJ as *ku-* ~ ki_2 but has a reflex *ko- in PR. This *ko is reconstructed on the basis of the aspiration or lenition of the velar in Northern Ryukyuan, and the *lack* of fricativization in Southern Ryukyuan, to be compared with the reflexes of *ku exemplified by PJ *kumo 'cloud'. This reconstruction is further confirmed by the existence of the later Japanese form *kogane*, the standard form since the Middle Japanese period.

The verb 'exhaust' (OJ *tukus-* ~ $tuki_2$) should be reconstructed as *tukos- for the same reasons as 'yellow'. The cognate of OJ *tukus-* in Miyako-Hirara is *tsɻkus-*, which implies *tukos- since *ku > *f(u)* (cf. 'make' *tsɻfuŋ* :: OJ *tukur-*). Moreover, the Amami-Boma (Tokunoshima) form *tsɨkijuŋ* confirms the PR reconstruction *tuki for the transitive form, which ultimately derives from PJ *tukoi (cf. Boma *uɨjuŋ* 'rise' < PR *oke < PJ *əkəi).

The reconstruction of 'moon' (OJ *tuku-* ~ $tuki_2$) as PJ *tukoi proposed by Thorpe (1983:355) is less secure. Though Thorpe is very confident[9] about his proposal, he doesn't clearly explain his reasoning, and the Yaeyama-Hateruma form *sɻkeŋ* is the only evidence he adduces. This is perhaps based on the fact that Hateruma *e* comes from *oe ('burn' PJ *mojai > PR *moe > *me:*) or *ae ('front' PJ *mape > PR *mae > *me:*), but never *ue. The evolution of the Hateruma form might then be reconstructed as follows:

(2) PJ *tuko-jo > *tuko-je > *tsɻkoe > sɻkeŋ (with prothetic *-ŋ*)
(cf. Ishigaki *tuko-jo > *tuko-je > tsɻkui)

[9] "This is why one can legitimately pick out a word like sïkeN 'moon' in the remote Hateruma language as convincing evidence for *ko in JR *tukojo 'moon(night)' millenia earlier" (Thorpe 1983:355)

TABLE 9 PJ *hadui 'shame'

		'shameful'	'shame'	'corner'	'arm'
OJ		*hadukasi*	*hadi* (MJ)	*kado* (MJ)	*ude*
Amami	Yuwan	hatsɨkaɕa	hadʑi	kadu	ʔudɨ
Amami	Yoron	pantɕikaɕaŋ	padʑi	hadu	udi
Okinawa	Nakijin	padʑikaɕeŋ	padʑiː	haduː	ʔudiː
Miyako	Ōgami	pakskaskam		katu	uti
Yaeyama	Ishigaki	patsɻka-	padzɻ	kadu	udi
Yaeyama	Hateruma	pasɻkahaŋ		kadu	udʑi
PR		*pazu	*pazi	*kado	*Ude

TABLE 10 PJ *mui 'body, flesh'

		'chest'	'flesh'	'thing'	'eye'
OJ		*mune*	*mi*$_2$	*mono*$_2$	*me*$_2$
Amami	Sakamine	munɪ		muŋ	miː
Amami	Yoron	niː	miː	munu	miː
Okinawa	Nakijin	niː	miː	munuː	miː
Miyako	Ōgami	mmi-fkɯ	miɯ	munu	miː
Yaeyama	Ishigaki	nni	mɻː	munu	miː
Yonaguni		nni	miː	munu	miː
PR		*mune	*mi	*mono	*me

TABLE 11 PJ *koi 'yellow'

		'yellow'	'tree'	'gold'	'cloud'
OJ		*ki*$_2$ (~ *ku*)	*ki*$_2$ (~ *ko*$_2$)	*kugane*	*kumo*$_1$
Amami	Koniya	kˀiː	kʰiː	kʰugani	kˀumu
Amami	Yoron	kinsaŋ	ɕiː ~ çiː	hugani	kumu
Okinawa	Nakijin	tɕˀiːɾuː	kiː	ɸugaːni	kˀumuː
Miyako	Ōgami	ksː-	kiː	kukani	fumu
Yaeyama	Ishigaki	kɻː	kiː	kugani	ɸumu
Yaeyama	Hateruma	kɻŋkɻː	kiː	kugani	ɸumoŋ
PR		*ki	*ke	*kogane	*kumo

4.2. From *əi to *oi and *ə to *o

Traditionally, all instances of OJ $i_2 \sim o$ alternations have been interpreted as involving an $o_2 <$ *ə, and thus automatically reconstructed as *əi. However, several problems arise from this mechanistic reconstruction. First, cases where no $o_{1/2}$ distinction is attested could theoretically go back to an earlier *o rather than *ə. Moreover, in some cases this *o* coexists with *a* in the same root, which according to Arisaka's (1934b) third law is almost never possible for an o_2. But the most conclusive piece of evidence comes from Ryukyuan: some examples have reflexes with PR *i, while OJ $i_2 \sim o_2 <$ PJ *əi usually corresponds to PR *e, like 'tree' OJ $ki_2 \sim ko_2$- :: PR *ke. Reconstructing these exceptional cases not as *əi but *oi permits to solve all these problems.

Such examples include 'be, sit', 'fire', 'get drained' and 'indigo', which I respectively reconstruct as PJ *woi, *poi, *poi and *awoi (instead of the traditional *wəi, *pəi, *pəi and *awəi, cf. Martin 1987) on the basis that these have a vowel *i in PR. OJ makes no distinction between o_1 and o_2 after *w* and *p*, and there is thus nothing that could prevent us from reconstructing an *o instead of an *ə in these. Tables 12 to 15 give the reflexes of the above words in Ryukyuan and contrast them with examples of PR *e in similar environments.

I must admit that all the examples where I propose to correct the reconstruction from *əi to *oi contain a labial consonant before the vowel. It could thus be the case that PJ *əi merges with *ui after a labial to give PR *i rather than the usual PR *e:

(3) PJ *əi > PR *i / $C_{[\text{LABIAL}]}$__

There is however at least one counter-example to this generalization: the PR *o(p)pe 'big' form (Yuwan *xiː* :: Koniya *ɸiː* :: Nakijin *ɸupi* :: Shuri *ʔuɸi*) is undoubtedly related to OJ *opo* 'big' ~ opi_2 'grow'. Since this form has a reflex with *e in PR and that nearly every *(C)oCo* form in OJ have an o_2 in both syllables, it can be safely reconstructed as PJ *əpəi. This form thus exemplifies a case where PJ *əi corresponds to PR *e and not *i after a labial.

The distributional constraint observed might also be just a coincidence: *o usually gets raised to *u* in OJ, which leaves few possibilities for $i_2 \sim o_1$ alternations. There are not so many cases of $i_2 \sim o$ alternations anyway, and only a handful of examples remain after all cases clearly involving an o_2 are eliminated. Not surprisingly, most remaining examples involve syllables where OJ has no $o_{1/2}$ distinction: *po*, *bo*, *mo*, *wo*, which all have a labial initial. Some examples with unclear $o_{1/2}$ attestation after a non-labial consonant are found, but they seem to have no cognates in Ryukyuan.

Anyway, 'blue' should be reconstructed as *awo in order to comply with Arisaka's (1934b) third law, which states OJ *a* and o_2 (< *ə) seldom co-exist in the same morpheme.

TABLE 12 PJ *woi 'sit'

		'sit'	'be'	'get drunk'
OJ		*wi*	*wor-*	*wep-*
Okinawa	Shuri	jijuŋ	wuŋ	wi:juŋ
Miyako	Ōgami	pɯr-	ur-	pi:
Yaeyama	Ishigaki	bɭruŋ	uŋ	biŋ
PR		*wir-	*wor-	*we

TABLE 13 PJ *poi 'fire'

		'fire'	'moldboard, spatula'
OJ		*pi*$_2$	*pe*$_1$*ra*
Okinawa	Nakijin	pʔi:	pʰira:
Yaeyama	Ishigaki	pɭ:	pira
Yaeyama	Hateruma	pɭ:	pira
Yonaguni		tɕʔi:	çira
PR		*pi	*pera

TABLE 14 PJ *poi 'get drained'

		'get drained'	'moldboard, spatula'
OJ		*pi*$_2$	*pe*$_1$*ra*
Amami	Koniya	çir-	ɸira
Okinawa	Nakijin	pʔjuŋ	pʰira:
Miyako	Ōgami	ps:	pira
Yaeyama	Ishigaki	pɭsuŋ	pira
Yaeyama	Hateruma	pɭsuŋ	pira
PR		*pi	*pera

TABLE 15 PJ *awoi 'indigo'

		'blue'	'indigo'	'front'
OJ		*awo*	*awi*	*mape*$_1$
Amami	Koniya	ʔo:sa	ʔe:	mə:
Amami	Yoron	o:saŋ	ai	me:
Miyako	Hirara	o:kaɭ	aɭ	mai
PR		*aU	*ai	*mae

5. Further developments and remaining issues

5.1. A seventh PJ vowel?

Evidence for a seventh vowel in PJ remains scarce. Two proposals for a seventh, high central vowel exist, but they have been made on the basis of completely different kinds of evidence.

Hattori (1978–1979) reconstructs *ü in a handful of words only, most of which are problematic. First, the reconstruction of 'all' as *müina ~ *mürə is only valid if the two OJ words *mi₂na ~ mo₂ro₂* are indeed etymologically related, which remains unsure. Then, 'finger' (Hattori's *əjübəi) is a word with a complex history, and Hattori didn't clearly explain his motivations for this reconstruction (Hattori 1978–1979:(9)116). Finally, Hattori's *püi 'fire' and *pü-dai/*pü-dee 'lightning' are reconstructed with *ü since they have a reflex *i in PR instead of the expected *e, but this can be explained by my own hypothesis as cases of *oi.

On the other hand, Frellesvig and Whitman's (2008a) *ɨ is reconstructed on the main basis of OJ-internal evidence, and there seems to be no supporting comparative evidence from Ryukyuan, EOJ or Hachijō (Table 16). While this hypothesis is interesting, well-founded, and aims at explaining a few otherwise irregular vowel alternations, I feel there are still too few good examples. There is little merit in reconstructing an extra vowel in PJ over recognizing a small number of irregular forms.

TABLE 16 F & W's PJ *ə and *ɨ

		'seaweed'	'this'
F&W's PJ		*mə	*kɨ
OJ		*mo*	*ko₂*
Amami	Koniya	muː	kʰuɾ
Okinawa	Shuri	muː	kuɾi
Miyako	Ōgami	muː	kuɾi
PR		*mU	*kuri

5.2. Vowel raising in OJ

There are several cases of *e₍₁₎* and *o₁* in OJ that cannot be explained away as originating in earlier diphthongs, and these thus constitute exceptions to the vowel raising process that affected OJ. Examples of unraised *e₍₁₎* in OJ include for example *pe₁ra* 'moldboard, spatula', *ke₁pu* 'today', *pe₁ta* 'near the shore', *sake₁b-* 'shout', *kape₁r/s-* 'return', *uke₁ra* '*Atractylodes japonica*', *ter-* 'shine', etc. Instances of unraised *o₁* can be seen in *ko₁pi₂* 'love', *ko₁ga-* 'burn', *to₁ma* 'woven rain-cover', *so₁ra* 'sky', *to₁ra* 'tiger', *yo₁wa-* 'weak', *mo₁zu* 'shrike', *ko₁mo* 'eelgrass', etc.

Several explanations have been proposed to account for such cases of unraised *e and *o in OJ. One of these states a phonotactic constraint stipulating final position blocks raising (Frellesvig and Whitman 2008a). This hypothesis does not however explain the cases where an unraised vowel is found in a non-final syllable, such as those quoted above. Hattori (1978–1979) proposed on the other hand it is vowel length that blocks raising, and that unraised *e and *o should be reconstructed as long *ee and *oo in PJ. This is however at odds with the general trend of vowel changes, since long vowels generally tend to rise (Labov 1994:116). If vowel length is to be reconstructed, Hattori's hypothesis should be reversed and raised vowels reconstructed as long (this might account for their relative paucity). Other solutions could include reconstructing those unraised vowels as diphthongs (*ia and *ua or *uə), but the lack of alternating shapes for these deprives us of a solid basis to do so. Reconstructing still extra vowels (*ɛ, *ɔ?) would be quite unparsimonious. The explanation could lie into a combination of two or more of the above hypotheses.

6. Conclusions

A detailed examination of the correspondences between Old Japanese and the different Ryukyuan languages leads to a revision of earlier hypotheses about the Proto-Japonic vowel system. The most important improvements are the reconstruction of the two mid vowels *e and *i and of the diphthong *oi, as well as the reinterpretation of several cases of *ə as *o. The Ryukyuan vowel systems are in a way more archaic than the OJ system, since they preserve a distinction between the vowels *i/*e, *u/*o, *ui/*əi as well as *oi/*əi, which had already merged by the time of the first OJ texts. This is not to say we can dispense with the OJ data, which reveals several distinctions absent from Ryukyuan (*i vs. *ui/*oi, *e/*ia/*iə vs. *ai/*əi).

Though the Ryukyuan data supports the reconstruction of a six-vowel system for PJ, it offers no solid evidence for a seventh vowel, which is anyway supported by too few examples. The reconstruction of the PJ vocalism however still suffers from several problems to be solved by future research. The most important question to be answered concerns the details of the evolution of the PJ vowels in OJ, namely the exact conditions of mid vowel raising. Further work is also needed in order to find more examples of PJ *e, which are still not very numerous, and more evidence for a distinction between *oi and *əi after labials in Ryukyuan. Many other details of the PJ vocalism are still obscure, like the distributional constraints described by Arisaka's laws.

A large-scale comparison of Ryukyuan and Japanese, followed by the application of the methods of internal reconstruction, is without doubt the key to a better understanding of the PJ vowel system.

Note on and transcriptions

Old Japanese syllable distinctions are marked with subscript numbers, with 1 indicating the *kō-rui* series and 2 indicating the *otsu-rui*. PR *U indicates it is not possible to decide whether the vowel should be reconstructed as *u or *o, and *N stands for an unknown nasal.

The various Ryukyuan data taken from existing sources have been converted to a broad phonetic notation, that mostly follows the principles of the IPA, except for the symbol [ɽ], that marks a sound rather freely alternating between an alveolar approximant and a fricative, and for [ˀ], which marks non-ejective glottalization. Contextual devoicing and tones are left unmarked.

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