Morphophonemics of Ikema Miyakoan[1]

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1.   Introduction

This paper deals with the morphononemics of Ikema. Ikema is a subdialect of Miyako Ryukyuan and is spoken on Ikema island, in Sarahama on Irabu island, and in Nishihara on Miyako island. The Ryukyuan languages (and Hachijō) are the only languages spoken today that have been proven to be genetically related to Japanese. Proto-Ryukyuan and Proto-Japanese diverged from the same ancestor, Proto-Japonic, about 1500 years ago or earlier[2]. There are five major languages within Ryukyuan: Amami, Okinawa, Miyako, Yaeyama, and Yonaguni. They are mutually unintelligible and UNESCO regards them as different 'languages' rather than 'dialects' of Ryukyuan[3].

There are many varieties of Miyako. According to Pellard (2009: Chapitre 9), there are three major varieties: Tarama, Ikema-Irabu and the Central Miyako, of which Tarama first diverged from Proto-Miyako, then Ikema-Irabu. Mutual intelligibility among these varieties is quite low[4].

The fluent speakers of Ikema are generally regarded to be in their sixties or older but our recent studies have found that people in their late thirties can understand the language and can be considered to be speakers with passive knowledge of Ikema[5].

In this paper, I will first give a short sketch of the phonology of the language to provide the transcription system. I will then discuss the morphophonemic system of the topic and the accusative forms, which make use of similar rules. I will also make reference to verbal

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[1] The data in this paper is based on the fieldwork that I have conducted in Nishihara since 2006. The main consultant has been Mr. Hiroyuki Nakama (born in 1947) . I also checked the data with other speakers in the village (Age 70-75). For the actual pronunciation and the discourse data, the readers are referred to the Digital Museum site that I constructed: http://kikigengo.jp/nishihara/doku.php?id=start. Parts of the paper include materials I presented in Takubo (2015, 2018) and Celik and Takubo (2013, 2014). I am grateful to John Kupchik for pointing out the errors in the historical account of the phenomena and to the anonymous reviewer for suggestions for improvement.

[2] See Pellard (to appear) for general information about Ryukyuan languages and the genetic relationship between Ryukyuan and Japanese.

[3] Moseley (ed.). (2010).

[4] Tarama, most probably is unintelligible to speakers of other varieties of Miyako. According to our preliminary research, Ikema is only 30% to 50% intelligible to speakers of other varieties of Miyako (See Takubo (2017)). Mutual intelligibility of the varieties of Central Miyako is high according to Kenan Celik (personal communication), who has been doing field work in most varieties of Miyako.

[5] See Yamada (in press) for more information about the intergenerational transmission and the endangerment status of Ikema spoken in Nishihara.

morphophonemics when necessary because the same generalization is argued to be at work.

2. Phonology

In this section, I will introduce the phonological system of Ikema mainly to provide the transcription system.

2.1   Vowels

Four short vowels are phonemically distinguished in Ikema: /a,i,u,ɨ/. Long vowels are phonemically distinct from the corresponding short ones: /a:,i:,u:,ɨ:/. The distribution of the long counterparts of /o/ and /e/, i.e. /o:/ and /e:/, is very restricted, appearing only in such words used as answer particles, *e:* 'Yes' and *o:* 'Yes (honorific),' or as a sentence final particle expressing new information, *do:*.[6] [ɨ] and [i] appear to show complementary distribution, with [ɨ] only appearing after /s, z (=dz), c (=ts)/in Ikema. The change from proto-Miyako *i to /ɨ/ probably occurred in all the consonants in Ikema, as was the case in other dialects of Miyako, but later merged with /i/ in consonants other than the sibilants. We have to treat them as the realization of two distinct phonemes because they contrast in the same (albeit limited) environments, constituting a minimal pair as in (1). The contrast was created by the historical change from *e to /i/ which occurred in all the varieties of Ryukyuan.

(1) /siba/ 'worry' : /sɨba/ 'lip'   : /suba/ 'soba noodle' ; /muus-ɨ / 'burn-CONCL' :/muus-i/ 'burn-IMP.'[7]

2.2   Consonants

The following consonants are distinguished phonemically.

(2) /p, b, t, d, k, g, c (=ts), z (=dz) , s, f, r, m, n, ṇ, N, j,w, h/
/hu/[ɸu:] and /fu/[fu:] contrast, cf. /hu:/ 'do.progressive' vs. /fuu/ 'come-CONCL.'

In other varieties of Miyako there is a contrast between /m/ and /N/ (realized as [n] or [ŋ]) in syllable final position. In Ikema this contrast has been lost to become /N/ in generations younger than 70. /N/ is usually realized as a homo-organic nasal depending on the following consonants.

There is no phonemic contrast between [dz] and [z]. They show free variation. /c/, /z/ become palatalized before vowels except before /ɨ/. {/c/, /z/}+{/u/, /a/} and {/c/, /z/}+{/ju/, /ja/}, therefore,

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[6] Short /e/ and /o/ can appear in borrowings.
[77] In this paper the following abbreviations are used: IMP(erative), CONCL(usive), TOP(ic), ACC(usative).

neutralize and do not contrast.

    (3) /cɨ:/ 'breast milk) vs. /cju:/ 'dew)
*[tsu], *[tsa]vs.[tɕu], [tɕa]: e.g. /cju:/ [tɕu:] 'dew', /acja/ [atɕa] 'tomorrow'

For other consonants /u/ and /ju/, /a/ and /ja/ contrast.

    (4)   a. /ku:/ 'suffer' /kju:/ 'today'
       b. Geminate /zz/ does not palatalize: e.g. /zzu/ 'fish'
       c. /cc/ palatalizes. E.g. [umattɕu] (=/umac+u/). There is no [ttsu].

/p/ only appears in loanwords and in a very limited number of native words. /p/ in other Miyako dialects corresponds mostly to /h/ in Ikema.

(5) /pa:/ 'grandpa', /piiki/ 'drill a hole'

2.3   Syllable Structure

    Nasal consonants appear syllable initially in addition to syllable finally. If they appear as a geminate and precede a vowel or obstruent, /mm/ and /nn/ do contrast as in (6)[8]. When they appear as an independent syllable or appear before an obstruent, /m/ and /n/ get neutralized and do not contrast as in (7). Free variation occurs between /m/, /n/ before obstruents: e.g. [nta]～[mta].

(6) /nna/ 'turban shell', /nnna/ 'all' vs. /mma/ 'mother', /mmma/ 'the head of female priests'
    (7) /nta/[nta]~[mta] 'earth', /nnta/[n:ta]~[m:ta] 'frog', /nndi/[n:di]~[m:di] 'yes'
    vs. /nbu/[mbu] 'heavy', /nba/[mba] 'disagree'

    The combination of two nasals with different places of articulation does not exist, that is, there is no [nm] or [mn].
    The syllable structure of Ikema can be schematized as in (8). In addition to (8), syllables consisting only of nasals are possible as in (9).

(8) (C1) (C2) (G) V1(V2) (C3)
(9) /ɴɴ/(=/ɴ:/) 'sweet potato' , /ŋ̊ɴ/[ŋ̊n] 'step on, scoop (water)'

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[8] Note that there is a three-way contrast in the length of nasals as the examples (7) show. The contrast may not be phonemic because there is a syllable boundary between the first nasals and the third nasal: [nn.na] and [mm.ma]. They can be analyzed as the combination of a geminate and a single nasal. I will not discuss this problem any further.

2.4 Consonants with special distribution

/N/ appears before consonants except for /j/, /w/ and /h/ as in (10).

(10) /Nta/ 'earth', /Nsu/ 'miso', /N:ku/ 'issue', /Ncci:/ 'soup'

/ŋ̊/ appears before /N/, /n/, /m/. It does not appear anywhere else. /ŋ̊/ can, therefore, be thought of as a marker for devoicing nasals as in (11).

(11) /ŋ̊na/ 'rope', /ŋ̊mu/ 'cloud'

2.5 Geminates

All the consonants except for /j,w,h,ŋ̊/ can be geminates. /r/ is realized as [ll] when it is geminated.

(12) /t:, k:, c:, f:, s:, z:, r:, v:, m:, n:/
E.g. /t:a/ tongue', /k:unucɨ/ '9 pieces', /c:jui/ 'break down', /f:a/ 'child', /mul:u/ 'Japanese horse mackerel' /s:a/ 'foot', /z:a/ 'father', /v:adi/ 'will.sell', /m:a/ 'mother', /n:a/ 'turban shell'

There is a word minimality constraint in Ikema such that a free morpheme must have at least two morae. There are no morphemes consisting only of one mora. Words with syllable initial geminates and consonant clusters (C1) may contain only one vowel, which suggests that the first member of the geminates and consonant clusters form a syllabic consonant and are considered to constitute a mora.

3. Transcription conventions

I provide examples in phonemic transcription in italics without //. The following conventions are adopted mostly for convenience.

- Doubling of vowels and consonants are used instead of /:/.
- Voiceless nasals are interpreted as a devoicing instruction and will be transcribed as /h+nasal consonant/. /h/ is interpreted as one mora long as in (13).

(13) *hnu* [ŋ̊nu] 'horn, yesterday', *hmu* [ŋ̊mu] 'cloud', *hn* [ŋ̊N] 'scoop (water), wear (a shoe), step on'

- Syllable initial /N/, the neutralized form of /m/ and /n/, is transcribed as /n/, because it can be

distinguished from /n/ that contrasts with /m/ by its distribution – the former appears syllable initially, syllable finally and before obstruents, and the latter syllable initially as in (14).

(14) a. *nn* [ɴɴ] 'sweet potato', *nta* [nta] 'earth', *ssan* [ssaɴ] 'louse'

b. *nna* [n:a] 'turban shell', *naa* [na:] 'name': *mma* [m:a] 'mother', *maa* [ma:] 'trace'

4. Morphophonemics of nouns: Focusing on topic and accusative forms

Miyako is known as a language rich in morphological variations in topic and accusative forms. Ikema is not an exception. I will first show the allomorphic distribution of the topic and accusative forms and explain how the distribution patterns can be accounted for.

4.1 Topic and accusative forms

The topic morpheme in Ikema has the following allomorphs. In (15), environments relevant for the realization of the topic morpheme are given, followed by its realization (immediately after the equal sign '=', which indicates a boundary between a root and a particle) and an example of a noun and its topic form.

(15) Topic forms

a. After nouns ending in /a/: =a   E.g. *ffa* 'child' *ffaa* 'ffa=TOP'

b. After nouns ending in /u/: =u   E.g. *zzu* 'fish' *zzuu* 'zzu=TOP'

c. After nouns ending in /i/: =aa   E.g. *saki* 'rice wine' *sakjaa* 'saki=TOP'

d. After a long vowel or diphthong: =ja   E.g. *suu* 'side dish' *suuja* 'suu=TOP,' *mai* 'rice' *maija* 'mai=TOP'

e. After nouns ending in *Ci* (Consonant+ɨ): *(C)Ca* E.g. *dusɨ* 'friend' *dussa* 'dusɨ=TOP'

f. After nouns ending in /ɴ/: *na* E.g. *in* 'sea[9], dog' *inna* 'inn=TOP'

As shown in (16), the allophonic distribution of accusative morphemes parallels that of the topic. (16 a-e) illustrate the environments, followed by the examples and their accusative forms.

(16) Accusative forms

a. Nouns ending in /a/ or /u/: =u   E.g. *ffa* 'child' *ffau* 'ffa=ACC,' *zzu* 'fish' *zzuu* 'zzu=ACC'

b. Nouns ending in /i/: =(*j)uu* E.g. *saki* 'rice wine,' *sakjuu* 'saki=ACC'

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[9] For older speakers (people in their late 80's or older), /im/ is used for 'sea' as is the case with speakers of other parts of Miyako, in which case, the topic form is /imma/, the accusative form /immu/.

c. Nouns ending in long vowels or diphthongs: =*ju*   E.g. *suu* 'side dish,'   *suuju* 'suu=ACC'
mai 'rice,'   *maiju* 'mai=ACC'

d. After nouns ending in *Cɨ* (Consonant+ɨ):=*(C)Cu*   E.g. *dusɨ* 'friend'   *dussu* '*dusɨ* =ACC'

e. After nouns ending in /n/: *(n)=nu*   *in* 'dog, sea'   *innu* 'in=ACC'

In most of the previous works on Miyako dialects (Karimata (1992) a.o.) **[10]**, the basic (or underlying) form of the topic morpheme is usually hypothesized to be /ja/, whereas the accusative morpheme is /ju/, from which the various allomorphs are derived[11].

(17) /ja/ as the underlying form for the topic and /ju/ for the accusative

a.   Nouns ending in /a/ and /u/: delete /j/.
   ffa=ja > ffaa,   zzu=ju > zzuu

b. Nouns ending in /i/: delete /i/ and lengthen /a/ or /u/.
   saki=ja > sakja > sakjaa   saki=ju > sakju > sakjuu

c. Nouns ending in long vowels or diphthongs: no change.
   suu 'side dish' *suu=ja, suu=ju, mai=ja, mai=ju*

d. Nouns ending in *Cɨ*: delete /ɨ/ and undergo forward assimilation.
   dusɨ=ja > dussa   dusɨ=ju > dussu

e. Nouns ending in /n/: undergo forward consonant assimilation.
   in=ja > inna   in=ju > innu

In contrast to (17), I assume that /a/ is the underlying form for the topic and /u/ for the accusative as in (18).

(18) Underlying form /a/ and /u/ as the underlying forms

a. After nouns ending in /a/: /a/ is added without any change.
   ffa=a > ffaa

b. After nouns ending in /u/: /ua/ is changed to /uu/ for the topic and /u/ is added for the accusative.
   zzu=a > zzuu   zzu=u > zzuu

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[10] Shimoji (2008, 2017, 2018) is an exception. He posits /a/ for the topic and /u/ for the accusative as the underlying forms of Irabu Miyakoan. Shimoji's observations and the explanation thereof apply to Ikema forms *mutis mutandi*. The present paper is an attempt to explain the phenomena in terms of a (partly) constraint-based approach instead of a derivational one, with some changes in the description and the explanations.

[11] Uemura(1992:802) seems to think that changes such as *wa > *a > /ja/ occurred. But it is difficult to tell what exactly he was thinking when he says 'incorporating the glide when it (Y.T. the topic form?) combines with front vowels (Y. T. He probably meant the change: *ia > /ja/)'. 「前舌形の母音と結びつくときのわたり音を取り込んで」

c. After nouns ending in /i/: glidification of /i/ and lengthening of /a/ or /u/.

   saki=a > sakja > sakjaa   saki=u > sakju > sakjuu

d. After nouns ending in diphthongs and long vowels: epenthesis of /j/.

   mai=a > maija   suu=a > suuja   mai=u > maiju   suu=u > suuju

e. After nouns ending in *Cɨ*: deletion of /ɨ/ and gemination of C.

   dusɨ=a > dussa   dusɨ=u > dussu

f. After nouns ending in /n/: gemination of /n/.

   in=a > inna

The derivation in (17) is not much more complex than (18): (17) needs the deletion of /j/ while (18) needs insertion of /j/[12].

   In what follows, I will show that it is possible to give a simple account for the distribution of (15) and (16) by positing /a/ for the topic and /u/ for the accusative and assuming the very general constraints in (19).[13]

(19) Constraints

(A) No three consecutive vowels : $VVV > VVja$[14]

   /j/ is inserted to avoid three consecutive vowels. The glide to be inserted can be either /j/ or /w/. /j/ is inserted because inserting /w/ violates constraint (B).

(B) No rising diphthongs:

   Ikema does not allow the diphthongs /ia/ or /iu/. /i/, therefore becomes a glide. *ia > ja, iu > ju*

(C) Constraint on the number of morae:

   The number of morae must be the same in the input and the output. The glidification in (A) reduces the number of morae. So the vowel must be lengthened to keep the number of morae

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[12] The diachronic perspectives appear to favor (18) over (17). If we posit the proto-Japonic the form of the topic to be *pa, and that of the accusative to be *wo, the change *pa > *wa > ja or *wo > ju may appear less natural than the change from *pa > *wa > a, *wo > *o > u. John Kupchik (personal communication) has suggested to me that this does not hold and that there is clear evidence for the palatalization of *w > j in Ryukyuan due to a preceding *i, e.g. the word for 'fish' in Okinawan, iju (<*iwo), or any verb form that goes back to *root+i+wor- (e.g. Yoron kawajuN 'to change'). Thus, we cannot say the change *wo > ju (or *pa > *wa > ja) is implausible if the change began as a palatalization. The constraints that follow are, therefore, restricted to synchronic accounts of the phenomena.

[13] The descriptions that follow are based on works with Kenan Celik (Celik and Takubo (2013). The original approach was optimality theoretic, but I changed it to the mixture of derivational and constraint-based approaches for ease of exposition.

[14] This constraint does not apply when the word final vowel is /i/. (Michinori Shimoji: personal communication: July 30th, 2018): /faai/ (can be eaten), /dooi/ (doo+i). If /j/ is inserted to avoid three consecutive vowels, the results are /faaji/ and /dooji/ respectively. I assume a constraint that dictates the avoidance of /ji/, a stronger constraint than (A).

intact: *Ci+a > Cj+a > Cja > Cjaa*

(D) Syllable boundary must be kept:

A geminate is formed by adding the same consonant as the preceding one to keep the syllable boundary: *C+a > C+Ca*

Let us look at each case in detail. (A) is violated if /a/ or /u/ is added to nouns ending in a long vowel or a diphthong, so /j/ is inserted.

（A）Avoid /VVV/

(20) Nouns ending in a long vowel

suu=a 'side dish=TOP' > *suua* > insertion of /j/ > *suuja*.

suu=u 'side dish=ACC' > *suuu* > insertion of /j/ > *suuju*.

(21) Avoid nouns ending in a diphthong

mai=a 'rice=TOP' > *maia* > insertion of /j/ > *maija*

inau=a 'tornado=TOP' > *inaua* > insertion of /j/ > *inauja*

mai=u 'rice=ACC' > *maiu* > insertion of /j/ > *mai=ju*

inau=u 'tornado=TOP' > *inauu* > insertion of /j/ > *inau=ju*

(B) Avoid rising diphthongs. In order to avoid rising diphthongs /i/ becomes a glide. [15] Glidification of /i/ leads to a decrease in the number of morae. The vowel is lengthened by compensatory lengthening to keep the number of morae unchanged.

(B) Glidification of /i/ in /iu/, /ia/ and (C) compensatory lengthening

(22) *banti* 'we' + =a 'TOP' > *bantia* > glidification > *bantja* > compensatory lengthening > *bantjaa*

banti 'we' + =u 'TOP' > *bantiu* > glidification > *bantju* > compensatory lengthening > *bantjuu*

As for (D), some assumptions are necessary to apply this constraint. We assume that for nouns ending in *Cɨ*, /ɨ/ is inserted by some constraint dictating the ban on free morphemes ending in consonants. In Ikema, /ɨ/ is clearly heard in word final positions. In order to keep the constraint (D), a homo-organic consonant is inserted.

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[15] *ua can also be part of this constraint. I make it a separate constraint because we need to explain why /ua/ does not become /wa/.

(D) Syllable boundary must be kept

(23) *umac(ɨ)* 'fire'   *umac+a > umaca > umac=ca*

    umac+u > umacu > umac=cu

If we assume (D), words ending in /n/ can be explained in the same way[16].

(24) *in* 'dog' *in+a > ina > in=na*

    in+u > inu > in=nu

Hayashi (2013: section 2.1.3) posits /ɨ/ as underlying, disallowing words ending in consonants except for /N/. She posits a rule that /ɨ/ deletes because the diphthong *ɨV is not allowed in Ikema and word-final C is geminated to keep the number of morae unaltered.

(25) *dusɨ=a > dusa > dus=sa*

One of the merits of this analysis is that it can account for the following alternation in verbal inflection.

(26) Conclusive forms   Negative forms

        sɨɨ 'know'   *ss-an*

        cɨɨ 'angle, wear'   *cc-an*

        cufɨɨ 'make'   *cuff-an*

Hayashi assumes the basic verbal roots of each verb to be /sɨ-/, /cɨ-/, and /cufɨ/ and derives the conclusive forms as in (27) and negative forms as in (28).

(27) Conclusive forms

a. *sɨ-i* > forward assimilation > *sɨɨ*

b. *cɨ-i* > forward assimilation > *cɨɨ*

c. *cufɨ-i* > forward assimilation > *cufɨɨ*

(28) Negative forms:

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[16] If /inna/ is derived as the result of a forward assimilation from /in/+/ja/, we have to posit an assimilation rule /n/+/j/>/nn/, which is implausible and not attested in Ikema because /nja/ is allowed and very common in Ikema: /anjaru/ (such), /njaan/ (not exist). There is, therefore, no reason to choose /inna/ over /inja/, which does not seem to violate any constraints.

a. *sɨ-an* > deletion of /ɨ/ > consonant gemination > *ssan*

b. *cɨ-an* > deletion of /ɨ/ > consonant gemination > *ccan*

c. *cufɨ-an* > deletion of /ɨ/ > consonant gemination > *cuffan*

The motivation for the two rules is the ban on the vowel combination *ɨV, but the means to avoid it differ between the conclusive and the negative forms: forward assimilation in the former, and deletion followed by consonant gemination in the latter. It is not quite obvious what the conditions are in the two ways of derivation.

Another problem in her explanation is that she treats these verbs as ending in a vowel. The negative morpheme in Ikema has two allomorphs, *-an* for verb stems ending in a consonant and *-n* for those ending in vowels as shown in Table 1. Clearly, as shown in (26), the negative forms for *sɨɨ*, *cɨɨ* and *cufɨɨ* behave as consonant stem verbs.

	stem type	negative forms
vowel stem	*mii-* 'look', *nii-* 'cook'	*mii-n, nii-n*
consonant stem	*yum-* 'read', *kak-* 'write'	*yum-an, kak-an*

Table 1

Derivational suffixes such as causative, passive/potential and honorifics have different allomorphs depending on whether the stems they attach to are consonant or vowel ending, as shown in Table 2.

	vowel stem verbs	consonant stem verbs[17]
causative	-ssas-: *mii-ssas-, nii-rai-*	-as: *kak-as-, yum-as-*
passive/potential	-rai-: *mii-rai-, nii-rai-*	-ai: *kak-ai, yum-ai*
honorific	-samai-: *mii-samai-, nii-samai-*	-amai-: *kak-amai, yum-amai*

Table 2

As can be seen in Table 3, the suffixes used to derive causative, passive/potential and honorifics for the verbs in (26) are clearly those of consonant stems.

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[17] Most consonant stem verbs in Ikema also have vowel stem alternants. So *cufɨ-* is a possible stem taking suffixes for vowel stem verbs: *cufɨ-n, cufɨ-ssas-, cufɨ-rai-, cufɨ-samai.*

	consonant stem verbs
causative	-as: *ss-as-, cc-as-, cuff-as-*
passive/potential	-ai: *ss-ai-, cc-ai-, cuff-ai-*
honorific	-amai-: *ss-amai-, cc-amai, cuff-amai*

Table 3

If we assume the deletion of /ɨ/ before V, the rule (29) cannot apply, because one cannot choose which suffix is added to the stem. In order to add consonant stem suffixes, (29) must be applied to delete the vowel to make the stem ending in a consonant. But if we do that, (29) loses the environment for the application. (29), therefore, is not applicable as it is.

(29) ɨ→φ/_V

In order to get out of this paradoxical situation, the stem of the verbs in (26) must be consonant ending. In Takubo (2013, 2015) I have posited the following underlying forms for these verbs as in (30). They can account for all the forms except for the conclusive forms, for which a constraint like (31a) and the rule (31b) to avoid it must be assumed.

(30) *ss-*: *ss-an*   *ss-ai*   *ss-amai*
     cc-: *cc-an*   *cc-ai*   *cc-amai*
     cuff-: *cuff-an* *cuff-ai*   *cuff-amai*

(31) a. C̶C̶ɨ
     b.   *CCɨ > Cɨɨ*

Alternatively, we can posit (32)[18] as the underlying forms. Gemination of consonants is necessary to avoid the constraint D[19].

(32) *s-* 'know' , *c-* 'wear, angle' , *cuf-* 'make'
     s-an > s-san
     c-an > c-can
     cuf-an > cuf-fan

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[18] This is the approach that I adopted in Takubo (2018). I now discard it in favor of Celik and Takubo (2014) and Takubo (2015) because of the reason given.
[19] D in this case may be interpreted as 'keep the morpheme boundary' instead of 'keep the syllable boundary.'

(32) cannot explain why the conclusive form of *cuf-* has to be *cufɨɨ* instead of *cufɨ* because *cufɨ* does not violate the minimality constraint. If we assume that the underlying form is *cuff*, the form *cufɨɨ* can be accounted for by the constraint (31a) and the rule (31b).

4.2 The alternation /ua/ > /uu/ and the verbal morphophonemics

In this subsection, I will discuss the alternation /ua/ > /uu/. The change is seen as a progressive assimilation. The alternation can be taken care of by the constraint (B) dictating the ban on rising diphthongs, but an account must be provided to explain why the glidification /ua/ > /wa/ does not occur in this case. We will see below that the same applies to negative forms of verbs in Ikema.

There are verbs in Ikema which have stems ending in /u/. Some of these, such as *fau* 'eat' and *kau* 'buy', behave like consonant stem verbs.

(33) a. *fau* 'eat':　*fa-an　fa-ai-　　faa-s-*
　　 b. *kau* 'buy':　*ka-an　ka-ai-　　kaa-s-*

We can posit a deleted stem final consonant such as /w/ in the underlying forms, e.g. *faw-* 'eat', *kaw-* 'buy', as is done in Standard Japanese for verbs like *kaw-* 'buy' or *aw-* 'meet'. To do that in Ikema, we would have to posit an underlying /w/ which never realizes in any surface forms unlike in Standard Japanese, where /w/ appears as one of the allomorphs, as in the negative form /kaw-anai/[20].

In contrast, there are also verbs ending in /u/ such as *fuu* 'come' and *umuu* which behave like vowel stem verbs.

(34) a. *fuu* 'come':　*kuu-n*[21]　*kuu-rai-　kuu-ssas-*
　　 b. *umuu* 'think': *umuu-n　umuu-rai　umuu-ssas-*

However, *umuu* has another paradigm, shown in (35).

(35) *umuu*: *umuun　umuui　umuus*

(35) can be thought of as a consonant ending paradigm. The passive/potential form in (35) can be

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[20] For this reason, Shimoji (2008) avoids the term consonant and vowel stems and uses instead class 1 and class 2 verbs.

[21] In Ikema (and in other varieties of Miyako) /ku/ changes to /fu/. So /fu-u/ is the conclusive form of /kuu/ 'come'. The negative form is /kuu-n/, which may correspond to /ko-n/ in Japanese．The change from /ko-/ to /fuu-/ cannot be explained because /ko-/ does not generally correspond to /fu/.

derived by positing a stem final consonant /w/ which is deleted intervocalically. The following derivation can be posited[22].

(36) *umu(w)-ai-* > deletion of w > *umu-ai-* > progressive assimilation of /ua/ > *umu-ui-*

The same derivation can be observed in causatives.

(37) *umuw-as-* > deletion of w > *umu-φ-as-* > progressive assimilation of /ua/ > *umuus*

umu- can, therefore, behave like a consonant stem verb, which leads us to posit a change from /ua/ to /uu/ for verbal derivation, as is done in Topic formation.

5. Conclusion

We have shown that the morphophonemic system for topic and accusative forms in Ikema is extremely complex. We have argued that the complexity is only superficial and a simple pattern emerges if we assume the underlying topic form to be /a/ and accusative form /u/, instead of /ja/ and /ju/, and derive the actual realization forms by positing a small number of very general constraints. The proposed system is quite general and the same constraints are at work in accounting for the verbal morphophonemics of Ikema.

We have only dealt with the morphonemics of Ikema but the constraints can be applied to other varieties of Miyako with some minimal modifications and can be shown to be quite useful in understanding the morphophonological variations of Miyako, and also in understanding the historical changes that the varieties of Miyako have undergone.

References

Celik, Kenan, Yukinori Takubo (2014) Ikema topic and accusative marker, an OT analysis, FAJLposter sessions, NINJAL.

Hayashi, Yuka (2009) Ryukyu Miyako Ikema hoogen no danwasiryoo (Discourse data on Ikema variety of Miyako Ryukyuan). In: Onishi, Masayuki and Kazuya Inagaki (eds.) Tikyuuken gengo kizyutu ronsyuu1, 153-199. Gengo kizyutu kenkyuukai.

Hayashi,Yuka (2010) Ikema. In: Michinori Shimoji and Thomas Pellard (eds.) *An Introduction to Ryukyuan Languages*, Research Institute for Language and Cultures of Asia and Africa, Tokyo University of Foreign Studies, pp.167-188.

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[22] I owe this observation to Kenan Celik (personal communication).

Hayashi Yuka (2013) Minami Ryukyuu Miyako Ikema hoogen no bunpoo (Grammar of the Ikema variety of Miyako, A Southern Ryukyuan Language) Ph. D. Thesis, Kyoto University.

Karimata, Shigehisa (1992) Ryukyu rettoo no gengo (Miyako hoogen), Miayko Languages of the Ryukyu Archepelago. *Gengogaku daiziten*, vol. 4. 848-863. Tokyo: Sanseido

Moseley, Christopher (ed.). 2010. Atlas of the World's Languages in Danger, 3rd edn. Paris, UNESCO Publishing. Online version:

http://www.unesco.org/culture/en/endangeredlanguages/atlas

Pellard, Thomas (2009) Ōgami: Éléments de description d'un parler du Sud des Ryūkyū. Linguistique. Ecole des Hautes Etudes en Sciences Sociales (EHESS), Français.

Pellard, Thomas (to appear) Ryukyuan and the reconstruction of Proto-Japanese-Ryuyuan. In: Frellesvig, Bjarke, Satoshi Kinsui, and John Whitman eds. (to appear). *Handbook of Japanese historical linguistics,* De Gruyter Mouton.

Shimoji, Michinori (2008) A grammar of Irabu, A Southern Ryukyuan Language. Ph. D. thesis. Australian National University.

Shimoji, Michinori (2017) *A grammar of Irabu, a Southern Ryukyuan language*. Fukuoka: Kyushu University Press.

Shimoji, Michinori (2018) *Minami Ryukyu Irabuzima hoogen* (A grammar of Irabu, a Southern Ryukyuan language), ILCAAI.

Takubo, Yukinori (2015) Issues in the verbal morphophonemics of Ikema Ryukyuan. Paper presented at Oninron Forum 2015.

Takubo, Yukinori (2018) Ikema hoogen no keitai oninron (Morphophonemics of Ikema Miyakoan) Paper presented at 32nd Phonetics Society of Japan. Okinawa International University. September 16, 2018.

Uemura, Yukio (1992) Ryukyu Rettoo no genngo (General overview) *Gengogaku daiziten*, vol. 4. 848-863. Tokyo: Sanseido. 771-814.

Yamada et al. (in press) Experimental Study of Inter-Language and Inter-Generational Intelligibility: Methodology and Case Studies of Ryukyuan Languages. In: Iwasaki, Shoichi, Susan Straus, Shin Fukuda, and Sun-Ah Jun (eds.) *Japanese/ Korean Linguistics 26.* Stanford: CSLI publication.