

## Conservative and Innovative Features in the Phonology of the Hateruma Dialect

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**Abstract** The Hateruma dialect belongs to Yaeyama Ryukyuan and is spoken on the Hateruma island as well as in the Shiraho village of Ishigaki island. The aim of this paper is to describe and analyse the phonetic and phonological characteristics of the Hateruma dialect, in order to point out all the uncommon features, most of which are unique within both Ryukyuan and mainland varieties, and their implication in the reconstruction of proto-Japanese. Beside several innovative forms, like the pharyngealized vowel, sonorant devoicing and noun-final consonant epenthesis, the Hateruma dialect is conservative in preserving certain distinctions which reflect better than any other Ryukyuan variety the distinction of *kō/otsu* series of Old Japanese and the corresponding reconstructed forms of proto-Japanese. A comparative analysis between cognates of the Hateruma dialect and Old Japanese shows how innovative sound changes may have contributed to preserve the distinction between syllables which have merged elsewhere.

**Summary** 1 Introduction. – 2 The Hateruma Dialect: Geographic Distribution. – 3 Vowel System. – 4 Sonorant Devoicing. – 5 Noun-final Consonant Epenthesis. – 6 The Hateruma Reflexes of Proto-Japanese \*kai, \*kui and \*ki. – 7 Conclusions.

**Keywords** Yaeyama Ryukyuan. The Hateruma dialect. Old Japanese *kō-rui* and *otsu-rui* syllables. Phonetic and phonological change. Proto-Japanese.

### 1 Introduction

The aim of this paper<sup>1</sup> is to examine selected aspects of the phonetic and phonological structure of the Hateruma dialect, in order to point out all the uncommon features, most of which are unique within both Ryukyuan and mainland varieties, and their implication in the reconstruction of proto-Japanese. It is well known among ryukyuanists that the phonological system of the Hateruma dialect exhibits several innovations due to phonological changes which have not occurred in other Ryukyuan varieties. Compared

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with the other related varieties of Yaeyama subgroup, the Hateruma dialect has undergone relatively larger changes, which have contributed in lowering its degree of mutual intelligibility within the subgroup. However, the Hateruma dialect can be considered innovative in one respect, while simultaneously conservative in another. Phonological changes in the Hateruma dialect have allowed the preservation of the distinction of certain syllables which reflect better than any other Ryukyuan variety the distinction of *kō/otsu* syllables of Old Japanese,<sup>2</sup> and the corresponding reconstructed forms of proto-Japanese.<sup>3</sup> In the first part of the paper, I will describe and analyse the innovative phonetic and phonological characteristics both in the vowel and in the consonant systems. Afterwards, making a comparison with Old Japanese, I will show certain aspects which suggest that the Hateruma dialect can also be considered a conservative variety.

## 2 The Hateruma Dialect: Geographic Distribution

The Hateruma dialect belongs to what has been classified by UNESCO under the name of Yaeyama, one of the six endangered languages, together with Amami, Kunigami, Okinawa, Miyako and Yonaguni, spoken in the Ryukyuan archipelago (Heinrich 2015). According to UNESCO, Yaeyama is the endangered language spoken on Yaeyama archipelago, to which the Hateruma island belongs. However, the varieties spoken throughout the small archipelago are quite different from each other and their mutual intelligibility is not always guaranteed (Aso 2015). The Hateruma dialect is mainly spoken on the Hateruma island, the southernmost island of the Ryukyuan archipelago and also the southernmost place where a Japonic variety is spoken. The Hateruma island has a population of about 546 inhabitants, of which just a part<sup>4</sup> can still speak the Hateruma dialect. During a fieldwork on the island in 2008, I observed that only elderly people are still fluent in the Hateruma dialect. Younger generation is monolingual in standard Japanese. The Hateruma inhabitants use the term *besiŋma* 'my island' to indicate the Hateruma island and the term *besiŋma nu ŋutuba* 'the language of my island' to indicate the variety of the Hateruma.

The Hateruma dialect is not spoken solely on the Hateruma island. It is also spoken in the village of Shiraho in Ishigaki island. The village of

2 Old Japanese syllable distinctions are indicated here with the traditional expressions *kō-rui* and *otsu-rui* or with subscript numbers <sub>1</sub> (*kō-rui*) and <sub>2</sub> (*otsu-rui*).

3 The proto-Japanese reconstructions used here are cited from Hattori (1978-1979). This reconstruction has also been recently supported by new Ryukyuan data (Pellard 2013).

4 The Hateruma dialect is primarily spoken by people over the age of 70 (personal field notes, Aso 2015).

Shiraho was founded in 1713 by 300 migrants from the Hateruma island. But it was then destroyed by the Meiji Tsunami of 1771 and all 1574 inhabitants perished in the disaster. Shiraho was rebuilt by 413 people who forcibly migrated from the Hateruma island following a policy of the Ryūkyū kingdom government (Karimata 2008, p. 2). Therefore, we can say that the Hateruma dialect has two diatopic varieties: the Hateruma variety spoken on the Hateruma island, and the Shiraho variety spoken in the village of Shiraho. Between the two varieties there are no particular differences in the basic vocabulary and grammar. The main differences can be observed in the phonological system.

### 3 Vowel System

The Hateruma dialect is highly innovative in its vowel phonology. It is the only variety of Yaeyama subgroup to have a system of seven vowel phonemes. The other Yaeyama varieties have systems of six or five vowels. The pharyngealized vowel [eʰ] is a peculiar vowel and is not found in any other Ryukyuan varieties (Table 1).

Table 1. The 7-vowel system of the Hateruma dialect

i		ɨ		u
	e	eʰ		o
		a		

As in all Ryukyuan subgroups, proto-Yaeyama has experienced the raising of proto-Ryukyuan mid vowels \*e and \*o to high vowels *i* and *u*. Proto-Ryukyuan \*i has changed into the central high vowel *ɨ* in proto-Yaeyama. In the Hateruma dialect it is still realized as a central high vowel, but in other dialects of Yaeyama subgroup such as Taketomi, Kuroshima, Iriomote and Hatoma, this vowel has changed into the front high vowel *i*. Due to the mid-vowel raising the proto-Ryukyuan mid back vowel \*o has changed into *u* in all Ryukyuan varieties. Nevertheless, in the Hateruma dialect there are several words where an unexpected mid vowel *o* appears.<sup>5</sup> It is

<sup>5</sup> Examples of an unexpected mid vowel *o* in the Hateruma dialect are: p̄aṭon (<\*pato<sub>1</sub>) 'pigeon'; φ̄ȳm̄on (<\*kumo<sub>1</sub>) 'cloud'; ſ̄j̄no (<\*tuno<sub>1</sub>) 'horn'; mizori (<\*mizo<sub>2</sub>) 'ditch' (personal field notes, Nakama 1992). All the other varieties of the Yaeyama subgroup have the vowel *u* in this position. Surprisingly, cognates of the Shiba variety of Kakeroma island (Amami subgroup) have the vowel *o* in the same positions: hato: (<\*pato<sub>1</sub>) 'pigeon'; kumo: (<\*kumo<sub>1</sub>) 'cloud'; tino: (<\*tuno<sub>1</sub>) 'horn'; mid̄z̄o: (<\*mizo<sub>2</sub>) 'ditch' (personal field notes, Sibata 1979).

not still clear though whether it is the result of a further sound change or it is the reflex of an unchanged proto-Ryukyuan \*o.

As we can see in Table 2, the presence of two mid front vowels in the Hateruma dialect is the result of the coalescence of the proto-Yaeyama diphthongs \*ai and \*ai.

Table 2. Hateruma and proto-Yaeyama reflexes of the proto-Ryukyuan vowels and diphthongs

Proto-Ryukyuan	Proto-Yaeyama	Hateruma
*i	*i	i
*e	*i	i
*o	*u	u/o
*ae	*ai	e
*ai	*ai	e <sup>r</sup>

The peculiar vowel of the Hateruma dialect, hitherto transcribed as a pharyngealized front mid vowel [e<sup>r</sup>], is attested morpheme-internally and in morphologically derived environments. Table 3 illustrates interesting minimal pairs that prove the phonemic opposition of the two vowels. As I observed during a fieldwork in 2008, only the variety of the old generation of speakers of the Hateruma island preserves the phonemic opposition of these vowel phonemes.<sup>6</sup> In the variety of young generation of speakers of the Hateruma island as well as in the varieties of both generations of Shiraho village, the opposition is lost and the pharyngealized vowel is realized as a plain front mid vowel.

Table 3. Minimal pairs in the Hateruma

[pe <sup>r</sup> :] 'hoe'	[ke <sup>r</sup> :] 'egg'	[me <sup>r</sup> :] 'rice'
[pe:] 'fly'	[ke:] 'shade'	[me:] 'in front'

In previous studies on the Hateruma dialect we can find different descriptions of the phonetic realization of this vowel. It has been first described as a front open-mid vowel [ɛ] by Miyanaga Masamori in his *Yaeyama goi* (1930). Miyanaga argued that the difference between the two vowel sounds

6 The data of the Hateruma dialect used in this paper were collected during my own fieldwork on the island of the Hateruma in 2008. The informant of the old generation of speakers was 84 at the moment of recording (born in 1924). The informant of the young generation of speakers was 58 at the moment of recording (born in 1950). As the variety of the young generation of speakers exhibits several differences in the vowel phonology (for more details see Pappalardo 2012), the data used in this paper come solely from the informant of the old generation of speakers.

was one of height. In Nakamoto (1976) as well as in Hirayama (1988) the symbol used to transcribe this vowel was that of a centralized vowel [ɛ̈]. According to Nakamoto and Hirayama the difference between the two vowels was one of backness rather than height. Uemura (1992) unifies the two hypotheses and proposes for the transcription of the vowel the symbol of a central mid-open vowel [ɜ], which differs from the front mid-close vowel in height and backness. Again, in 1997, Uemura provides a further description of the vowel and transcribes it as an apical central mid-open vowel [ɜ̟].<sup>7</sup> Karimata (2008) uses the symbol of front mid-open vowel [ɛ] already used by Miyanaga (1930). Confronted with these different phonetic descriptions, one can wonder whether the difference between the two mid vowels is one of height or backness. As all these phonetic descriptions are interpreted by the human ear, in 2012 a phonetic analysis through the instruments of acoustic phonetics was carried out. As a result, the peculiar vowel of the Hateruma dialect has been described as a pharyngealized front mid-close vowel [e<sup>h</sup>] (Pappalardo 2012).

Observing the spectrogram of a minimal pair (Fig. 1), we can notice that the trait that guarantees the phonemic opposition between the two vowels is neither the backness nor the height.

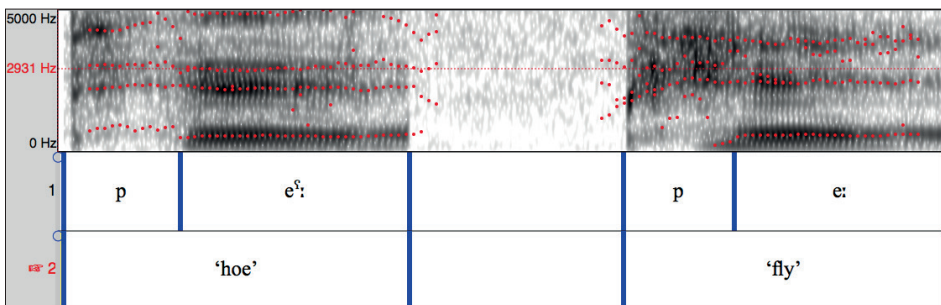


Figure 1. Spectrogram of the minimal pair [pe<sup>h</sup>]: 'hoe' / [pe:] 'fly' uttered by an informant of the old generation of speakers

As we can see, there are no significant differences in the height of the first and the second formants. What is crucial in this opposition is the third formant. The first of the two vowels has a quite low third formant. According to the perturbation theory (Chiba, Kajiyama 1942), it means that there is a constriction at one of the three velocity nodes, which for the third formant are located at lips, hard palate and pharynx. As no labial

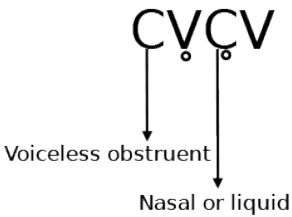
7 The symbol used by Uemura (1997) for the transcription of the vowel is not an IPA symbol. For convenience it has been converted here to an IPA symbol.

rounding or raising of the tongue has been observed, it has been possible to hypothesize that the constriction was located at the pharynx, and that the vowel was a pharyngealized front mid-open vowel [eʰ].

#### 4 Sonorant Devoicing

One of the most striking features in the Hateruma dialect is undoubtedly the particular strong aspiration in word-initial voiceless obstruent, which devoices both the following vowel and the subsequent nasal or liquid. However, no devoicing is attested when the word is monosyllabic. Other Yaeyama varieties have a similar phenomenon, but according to Uemura (1992) the Hateruma dialect has the strongest aspiration and is the only variety in which there is a nasal and liquid devoicing (Table 4).

Table 4. Sonorant devoicing in the Hateruma

	CVCV	Gloss
	[sɨŋu]	'heart'
	[φʊŋi]	'boat'
	[pəŋa]	'beach'
	[pəŋi]	'wing'
	[pɨŋu]	'garlic'
	[səŋu]	'monkey'
	[pəŋi]	'needle'
	[tʊŋi]	'bird'
	[kəŋi]	'turtle'

In the spectrogram of the word *kəŋi* 'turtle' (Fig. 2), the devoicing portion (i.e. [am]) lacks a voice-bar while the following portion (i.e. [mi]) has it. The nasal consonant *m* is only partially devoiced: at least 80% of the nasal is devoiced while the last part is voiced because of the presence of the sequent vowel. Devoicing is extensive in the variety of old generation of speakers, while young generation of speakers tends not to devoice the subsequent nasal or liquid. Some young speakers do not completely devoice even the first vowel. This means that devoicing here is a phenomenon that involves complete disappearance of the vocalic segment just at the surface level.

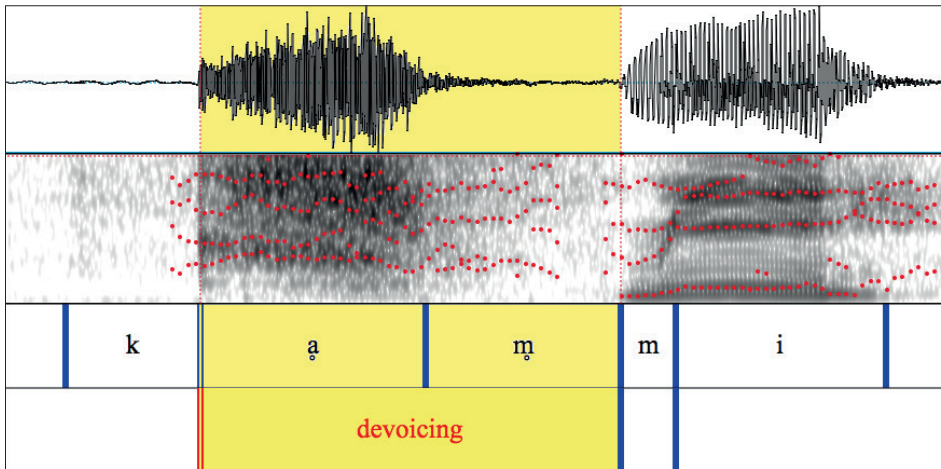


Figure 2. Spectrogram of the word [kə̞m̚i] ‘turtle’ uttered by an informant of the old generation of speakers

### 5 Noun-final Consonant Epenthesis

As for the consonant system, the noun-final mora nasal of the Hateruma dialect has been object of study and interest by several scholars throughout the world. The Hateruma dialect seems to be the only Japonic variety to preserve a conspicuous number of lexical items with this final nasal (Table 5). A similar noun-final nasal has been attested only for the Yonaguni dialect, but to a much lesser extent. What is interesting in this consonant is that it is unattested in any other Japonic variety.

Table 5. Noun-final mora nasal in the Hateruma

Gloss	Proto-Japanese	Hateruma
‘moon’	*tukui	ɕikɪn
‘last year’	*koko	kɯtsɪn
‘pigeon’	*pato	pəton
‘cloud’	*kumo	ɸumɔn
‘tooth’	*pa	pən
‘root’	*ne	nɪn
‘fart’	*pe	pɪn
‘greens’	*na	nən
‘edge’	*pa	pən
‘eye’	*me	mɪn

Scholars such as Murayama (1981) and Starostin (1991) hypothesized that it is the relic of a nasal sound existing in proto-Japanese and reconstructed proto-Japanese forms with a noun-final nasal on the basis of the Hateruma dialect evidence. By positing a final nasal for these lexical items, they speculated that proto-Japanese might have relations with Austronesian languages. Needless to say, these kind of hypotheses are far from being persuasive. It is hard to be convinced that this final nasal survived only in the southernmost island of Japonic linguistic area. The theory of Oyler (1997) and Bentley (2008), who argued that this final nasal is the result of an innovation confined to the Hateruma and partly to the Yonaguni, is undoubtedly much more plausible. Karimata (2008, pp. 84-85) pointed out that certain lexical items have a noun-final nasal only in the Hateruma or in the Shiraho variety. On the basis of this irregular distribution, he hypothesized that the noun-final nasal is an epenthetic consonant which is the result of a parallel linguistic change occurred in both varieties after their split. However, it seems impossible to show for this phenomenon a clear, phonetically motivated, regular sound change. Among the potential sources of this phonetically unnatural sound change, analogy seems to fit best in this case.

In the Hateruma dialect, as well as in other varieties of the Yaeyama subgroup, the regular sound change of the syllable \*mi in word-final position, which changes into a final uvular nasal, is attested. Table 6 illustrates some historical sequences of such a regular sound change.

Table 6. Hateruma reflexes of proto-Ryukyuan \*mi

Gloss	*mi#	>	*mi#	>	N#
deity	*kami	>	*kamĩ	>	kaN
net	*ami	>	*amĩ	>	aN
chisel	*nomi	>	*numĩ	>	nun
flea	*nomi	>	*numĩ	>	nun
wave	*nami	>	*namĩ	>	naN
mirror	*kagami	>	*kangamĩ	>	kaŋgaN
scissors	*pasami	>	*pãtsamĩ	>	pãtsaN

As we have not found any plausible phonetic explanation for the phenomenon of epenthesis shown above, we may suppose that for some reason it bears a relation with the sound change of the syllable \*mi in word-final position. Even though many linguists may oppose the hypothesis of an analogical change, it seems to be a less controversial answer for sound changes conditioned by non-phonetic factors. Furthermore, this explanation seems to be much more persuasive than positing a noun-final nasal consonant in proto-Japanese.



## 6 The Hateruma Reflexes of Proto-Japanese \*kəi, \*kui and \*ki

Let's now consider some consonant sound changes occurred in the Hateruma dialect. Tables 7 and 8 illustrate the reflexes of proto-Ryukyuan \*p and \*k. The Hateruma dialect is conservative in retaining in most of the cases the voiceless bilabial stop of proto-Japanese and proto-Ryukyuan. It is well known that in all the varieties of mainland Japan the voiceless bilabial stop has undergone spirantization, changing into fricative consonants. The Hateruma dialect has undergone spirantization only before the vowel \*u of proto-Ryukyuan. Looking at Table 8, we notice that also the consonant \*k spirantizes in many cases.

Table 7. Reflexes of pR \*p

pR	Hateruma
*pa	pə
*pi	pɨ
*pu	ɸu
*pe	pi
*po	pu

Table 8. Reflexes of pR \*k

pR	Hateruma
*ka	ka/ha
*ki	si/ki
*ku	ɸu
*ke	ki
*ko	ku

I would like to focus now on the Hateruma reflexes of proto-Ryukyuan \*ki. As we can see on Table 8, the voiceless velar stop changes into an alveolar fricative in some cases. This is very interesting, because apart from some examples in the Taketomi dialect, the Hateruma dialect is the only variety in Ryukyuan archipelago to have two reflexes of proto-Ryukyuan \*ki. In fact, proto-Ryukyuan \*ki is the merged reflex of proto-Japanese \*ki and \*kui (Pellard 2013, p. 87). Has this a relation with the two reflexes in the Hateruma dialect? To further elaborate on this topic, we should consider the landmark study by Hattori Shirō (1932, 1978-1979) in which he reconstructed three distinct proto-forms corresponding to the modern Japanese syllable *ki*.

In Table 9 we can see some lexical items in the Shuri dialect, containing a syllable corresponding to Old Japanese *kō-ruī* \*ki and *otsu-ruī* \*ki. To Old Japanese *kō-ruī* \*ki corresponds the syllable *tʃi* in the Shuri dialect, while to *otsu-ruī* \*ki correspond both the syllable *ki* and the syllable *tʃi*. In other words, two distinct syllables correspond to Old Japanese *otsu-ruī* \*ki. *Otsu-ruī* \*ki is the merged reflex of two syllables of proto-Japanese, which can be also reconstructed through internal reconstruction observing the morphophonemic alternations occurring in Old Japanese.<sup>8</sup> The Shuri dia-

8 From morphophonemic alternations occurring in Old Japanese it is possible to reconstruct two different proto-Japanese sources of *otsu-ruī* \*ki: \*kui, for Old Japanese cases where *otsu-ruī* \*ki alternates with \*ku (e.g. *tuki*<sub>2</sub> 'moon' ~ *tuku-yo*<sub>1</sub> 'moonlight'); \*kəi, for

lect preserves a distinction already lost in Japanese in the eight century. Hattori first described this phenomenon<sup>9</sup> and posited three sources for Old Japanese *kō-ruī* and *otsu-ruī* \*ki.

Table 9. OJ *ki*<sub>1</sub> and *ki*<sub>2</sub> in the Shuri dialect

OJ <i>ki</i> <sub>1</sub> ( <i>kō-ruī</i> )		OJ <i>ki</i> <sub>2</sub> ( <i>otsu-ruī</i> )	
衣 'dress'	tʃiŋ	木 'tree'	ki:
肝 'liver'	tʃimu	起きる 'get up'	ʔukijun
聞く 'hear'	tʃiʃun	月 'moon'	tsiʃi
息 'breath'	ʔi:tʃi	霧 'fog'	tʃiri
切る 'cut'	tʃi:juŋ	茎 'stem'	guʃi

By positing three distinct proto-forms it is possible to reconstruct a chain of phonetically motivated sound changes both for Old Japanese and the Shuri dialect. Proto-Japanese \*kəi and \*kui have merged into a syllable with a non-palatalized consonant in Old Japanese: *otsu-ruī* ki. In the Shuri dialect proto-Japanese \*kui and \*ki have merged into tʃi, which is the final step of a palatalization process (Table 10). Hattori made a thorough analysis of several Ryukyuan varieties using second-hand materials, and demonstrated that all the varieties observed share the merger pattern of the Shuri dialect. However, the lexical data he used for the Hateruma dialect were not fully reliable. I have found some evident mistakes in the transcription of lexical items that Hattori used for his investigation.<sup>10</sup>

Old Japanese cases where *otsu-ruī* \*ki alternates with *otsu-ruī* \*ko (e.g. *ki*<sub>2</sub> 'tree' ~ *ko*<sub>2</sub>-*dati* 'stand for trees').

9 Arisaka (1934) first noticed the phenomenon in a paper written before Hattori's (1932) but published two years later. Hattori acknowledged it was Arisaka's discovery (Pellard 2013).

10 Hattori (1978-1979, 19, p. 110) tries to verify whether the pattern of distinctions observed in the Shuri dialect is supported by the data of the other Ryukyuan varieties. For this purpose, he uses the second-hand data coming from Nakamoto (1976), and compares the reflexes of proto-Japanese \*ki, \*kui, \*kəi and \*kai in twenty varieties of all Ryukyuan subgroups, included the Hateruma dialect. The lexical items used for this comparison are the cognates of proto-Japanese \*kinu 'dress', \*kui 'fog', \*kəi 'tree' and \*kai 'hair'. For the Hateruma dialect we have respectively sɨnu 'dress', ssi 'fog', ki: 'tree' and ki: 'hair'. As these data do not offer a different pattern of distinctions, Hattori argues that in all Ryukyuan varieties the opposition between the proto-forms \*kui and \*ki was lost. Nevertheless, the transcription of the lexical item ssi 'fog', which Hattori uses for the Hateruma dialect, does not correspond to what I collected during my own fieldwork on the island. According to my data, the word for fog, analysed through spectrogram observation, is [kɨsi], in which there is a voiceless velar stop in initial position. This transcription is the same as in Hirayama (1988, p. 244).

Table 10. Shuri reflexes of proto-Japanese \*kəi, \*kui and \*ki<sup>11</sup>

Old Japanese		Proto-Japanese	Shuri
*kəi>k'i	<i>otsu</i>	*kəi	*kəi>*ke>ki
*kui>k'i		*kui	*kui>*ki>*k'i> t̥ʃi
*ki>k'i	<i>kō</i>	*ki	*ki>*k'i> t̥ʃi

The lexical items listed in Table 11 have been transcribed through an acoustic analysis of the audio material which I collected during a fieldwork in 2008. No significant differences have been observed with the transcriptions reported in the dictionary of basic terms of southern Ryukyu dialects of Hirayama (1988).<sup>12</sup> As we can see, syllables corresponding to *kō-ru* \*ki in Old Japanese have a fricative alveolar consonant in the Hateruma dialect followed by a central high vowel *i*. Even though there are some cases in which the syllable corresponding to *kō-ru* \*ki has not changed into *si*, probably because they are borrowings which have replaced more ancient words,<sup>13</sup> I have found no case in which the initial consonant of the syllable corresponding to *otsu-ru* \*ki has changed into a fricative. Therefore, we have three distinct syllables corresponding to Old Japanese *kō-ru* and *otsu-ru* \*ki: *si*, which corresponds to *kō-ru* \*ki; *ki* and *ki* which correspond to *otsu-ru* \*ki. Instead of the Shuri dialect and the other Ryukyuan varieties, the Hateruma dialect keeps the opposition between the proto-forms \*kui and \*ki distinct.

11 The lexical data of the Shuri dialect come from Kokuritsu kokugo kenkyūjo (1963).

12 The word for ‘moon’ in the Hateruma dialect has been transcribed as [s̥j̥k̥ɛ̃n] in Hirayama (1988, p. 423), with a centralized front mid vowel [ɛ̃] in the second syllable. I transcribed this word as [s̥j̥k̥in], because the formants of the vowel in the spectrogram are at the same height as in the second vowel of the word [ʔari] ‘ant’, uttered by the same speaker (the audio also suggests a central high vowel instead of a centralized mid vowel). Hirayama (1988, p. 423) also reports the compound [s̥j̥k̥j̥p̥ĩnts̥i] ‘time’, in which the first element is the word for ‘moon’ [s̥j̥k̥j̥] with the final high vowel [ĩ] instead of a mid vowel [ɛ̃].

13 The words for ‘wound’ (*kizu* in modern Japanese) and ‘time’ (*toki* in modern Japanese) have a *kō-ru* \*ki (*ki*) in Old Japanese (Igarashi 1969). In the Hateruma dialect, the cognates of these words are [kĩd̥ʒi] ‘wound’ and [t̥s̥j̥ki] ‘time’, in which the initial consonant of the proto-Japanese \*ki has not changed into a fricative as in the lexical items listed in table 11. However, we may suppose that they are borrowings from other Ryukyuan varieties because other words with the same meaning are present: for the word for ‘wound’ Hirayama (1988, p. 234) clearly says that in the Hateruma dialect there are the words [jamahe] and [kĩʒi], of which the former is the old expression and the latter is the new expression; for the word for ‘time’ Hirayama (1988, p. 457) reports both the word [baʃu] and [ts̥j̥ki] (the two words seem to have though a different use).

Table 11. OJ *ki*<sub>1</sub> and *ki*<sub>2</sub> in the Hateruma dialect

OJ <i>ki</i> <sub>1</sub> ( <i>kō-rui</i> )			OJ <i>ki</i> <sub>2</sub> ( <i>otsu-rui</i> )		
衣	'dress'	sɨŋu	木	'tree'	ki:
肝	'liver'	sɨŋu	起きる	'get up'	ʔugirun
聞く	'hear'	sɨkun	月	'moon'	sɨkiŋ
息	'breath'	ʔisi	月日	'time'	sɨkiʔintsi
岬	'promontory'	sasi	霧	'fog'	kɨsi
脇	'side'	basi	茎	'stem'	ɸɨki
昨日	'yesterday'	sɨŋu			

No merger can be observed for the Hateruma dialect. The proto-form \*ki has undergone a process of palatalization, induced by the high vowel environment. The strong aspiration in word-initial voiceless obstruent, typical of the Hateruma dialect, together with the palatalization might have been the cause of the complete spirantization of the voiceless velar stop. The diphthong of the proto-form \*kui has changed into the central high vowel *i* with a process similar to that occurred in Old Japanese. Finally, the proto-form \*kai has first changed into \*ke and then to ki, like in all the varieties of Yaeyama subgroup. In this way, the Hateruma dialect seems to be the only Japonic variety which preserves the distinction of the three proto-forms reconstructed by Hattori (Table 12). If this is correct, it adds something new to Hattori's theory, while supporting and enhancing it at the same time. By positing these three proto-forms as the first step of sound change, it is possible to reconstruct sequences of phonetically motivated sound changes both for Old Japanese and the Hateruma dialect.

Table 12. The Hateruma reflexes of proto-Japanese \*kai, \*kui and \*ki

Old Japanese	Proto-Japanese	Hateruma
*kai > k'i <i>otsu</i>	*kai	*kai > *ke > ki (gi)
*kui > k'i	*kui	*kui > ki
*ki > k'i <i>kō</i>	*ki	*ki > *kji > *kʔi > *kʔi > si

Table 13, taken from Pellard (2013, p. 87), clearly illustrates the evolutions of proto-Japanese vowels which have given rise to proto-Ryukyuan \*i and \*e. Here, proto-Japanese \*i and \*ui merge as proto-Ryukyuan \*i, as it has been hypothesized by Hattori. However, the evidence from the Hateruma dialect suggests that the merger of these two proto-forms was not completed in proto-Ryukyuan, at least until the moment when the Hateruma dialect split from it. This means that we have to give to the Hateruma dialect a particular historical position within the Yaeyama subgroup.

Table 13. Old Japanese and proto-Ryukyuan reflexes of the proto-Japanese diphthongs

Old Japanese	Proto-Japanese	Proto-Ryukyuan
$i_1$	*i	*i
	*e	
$i_2$	*ui	
	*əi	*e
$e_2$	*ai	
$e_1$	*ia	

## 7 Conclusions

Among ryukyuanists the Hateruma dialect is generally regarded as an innovative variety. Through the examples analysed above, we have observed the results of several sound changes occurred in the Hateruma dialect, like the pharyngealized vowel, sonorant devoicing, noun-final consonant epenthesis and spirantization of voiceless velar stop before the vowel \*i, which undoubtedly make the Hateruma dialect an innovative variety. However, at the same time, it preserves a distinction of proto-Japanese syllables which has been lost in all other Japonic varieties. If this theory is correct, it must have direct implications as regards the position of the Hateruma dialect within the Yaeyama subgroup.

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