

# The non-vocalizing alveolar tap /r/

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## Abstract

The current paper presents an analysis in the framework of Harmonic Serialism of Optimality Theory of the compensatory geminates over 1) the final of the non-past forms in Saga Takeo dialect of Japanese whose standard counterparts end with /ru/ and 2) the initial consonant of the morpheme immediately following the ‘non-past’ form. Koga (2014) has motivated OT analyses as opposed to rule-based analyses, while reviewing Hayata’s (1998) rule-based analysis, following Baković 2013. It will be shown that in comparison with western Saga dialect, the phenomenon in Saga Takeo dialect (that the alveolar tap does not vocalize) is explained by ranking the constraint of the faithfulness of the consonantal feature between the constraint of Prohibition of Duke of York Gambit Across Components toward the higher and the constraint of Super-Optimality toward the lower.

**[Keywords]:** compensatory geminates, Kiparsky’s (2011) ‘realization’ problem, the alveolar tap’s vocalization, Ident[consonantal]

## 1 Introduction

Here is given the relevant methodology of research of Koga ms. we follow. Children acquire grammar of not only their native dialect but also the standard language and the dialects in the neighboring areas. The children are exposed to the standard language and the different dialects from their own dialect through the media or their parents’ communications with people in the neighboring areas, for example. This means that the children acquire as large an common grammar of the dialects and the language as possible, leaving the differences explained by surface constraints. This idea explains why the children exposed to a plural number of dialects and the standard language acquire the particular grammars of those languages and dialects for a relatively short period of time.

We will provide the data of compensatory geminates at the final of the ‘non-past’ forms of the verbs in Saga Takeo dialect whose standard counterparts end with /ru/ in section 2. The corresponding data in western Saga dialect, Fukuoka Yanagawa dialect and standard Japanese will be given. Then, we will propose an analysis of those in Saga Takeo dialect in the framework of OT-HS, along the line of Koga ms., in section 3, especially focusing on a difference between that for Saga Takeo dialect and that for western Saga dialect in section 3.2.

## 2 Phenomenon: the ‘non-past’ forms of the verbs in Saga Takeo dialect whose standard counterparts end with /ru/

The ‘non-past’ form of every verb whose standard counterpart ends with /ru/ ends with the former part of the geminate consonant if immediately followed by a morpheme or word beginning with

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a consonant in Saga Takeo dialect, as exemplified by [ud dzikan] ‘the time when (we) sell ...’, [nud dzikan] ‘the time when (we) sleep, ...’, [okid dzikan] ‘the time when (we) get up ...’ and /kud dzikan/ ‘the time when (he) comes, ...’ in Table 1. The phenomenon is morphological as supported by the fact that even voiced obstruents at the onset of the next syllable occur as geminate consonants, as in [ug gogo] ‘the afternoon when (he) sells (it)’, [nug gogo] ‘the afternoon when (he) sleeps’, [okig gogo] ‘the afternoon when (he) gets up’ and [kug gogo] ‘the afternoon when (he) comes’. Voiced obstruents are hard to occur as geminate consonants in standard Japanese, as in \*[yodda] (cf. [yonda]) for /yob ta/ ‘call-Past’ in standard Japanese.<sup>1</sup> See Koga ms. for other arguments in favor of the phenomenon as morphological one. The geminate consonants will occur whichever the verb is, either a consonant-final base verb, a vowel /e/-final base verb, a vowel /i/-final base verb or a strong base verb. The Fukuoka Yanagawa dialect, in contrast, uses the exactly the same forms except for replacing the former part of a geminate consonant with /ru/, as in [uru dzikan] ‘the time when (we) sell ...’, [nuru dzikan] ‘the time when (we) sleep, ...’, [okiru dzikan] ‘the time when (we) get up ...’ and /kuru dzikan/ ‘the time when (he) comes, ...’. Also in contrast with Saga Takeo dialect, the ‘non-past’ form of every vowel /i/-final base verb and consonant /r/-final base verb in western Saga dialect ends with the latter part of the lengthened vowel, as exemplified by /u: dzikan/ ‘when (he) sells (them), ...’ and /oki: dzikan/ ‘when (he) wakes up, ...’, and the ‘non-past’ form of every vowel /e/-final base verb and strong base verb in western Saga dialect ends with the former part of a geminate consonant, as exemplified by [nud dzikan] ‘the time when (we) sleep, ...’ and /kud dzikan/ ‘the time when (he) comes, ...’.

Table 1: The ‘non-past’ form of verb plus /dzikan/ [Noun] ‘the time’

[m-class]	meaning	Saga-Takeo	western Saga	F-Yanagawa	Standard
C-final	‘float’	uku dzikan	uku dzikan	uku dzikan	uku dzikan
	‘sell’	ud dzikan cf. ?*u: dzikan	u: dzikan	uru dzikan	uru dzikan
	‘knead’	ned dzikan cf. ?*ne: dzikan	ne: dzikan	neru dzikan	neru dzikan
	‘cut’	kid dzikan cf. ?*ki: dzikan	ki: dzikan	kiru dzikan	kiru dzikan
	‘paint’	nud dzikan cf. ?*nu: dzikan	nu: dzikan	nuru dzikan	nuru dzikan
	‘open [pages]’	kud dzikan cf. ?*ku: dzikan	ku: dzikan	kuru dzikan	kuru dzikan
	‘rub’	sud dzikan cf. ?*su: dzikan	su: dzikan	suru dzikan	suru dzikan
/e/-final	‘sleep’	nud dzikan cf. *nu: dzikan	nud dzikan cf. *nu: dzikan	nuru dzikan	neru dzikan
	‘eat’	tabud dzikan cf. *tabu: dzikan	tabud dzikan cf. *tabu: dzikan	taburu dzikan	taberu dzikan
/i/-final	‘wear’	kid dzikan cf. ?*ki: dzikan	ki: dzikan	kiru dzikan	kiru dzikan
	‘wake’	okid dzikan cf. ?*oki: dzikan	oki: dzikan	okiru dzikan	okiru dzikan
strong	‘come’	kud dzikan cf. *ku: dzikan	kud dzikan cf. *ku: dzikan	kuru dzikan	kuru dzikan
	‘do’	sud dzikan cf. *su: dzikan	sud dzikan cf. *su: dzikan	suru dzikan	suru dzikan

The geminate consonants at the finals of the ‘non-past’ forms of the vowel /e/-final base verbs and

<sup>1</sup>If the ‘non-past’ forms are followed by a vowel or are sentence-final, then the ‘non-past’ form will have a glottal stop ? replace the former part of the geminate consonant, as Hayata 1998 suggested.

the strong base verbs can never be lengthened vowels, as exemplified by \*[nu: dzikan] in contrast with [nud dzikan] ‘the time when ... sleeps’, \*[tabu: dzikan] in contrast with [tabud dzikan] ‘the time when ... eats’, \*[ku: dzikan] in contrast with [kud dzikan] ‘the time when ... comes’, and \*[su: dzikan] in contrast with [sud dzikan] ‘the time when ... does’. On the other hand, the geminate consonants at the final of the ‘non-past’ forms of the vowel /i/-final base verbs and the consonant /r/-final base verbs with regard to Saga Takeo dialect may be lengthened vowels, as exemplified by ?\*[u: dzikan] in contrast with [ud dzikan] ‘the time when ... sells’, ?\*[oki: dzikan] in contrast with [okid dzikan] ‘the time when ... gets up’.<sup>2</sup>

### 3 Analysis

We do not repeat Koga’s ms. review of Hayata 1998, and just give his three reasons to adopt an OT-HS analysis as opposed to Hayata’s 1998 rule-based analysis. One reason is that rule orders, which are also necessitated in Hayata 1998, are not explained, but must be stipulated in rule-based analyses, or conjunctive-application machine, whereas the constraint rankings follow from the basics of the conflict resolution machine, OT (Baković 2013). Another reason is that the stem vowel alternation /e/ to /u/ of Hayata 1998 cannot explain why the sequence /uru/ the phonetic realization of which is [uC<sub>i</sub>#C<sub>i</sub>] in western Saga dialect occurs in the ‘non-past’ forms of the verbs in old Japanese whose stems are not vowel /e/-final ones. The last is as follows: The analysis of the phoneme /u/ as a part of the affix, as opposed to that as a part of the verb stem, will be superior if the scope is expanded to include Yamaguchi dialect or old Japanese. The latter includes the ‘non-past’ forms of the so-called vowel /e/-final base verb with /uru/ final also contains those without the last /ru/ like /nu/ ‘sleep-Non-past’ and /tabu/ ‘eat-Non-past’. The former includes the ‘non-past’ form of the consonant /n/-final base verb with the complex /uru/, or /sinuru/ ‘die-Non-past’. It is easier to explain, for example, the choice 1) between one stem [tabe] and the other [tab] than the choice 2) among one stem [tabe], another [tabu] and the other [tab] if there are more than one stem. See Koga ms. for relevant data.

We propose the same analysis of the phenomenon in question in Saga Takeo dialect as that of western Saga dialect in Koga ms. except for a higher ranking of one faithfulness constraint. We repeat only the analyses of Koga’s ms.’ OT-HS analysis needed for Saga Takeo dialect in section 3.1 and in a part of section 3.2.

#### 3.1 The absence of the high back vowel and McCarthy’s 2008 Coda-Cond

The tense expletive, either /u/ or /ru/, selects itself (as well as the base form of verb), and the whole is another tense expletive (Koga ms). That is, the tense expletive may be such a complex as [*tense* [*tense* u] [*tense* ru]]. For example, the complex [*tense* [*tense* u] [*tense* ru]] selects the verb stem /n/ ‘sleep’ in Figure 2 and /k/ ‘come’ in Figure 4 as well as the simple morphemes [*tense* u] and [*tense* ru] select verb stems, as the former does in Figure 1 and the latter does in Figure 3.

If the verb stem is a consonant-final base verb, the morpho-syntactic structure of its ‘non-past’ form and the tense morpheme will be the same as that in Figure 1. If the verb stem is a vowel /e/-final base verb or a strong base verb, then it will be the same as that in Figures 2 and 4. If the verb stem is a vowel /i/-final base verb, it will be the same as that in Figure 3.

Adopting Ito’s 1986 prosodic licensing of segments, the ‘non-past’ forms of /n#u#ru/ ‘sleep-Non-past’ and /nur#u/ ‘paint-Non-past’, for example, are required to be prosodically licensed, and

<sup>2</sup>The symbol \* indicates that the sequence of words or morphemes that immediately follows the symbol is ungrammatical, whereas the symbol ?\* indicates that it sounds better but odd, and may be grammatical, but is not appropriate.

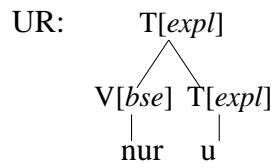


Figure 1: The ‘non-past’ form /nur#u/ ‘paint-Non-past’

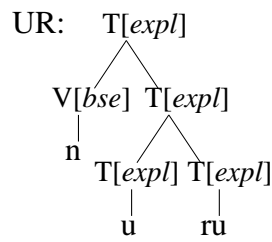


Figure 2: The ‘non-past’ form /n#u#ru/ ‘sleep-Non-past’

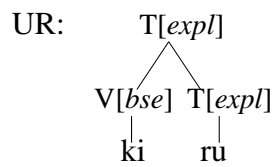


Figure 3: The ‘non-past’ form /ki#ru/ ‘wear-Non-past’

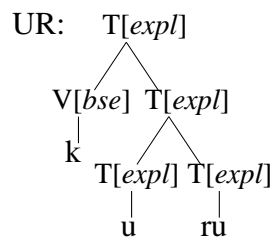


Figure 4: The ‘non-past’ form /k#u#ru/ ‘come-Non-past’

are prosodically licensed to be given such a syllabic and moraic structure as in Figure 5.

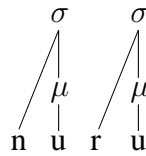


Figure 5: The syllabic and moraic structure of /nuru/ ‘sleep-Non-past’ and ‘paint-Non-past’

See Hayes 1989 and Kubozono 2002 for moraic theory, including the use of the sonority hierarchy of particular languages, and syllabification of segments into a sequence of nuclei with zero-to-two consonants at its onset of each and zero-to-one special consonant at its coda.

The high back vowel will be absent if it occurs after such a coronal sonorant as /r/ and /n/ at the final of the form [*tense* TF<sub>FORM</sub> *expl*] by the markedness constraint in Saga Takeo dialect as well as western Saga dialect.

- (1) Markedness constraint: The sequence of the sonorant coronal segment (the liquid or the dental nasal) and [+ high, + back] vowel is not appropriate at the final of the tense expletive form (or the form with [*tense* TF<sub>FORM</sub> *expl*]) in Saga Takeo dialect as well as western Saga dialect. (Koga ms.)

Thus, for example, the ‘non-past’ forms of /nur#u/ ‘paint-Non-past’ and /n#u#ru/ ‘sleep-Non-past’ with the given structure will be associated with the same except for the high back segment absent, or that in Figure 6.

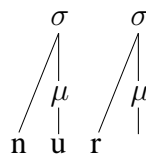


Figure 6: The final vowel absence after [coronal, +sonorant] of [Tense Expletive]

A syllable structure is absent when the syllable contains no overt nuclear segment (as Hayes 1989 presented as parastic delinking). In contrast, moras are preserved by Max- $\mu$ , as defined in (2).

- (2) Prosodic faithfulness constraint, Max- $\mu$ : Assign one violation for each mora in the input that is not present in the output.

Any stranded mora optionally acquires a new association with an adjacent syllable, as exemplified through the associations in the ‘non-past’ forms of /n#u#ru/ ‘sleep-Non-past’ between that in 6 and that in Figure 7 and between that in Figure 7 and that in Figure 8.

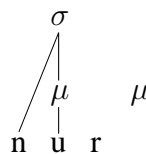


Figure 7: The absence of the syllable structure due to the nucleus absence and mora preservation

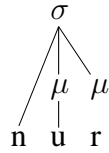


Figure 8: Syllabification: linking the stray mora to the preceding vowel melody

That is, the intermediary forms are postulated between the underlying forms and the phonetic realizations, as given in Table 2.

Table 2: The intermediary forms of the non-past forms with the underlying final /r/

[m-class]	meaning	Intermediary Forms	Saga Takeo dialect
C-final	‘sell’	ur dzikan	u <u>d</u> dzikan
	‘knead’	ner dzikan	ne <u>d</u> dzikan
	‘cut’	kir dzikan	ki <u>d</u> dzikan
	‘paint’	nur dzikan	nu <u>d</u> dzikan
	‘open [pages]’	kur dzikan	ku <u>d</u> dzikan
	‘rub’	sur dzikan	su <u>d</u> dzikan
/e/-final	‘sleep’	n#u#r dzikan	nu <u>d</u> dzikan
	‘eat’	tab#u#r dzikan	tabu <u>d</u> dzikan
/i/-final	‘wear’	ki#r dzikan	ki <u>d</u> dzikan
	‘wake’	oki#r dzikan	oki <u>d</u> dzikan
strong	‘come’	k#u#r dzikan	ku <u>d</u> dzikan
	‘do’	s#u#r dzikan	su <u>d</u> dzikan

See Hayata’s 1998 discussion of the alveolar tap /r/, as opposed to the other segments, underlying for the consonant geminates.<sup>3</sup>

McCarthy’s 2008 CodaCond, as given in (3), disallows, for example, the association of the ‘non-past’ forms with the syllabic and moraic structure of Figure 8 with the same except for the alveolar tap linked to the coda mora of Figure 9.

- (3) CodaCond: Assign one violation mark for every token of Place [of the consonant at the coda] that is not associated with a segment in [the onset of the next syllable] (in the syllable onset) (McCarthy 2008: 279). (The brackets are mine.)

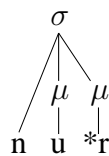


Figure 9: \*r at the coda

This is because the consonant at the onset of the next syllable can be any consonant as exemplified in [nug gogo] ‘paint/sleep-Non-past-afternoon’, which is interpreted as meaning ‘the afternoon when (he) sleeps/paints it’. There is no sharing of the POA feature between the alveolar tap and the velar /g/, for example. There will be no other way to let the alveolar tap absent, leaving only the mora stranded at the coda, as in Figure 10.

<sup>3</sup>I thank Tadashi Eguchi for his pointing out this in my reviewing of Hayata 1998.

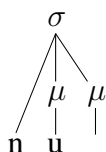


Figure 10: A mora associated with no segment

Here there are two possible ways to have the mora at the coda filled by a segment for a compensation: one, the lengthened vowel, what is called ‘compensatory lengthening’, and two, the consonant geminate. Particular languages actually use either compensatory lengthening or compensatory geminates or both, as Kiparsky 2011 calls the ‘realization’ problem. Western Saga dialect as well as Tiberian Hebrew use both, whereas Saga Takeo as well as Lesbian and Thessalian Greek use only consonant geminates, as exemplified in Figures 11 and 12.

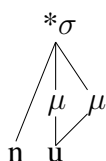


Figure 11: No lengthened vowel for the compensation in Saga Takeo dialect

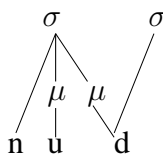


Figure 12: Consonant geminate for the compensation in Saga Takeo dialect

That is, the underlying alveolar tap /r/ does not vocalize in Saga Takeo dialect, which I have used as the title of the current paper.

### 3.2 Ranking Ident[cons] between PDYG-AC and Super-Optimality

**Faithfulness constraint: Ident[cons]** We propose a different ranking of the faithfulness constraint Ident[cons(onantal)] for Saga Takeo dialect from that for western Saga dialect. The constraint of the faithfulness of the consonantal feature, as given in (4), between the constraint of Prohibition of Duke of York Gambit Across Components and the constraint of Super-Optimality, or PDYG-AC  $\gg$  Ident[cons]  $\gg$  S-Opt.

- (4) Faithfulness constraint: Ident[cons(onantal)]: Assign one violation mark for every segment that changes its value for the feature consonantal between the input and output.

Saga Takeo dialect cares the consonantal feature, and does not allow, for example, an underlying consonant to be associated with a vowel as a phonetic realization. We will detail the rankings of constraints below.

The faithfulness constraint in the consonantal feature is independently motivated in Saga Takeo dialect, as the alveolar tap cannot be absent immediately before the high front vowel in the dialect (whereas it is absent in western Saga dialect), as in (5).

- (5) a. kiri/\*kii yo? [Saga Takeo] cf. kii yo: [western Saga]  
cut [*prp*] is temporally  
'(He) is cutting (it).'
- b. seri/\*sei yo? [western Saga] cf. sei-yo: [western Saga]  
compete [*prp*] is temporally  
'(He) is competing (with her).'
- c. huri/\*hui yo? [western Saga] cf. hui-yo: [western Saga]  
rain [*prp*] is temporally  
'(It) is raining.'
- d. hori/\*hoi yo? [western Saga] cf. hoi-yo: [western Saga]  
dig [*prp*] is temporally  
'(He) is digging (there).'
- e. ari/\*ai yo? [western Saga] cf. ai-yo: [western Saga]  
be held [*prp*] is temporally  
'(It) is being held.'

**Prohibition of Duke of York Gambit Across Components in Koga ms.** The tense expletive forms of verbs with verb stems, e.g., /tab/ 'eat', /n/ 'sleep', have the morpheme of the tense expletive doubled to have [*tense* [*tense u*] [*tense ru*]] in morpho-syntax. See Koga and Ono 2010 for the reason of the doubled tense expletive if the verb stem is a vowel /e/-final base verb or a strong base verb in Saga Takeo dialect as well as western Saga dialect. Suppose the final /ru/, which is of [*Tense* expletive], is absent in morpho-phonology, and the final phoneme /u/, which is [*Tense* expletive], is lengthened. That is, the tense expletive morpheme is doubled in morphologically, and the latter tense expletive morpheme is absent morphologically. Then, the remaining tense expletive is lengthened in phonologically. This is a kind of 'Duke of York Gambit' association over morphology and phonology. This is prohibited by Koga's ms. constraint of prohibition of Duke of York Gambit Across Components, as defined in (6).

- (6) Markedness constraint: PDYG-AC: A form with a morpheme morpho-syntactically doubled,  $\frac{[S_a S_b \# S_c S_d]}{[Xp] \# [Xp]}$ , cannot be appropriately associated with only one morpheme remaining and with the last segment phonologically lengthened,  $\frac{[S_a S_b S_b]}{[Xp]}$ .

**Kiparsky's 2011 Super-Optimality** Observing that the morpho-syntactic distinction between k#u#ru 'come [Non-past]' and /kur#u/ 'turn [Non-past]' (between n#u#ru 'sleep [Non-past]' and /nur#u/ 'paint [Non-past]' and between s#u#ru 'do [Non-past]' and /sur#u/ 'rub [Non-past]') also realizes as a phonetic or prosodic distinction in western Saga dialect (although it does not realize as a segmental distinction), [kud] (dzikan) for the former and [ku:] for the latter, Koga ms. uses Kiparsky's 2011 Super-Optimality (7) as a violable constraint in OT and as an anti-neutralization constraint, which forbids the merger of contrasts and yet differs from the constraints which penalize homonymy between individual lexical items.

- (7) a. S(uper)-Opt(imality): An Input-Output pair (I, O) is super-optimal.  
b. The Input-Output pair (I, O) is super-optimal if and only if:



1. there is no super-optimal (I, O') more harmonic than (I, O), and
2. there is no super-optimal (I', O) more harmonic than (I, O).

If there is a more harmonic super-optimal input-output pair with either the input I and a different output O' or a different input I' and the output O, then the pair (I, O) will not be super-optimal. This in effect guarantees that the compensatory germinate consonant is the specially designed device in the specific environment of  $\#[_{Tns\ expl} u]\#[_{Tns\ expl} \_]\#\#$  in western Saga dialect; it is not available otherwise, or in the general environment  $\#[_{Tns\ expl} \# \_]\#\#$  that does not include the specific environment, or there if there is no form of the tense expletive immediately preceding that place. This effect is not present in Saga Takeo dialect since Ident[cons(onantal)], which disallows an underlying consonant to be associated with a vowel, outranks S-Opt in Saga Takeo dialect, as proposed.

**Ranking of violable faithfulness and markedness constraints** Our proposal for Saga Takeo dialect is that the faithfulness constraint Ident[cons] is ranked between PDYG-AC toward the higher and S-Opt toward the lower, specifically as follows:

- (8)  $\text{Max-}\mu \gg \text{CodaCond} \gg \text{HavePlace} \gg \{\text{Ident[nasal]}, \text{PDYG-AC}\} \gg \text{Ident[cons]} \gg \text{S-Opt} \gg \{\text{Max[Place]} \gg \text{Ident[cont]}, \text{Max-V,C}\}$

The ranking of  $\text{PDYG-AC} \gg \text{S-Opt} \gg \text{Ident[cons]}$ , in which the markedness constraint S-Opt outranks the faithfulness constraint Ident[cons], explains the CG or CL phenomenon in western Saga dialect (Koga ms.). All in the grammar of Saga Takeo dialect that differs from the grammar of western Saga dialect is this particular ranking.

### 3.3 Predictions

We will see how the grammar for Saga Takeo dialect makes correct predictions regarding the 'non-past' forms of the verbs in the dialect. The core components of morphology and syntax 'generate', for example, /n#u#ru/ '(He) will sleep', /tab#u#ru/ '(He) will eat (it)', /oki#ru/ '(He) will get up' and /nur#u/ '(He) will paint (it)'. Harmonic Serialism in OT with the markedness and faithfulness constraints for the coda segment and the proposed rankings makes such correct predictions that:

- 1) the intermediary form nur 'paint [Non-past]', whose morpheme boundaries are nur, as its UR will be given in the upper part of Tableau 3, is associated with [nud] (dzikan),
- 2) the intermediary form nur 'sleep [Non-past]', whose morpheme boundaries are n#u#r, as its UR will be given in the upper part of Tableau 4, is associated with [nud] (dzikan),

as we will see below for each. Note that the prediction of the 'non-past' form of the verb nur 'paint-Non-past' in Saga Takeo dialect is different from that in western Saga dialect.

**i) Regarding nur 'paint [Non-past]', in which there is no morpheme boundary:** The candidate set of the intermediary form nur, which won at the first stage, may contain, for example, nur and nuH. CodaCond and HavePlace, outranking Max[Place] and Max-V,C, associate the form nur with one with the coda consonant /r/ replaced with its Placeless counterpart H, as in the first pass of Tableau 3. That is, the form nuH wins. The candidate set in the second pass may contain nuH, nu:, nud and nun, as given in the second pass of Tableau 3. The form nu: does not violate Prohibition Duke of York Gambit Across Components since the vowel at the nucleus is a part of the verb stem, and is not associated with the tense expletive. However, it violates Ident[cons] since the consonantal feature at the final of the input nur is not at the final of the output nu:. The vowel /u/ of nu: is not consonantal and the alveolar tap /r/ is consonantal. (The form nu: does not violate

S-Opt. See Koga ms. for the application.) The form nud (dzikan) does not violate PDYG-AC or Ident[cons]. For the former, it is because there is no vowel lengthening at the final. For the latter, the final /d/ is a consonant as the alveolar tap /r/ is, and has Ident[cons] not violated. This form violates S-Opt. Except for the evaluation of S-Opt, the form nuH can be associated with this form nud since the form nud invites the least serious violations of the violable constraints. For the other directionality, the form nud cannot be associated with nuH or nur, which is a verb stem as a whole, since the form nud (dzikan) is associated with the form nuH and nur with the vowel at the nucleus being the tense expletive form, or n#u#r, as we saw before. Thus, the form nud (dzikan) is not Super-optimal for nur ‘paint [Non-past]’ (dzikan). The form nun violates Ident[nasal] since the coda consonant in the UR /r/ does not have a nasal feature.<sup>4</sup> The form nud (dzikan) thus wins in the second pass. That is, the phonetic realization [nud (dzikan)] is predicted to be interpreted as meaning that the time when he paints it. This is a correct prediction.

**ii) Regarding nur (n#u#r) ‘sleep [Non-past]’:** The prediction regarding the form nur (n#u#r) ‘sleep [Non-past]’ is the same up to the stage where the form nuH wins.

We are now in the second pass. The candidate set of the intermediary form nuH, which has won in the first pass of the second stage, may contain nu:, nud (dzikan) and nun. The form nuH violates HavePlace. The form nu:, nud or nun does not violate Max- $\mu$  since the mora is associated with the vowel by lengthening in the first, with the onset consonant of the next syllable in the second and with the nasality sharing its Place feature with the onset consonant of the next syllable in the third. The form nun violates Ident[nasal]. The first form nu: violates Prohibition of Duke of York Gambit Across Components since the tense expletive form /u/ is phonologically lengthened with the latter one of the morphologically doubled tense expletive morpheme /u#ru/, /ru/, absent as well as violates Ident[cons]. The second form nud (dzikan) wins. The tense expletive morpheme here is not lengthened, and the latter one of the complex remains as the first part of the geminate consonant. Thus, the form [nud (dzikan)] is interpreted as meaning that the hour when (he) sleeps. That is, the form [nud (dzikan)] is interpreted as meaning this as well as meaning that the hour when (he) paints (it), as we saw previously. This is a correct prediction. Note that the form nu: for the underlying form /n#u#ru/ ‘sleep-Non-past’, as we are seeing in Tableau 4, violates the higher constraint PDYG-AC whereas the form nu: for the underlying form /nur#u/ ‘paint-Non-past’, as we saw in Tableau 3 violates the lower constraint Ident[cons], explaining the native speakers’ judgments of that for /n#u#ru/ ‘sleep-Non-past’ as sounding more odd than that for /nur#u/ ‘paint-Non-past’.

## 4 Summary

We provided the data of the non-past forms of verbs in Japanese-Saga Takeo dialect, or Hayata’s 1998 observation, corresponding to the /ru/-final non-past forms of standard Japanese in contrast with those in western Saga dialect. We proposed an OT-HS explanation which differs in the ranking of Ident[cons(onantal)] for Saga Takeo dialect, specifically as PDYG-AC  $\gg$  Ident[cons]  $\gg$  S-Opt, from that for western Saga dialect, specifically as PDYG-AC  $\gg$  S-Opt  $\gg$  Ident[cons]. The current study implies that OT-HS explains the dialectal difference by the different rankings of the markedness and faithfulness constraints.

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<sup>4</sup>Ident[nasal] is ranked at a lower position in Okinawa dialect. Okinawa dialect allows the nasal sound N to be associated with /ru/ even if there is no nasality, as in [iN-nu aN] ‘(we) have some relationship’ with its UR /en-nu aru/.



Tableau 4: Harmonic improvements from the intermediary form in <nur##dzikan, nuH##dzikan, nud##dzikan> with UR /n#u#ru/ ‘sleep-Non-past’ in Saga Takeo dialect

		Max- $\mu$	CodaCond	HavePlace	Ident[nasal]	PDYG-AC	Ident[cons]	S-Opt	Max[Place]	Ident[cont]	Max-V, C
	<p>nur ## dzikan ‘the time when ... sleep-Non-past’</p> <p style="text-align: right;">UR: T[<i>expl</i>]</p> <p style="text-align: center;"> </p> <p>S&amp;MS: <math>\sigma</math></p> <p style="text-align: center;"> </p>										
☞	nur ## dzikan		*!								
	nuH ## dzikan			*					*		
	nuH ## dzikan										
	nuH ## dzikan			*!					*		
	nu: ## dzikan					*!	*	**	*	*	*
☞	<p>nud ## dzikan</p> <p style="text-align: center;"> </p>										
	nud ## dzikan								*		*
	<p>nun ## dzikan</p> <p style="text-align: center;"> </p>										
	nun ## dzikan			*!				**	*		*

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