Surface constraints on multiple default morphemes of tense

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Abstract: The current paper argues that if the conventional assumptions of the base forms of the verbs, especially of the strong base verbs /k/ 'come' and /s/ 'do', and the so-called 'non-past' and /(r)eba/ conditional morphemes in standard Japanese, as assumed in, for example, Hayata (1985:32), Shirota (1998:23), are extended to Yamaguchi dialect, it will have to be the case that each '/n/ consonant-final (weak)' base verb has one more base form with the vowel /u/ added at the final of the usual one. It would be more desirable if we could avoid this complication. A Constraint-Based Syntax-OT alternative is proposed, aiming a general grammar that explains dialectal differences. The current study implies that prosodic minimality, or a sound constraint, lets a default morpheme consecutively repeat, which brings out an apparent complexity. The core components, in conjunction with surface constraints and a conventional implicature, performing a division of labor, explain the 'non-past' and /(r)eba/ conditional forms of verbs of Japanese and its dialects. With a non-default morpheme and the default morpheme of a syntactic category given, the content of the default morpheme may be the identity function and receive the complementary meaning of the marked morpheme as a conventional implicature. Whereas there is no present tense in English (Enç 1997:347), the default morpheme of tense with the content of the identity function is in Japanese.

Keywords: default morpheme of tense, identity function, global inflectional correspondence, prosodic moraic or syllabic minimality

1 Dialectal differences in the 'non-past' forms of verbs

1.1 The conventional assumptions, as assumed, for example, in Hayata 1985; 1998, Shirota 1998

In case of consonant-final and vowel-final base verbs:
'Non-past' Forms: [......C(onsonant)]-/u/
'Non-past' Forms: [......V(owel)]-/ru/
Conditional Forms: [......C]-/eba/
Conditional Forms: [......V]-/reba/

Morpho-class	-'Non-past'	-'not'	-'if [Non-past] '	(-)'Prp'[1]	verb meaning
weak base: /...C/	a(w) u	aw anai	a(w) eba	a(w) i	#01 'meet'
	kat u	kat anai	kat eba	kat i	#02 'win'
	hasir u	hasir anai	hasir eba	hasir i	#03 'run'
	tatam u	tatam anai	tatam eba	tatam i	#04 'fold'
	job u	job anai	job eba	job i	#05 'call'
	sin u	sin anai	sin eba	sin i	#06 'die'
	sak u	sak anai	sak eba	sak i	#07 'bloom'
	ojog u	ojog anai	ojog eba	ojog i	#08 'swim'
	kuras u	kuras anai	kuras eba	kuras i	#09 'live'
weak base: /(...)e/	ne ru	ne nai	ne reba	ne	#10 'sleep'
	tabe ru	tabe nai	tabe reba	tabe	#11 'eat'
	e ru	e nai	e reba	e	#12 'obtain'
weak base: /(...)i/	oci ru	oci nai	oci reba	oci	#13 'wake'
	i ru	i nai	i reba	i	#14 'be'
strong base	su ru[2,3]	si nai	su reba	si	#15 'do'
strong base	ku ru[4,5]	ko nai	ku reba	ki	#16 'come'

Table 1: 'Non-past', negative, conditional and present participle forms of five kinds of verbs in standard Japanese

In case of strong base verbs /k/ 'come' and /s/ 'do':
'Non-past' Forms: /ku/-/ru/
'Non-past' Forms: /su/-/ru/
Conditional Forms: /ku/-/reba/
Conditional Forms: /su/-/reba/

Note that the base forms of the strong base verbs are assumed to be:
  /ku/, /ko/ and /ki/ for the verb meaning 'come' and
  /su/, /si/ and /s/ for the verb meaning 'do'.[6]

1.2   An inadequacy of the conventional assumptions to explain dialectal differences

If the conventional assumptions for the strong base verbs were extended to Yamaguchi dialect, then there would be such a complication as follows:
  Each '/n/ consonant-final' base verb has two base forms in the dialect:
      consonant-final one as usual, and
      the other with the vowel /u/ added at the final of the usual one.
          E.g., the shorter one /sin/ 'die' and the longer one /sinu/ 'die' and
          E.g., the shorter one /in/ 'leave' and the longer one /inu/ 'leave'.

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[6]The base form /s/ for the strong base verb 'do' is required, for example, for the passive form /s are ru/ 'do Pass Non-past', as will be given later. You will see this in Tables 2 and 3.

The '/n/ consonant-final' base verbs in Yamaguchi dialect

Morpho-class	-'Non-past'	-'not'	-'if [Non-past]'	(-)'Prp'	verb meaning
'mixed' base: /...V/ or /...C/	**sinu ru**[7] cf. *sin u	sin aN	**sinu reba** cf. *sin eba	sin i	#06 'die'
	-'Pass'-'Non-past'[8]				
	sin are ru				
	inu ru[9] cf. *in u	in aN	**inu reba** cf. *in eba	in i	#17 'leave'
	-'Pass'-'Non-past'				
	in are ru				

The strong base verbs in Standard Japanese

Morpho-class	-'Non-past'	-'not'	-'if [Non-past]'	(-)'Prp'	verb meaning
strong base: /s/	su ru[10] cf. *s u	si nai cf. *s anai	su reba cf. *s eba	si	#15 'do'
	-'Pass'-'Non-past'				
	s are ru				
	cf. *si rare ru				
strong base: /k/	ku ru[11] cf. *k u	ko nai cf. *k anai	ku reba cf. *k eba	ki	#16 'come'
	-'Pass'-'Non-past'				
	ko rare ru				
	cf. *k are ru				

Table 2: Non-past, negative, conditional, present participle and passive forms of the /n/ 'mixed' base verbs in Yamaguchi dialect and those of the strong base verbs in the standard

*[Shorter base form]-/(r)u/ or /(r)eba/ [Yamaguchi dialect]:

 e.g., */sin u/ 'die DfltMT' or */sin eba/ 'do if[Non-past]' and

 e.g., */in u/ 'leave DfltMT' or */in eba/ 'leave if[Non-past]'

If we assume that /s/ and /k/ are shorter base forms of the strong base verbs, the phenomenon given immediately above is actually similar to that of the strong base verbs.[12],[13]

 e.g., */s u/ 'do DfltMT' or */s eba/ 'do if[Non-past]' and

 e.g., */k u/ 'come DfltMT' or */k eba/ 'come if[Non-past]'

 [1] If we could explain two base forms of each '/n/ consonant-final' base verb in Yamaguchi dialect instead of stipulating two distinct base forms, for example, /sinu/ and /sin/, as well as some base forms of the strong base verbs, for example, /su/ 'do' and /s/ 'do', it would be more desirable.

 [2] In addition, it would also be more disirable **if we could explain, to the degree of explanatory adequacy, the dialectal difference: the forms */sin u/ and */in u/ are** UNGRAMMATICAL **in the dialect, and yet, the form /sin u/ 'die [Non-past]' is** GRAMMATICAL **(/in/ 'leave' being non-existent) in the standard**.

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[12]The passive form of the strong base /s/ verb consists of the shorter base form /s/ and the head morpheme /are/ 'Pass', and the passive form of the strong base /k/ verb consists of the longer base form /ko/ and the head morpheme /rare/ 'Pass'.

[13]The negative forms of the strong base verbs consist of another base form /si/ 'do' or the base form /ko/ 'come' and the head morpheme /nai/ in contrast with ungrammatical ones of their shorter base forms */sanai/ and */kanai/.

2 An optimality-theoretic explanation: the core components of a grammar and a conventional implicature

•Section 2.1: the architecture of our grammar
•Section 2.2: the core components
•Section **??**: conventional implicature
•Section 2.6: incorrect predictions, or 'overgenerations', by the core components

•Section 2.3: discussions of a plausible phonological analysis of the '/n/ consonant-final base' verbs in Yamaguchi dialect

•Section 2.5: discussions of the content of the default morpheme of tense on our morpho-syntactic proposal

2.1 An architecture

Architecture in Figure 1:[14]

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[14]See Lee 2004 for a description of the OT-LFG framework, especially what the 'generator' does in the framework, and references cited there.
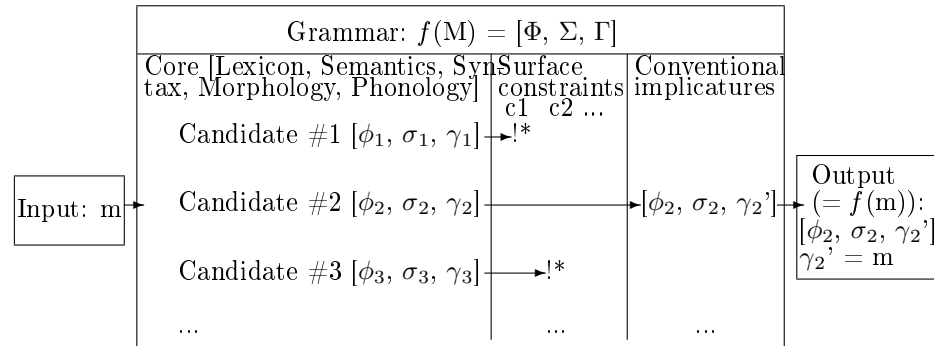
Figure 1: How the Proposed Grammar Maps Input to Output

Each candidate is:

$$\begin{bmatrix} phoneme\ strings\ (\Phi) \\ morpho-syntactic\ analysis\ (\Sigma) \\ semantic\ content\ (\Gamma) \end{bmatrix}$$

2.2 Morphology, syntax and semantics: a further analysis of Kasuga's (1973) 'non-past' morpheme /uru/

[1] The grammar of natural language may contain a default morpheme of a syntactic category with its content being the identity function, which makes its recursion grammatical.

(1)   a. DfltMT (the default morpheme of tense) $\rightarrow$ /u/

      b. /u/' $= \lambda \mathbf{X} \lambda \mathbf{e} \lambda \mathbf{t}[\mathbf{X}(\mathbf{e})(\mathbf{t})]$

      c. $\left[_{VI-fn} \left[_{VI-fn} \mathbf{X}\right]\left[_{DfltMT} \mathbf{Y}\right]\right]$

      d. $\left[_{VP-fn} \left[_{VP-fn} \mathbf{X}\right]\left[_{DfltMT} \mathbf{Y}\right]\right]$

The domain of this identity function is contents of verbs. If the tense value is not the marked one, or the past tense, then the grammar procrastinates, leaving the tense specification undecided in the core components and it decided outside of the core components, e.g., by the conventional implicature.[15]

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[15]See Chomsky 1994 for the Principle of Procrastination, in which 'covert movement' is preferrable to 'overt movement' if morphology does not require 'overt movement'.

[2] The grammar of natural language may contain a particular phonemic filler related to each set of affix(es) of a syntactic category in order to have C(onsonant)-V(owel) sequences, the contents of which are the identity function.

(2) a. TnsPFllr (the tense-related phonemic filler) $\rightarrow$ /r/[16]

     b. $/\mathrm{r}/' = \lambda\mathbf{Y}\lambda\mathbf{X}\lambda\mathbf{e}\lambda\mathbf{t}[\mathbf{Y}(\mathbf{X})(\mathbf{e})(\mathbf{t})]$

     c. $\left[_{DfltMT}\ \left[_{TnsPFllr}\ \mathbf{X}\right]\left[_{DfltMT}\ \mathbf{Y}\right]\right]$

The identity function is over contents of tense morphemes, (or predicates of predicates of events and points in time).[17,18] The proposed analyses are a further analysis of Kasuga's (1973:129) 'non-past' morpheme /uru/ as a complex of the default morpheme of tense /u/, the tense-related phonemic filler /r/ and another default morpheme of tense /u/.

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[16]Nasukawa 2005 explains how the default consonant and the default vowel [ɾɯ] and [ɯ] occur in the slots of $[_{onset} -][_{nucleus} -]$ and $[_{coda} -]$ in Japanese. The slots are of the super-segmental structure of verbs specified in the lexicon. See footnote 18.

[17]The analysis of the tense-related phonemic filler /r/ anticipates an anlaysis of the conditional morpheme /(r)eba/ as the complex of 1) the tense-related phonemic filler /r/, 2) the imperative morpheme /e/ (which could be another form of the non-past tense) and 3) /ba/ 'if', with its further research left for a future study.

[18] Nasukawa's 2005 analysis remains to explain the 'non-past' forms of the strong base verbs in the standard and the /n/ consonant-final base verbs in Yamaguchi dialect, for exmaple, whether they have the three empty slots of $[_{Prsw} \ldots [_{nucleus} -]][_{Prsw} [_{onset} -] [_{nucleus} -]]$ in the super-segmental structure of verbs in the lexicon.

[3] We assume that there are only two base forms for the strong base verbs:
/s/ and /si/ for the verb meaning 'do' ((3a)), and
/k/ and /ko/ for the verb meaning 'come' ((3b)).[19]
There is only one base form for each of the /n/ consonant-final base verbs in Yamaguchi dialect ((3c), (3d)):

(3)   a. VI-bse → /k/

     b. VT-bse → /s/

     c. VI-bse → /sin/

     d. VI-bse → /in/ [Yamaguchi dialect]

No such morphemes as /ku/ 'come', /su/ 'do', /sinu/ 'die', and /inu/ 'leave', which are base forms in the conventional assumptions, are not base forms of these verbs in our grammar.

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[19]The base forms /si/ 'do' and /ko/ 'come' are not included since our grammar is only concerned with the 'non-past' forms of verbs.

[4]

The '/n/ consonantal-final' base verbs in Yamaguchi dialect

Morpho-class	-'Non-past'	-'not'	-'if [Non-past]'	(-)'Prp'	verb meaning
'mixed' base:	**sin u ru**	sin aN	**sin u reba**	sin i	#06 'die'
	-'Pass'-'Non-past'				
	sin are ru				
	in u ru	in aN	**in u reba**	in i	#17' 'leave'
	-'Pass'-'Non-past'				
	in are ru				

The strong base verbs in standard Japanese

Morpho-class	-'Non-past'	-'not'	-'if [Non-past]'	(-)'Prp'	verb meaning
strong base: /s/	**s u ru**	**si nai**	**s u reba**	**si**	#15 'do'
	-'Pass'-'Non-past'				
	s are ru				'do'
strong base: /k/	**k u ru**	ko nai	**k u reba**	**k i**	#16 'come'
	-'Pass'-'Non-past'				
	ko rare ru				'come'

Table 3: The proposed morphological analyses for the strong base verbs in the standard and the /n/ consonant-final base verbs in Yamaguchi dialect

2.3 Arguments against such a phonological association as to the effect of $\emptyset \overset{assoc}{=} u \ / \ n \_ ru$ [DfltMT]

(4) a. (= #15) suru   / (= #16) kuru
            do [Non-past]   /   come [Non-past]

  '(He) will do (it).   (He) will come (here).'

   b. (= in Table 2) sinuru   [Yamaguchi dialect]
                       die [Non-past]

  '(He) will die.'

   c. *sakuru   cf. (= (#07)) saku
                        cf.   bloom [Non-past]

  'cf. (It) will bloom.'

   d. *kurasuru   cf. (= (#09)) kurasu
                          cf.   live [Non-past]

  'cf. (He) will live.'

   e. *tatamuru   cf. (= (#04)) tatamu
                          cf.   fold [Non-past]

  'cf. (He) will fold (it).'

   f. *katuru   cf. (= (#02)) katu
                        cf.   win [Non-past]

  'cf. (He) will win (it).'

The phoneme /u/ is associated with zero between either the morpheme-initial consonant /k/ or /s/ or the dental nasal, in the preceding context, and the affix initial /r/, in the following context.

$$\emptyset \quad \overset{assoc}{=} \quad \begin{bmatrix} +back \\ +high \end{bmatrix} \Big/ \quad \begin{Bmatrix} n \\ \#k \\ \#s \end{Bmatrix} - \# \begin{bmatrix} dental \\ liquid \end{bmatrix}$$

Figure 2: /u/ association with zero between /n/, #/k/, or #/s/ and the affix initial /r/

Problem: It is too powerful. [1] It cannot explain the dialectal difference, or why the same effect does not occur in the standard, as in */sinuru/ (cf. /sinu/ 'die').

(5)   a.   *sinuru   cf. (= (#06)) sinu
            cf.   die [Non-past]

   'cf. (He) will die.'

[2] It incorrectly predicts, for example, that the (indirect) passive form of the verb /sin/ 'die' (or the base form of the passive verb with the verb /sin/ as its complement) should be */sinu rare/, as in Table 4.

/sin/#/rare/	/in/#/rare/	UR
sinu#rare	inu#rare	/u/-insertion
*[sinurare]	*[inurare]	
cf. [sinare]	cf. [inare]	

Table 4: /u/ insertion in Yamaguchi dialect

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Problematic aspect: The context of the phonological association is too weird, or is not natural.

2.4 A conventional implicature

An implicature specifies the interpretation of the tense of grammatical sequences of morphemes that the core has accepted as a tensed clause if the interpretation is not specified inherently.

(6) Conventional Implicature in Semantics:
$\lambda X \lambda e \lambda t[X(e)(t) \, \& \, t \in T_{NON-PAST}]$ is free.[20]

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[20]See Parsons 1985 and Abusch 2004 and Enç 1997 for the analysis of the past tense morpheme and the future tense morpheme in semantics.

2.5 Arguments against the analysis of the content of the default morpheme of tense as the non-past tense within our morpho-syntactic proposal

With the proposed morpho-syntactic analyses given, suppose further that the morpheme /(r)u/ inherently means the non-past tense, (which will be rejected later). Then, both the contents of the form /s u ru/ 'do-Non-past' and the form /s u reba/ 'if do-Non-past' should sound redundant.[21]

(7) a. (= #15) s   u ru
                 do X X

     '(He) will do (it).'

     b. (= #10) ne   ru
                 sleep X

     '(He) will sleep.'

     c. (= #09) kuras u
                 live   X

     '(He) will live.'

(8) a. (= #15) s   u reba
                 do X if[Non-past]

     'If (he) does (it), ...'

     b. (= #10) ne   reba
                 sleep if[Non-past]

     'If (he) sleeps, ...'

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[21]In contrast with the 'non-past' morpheme /(r)u/, no verb base of any morphological class can morphologically combine with the past form /(i)ta/ consecutively, as in */s ita ta/ in contrast with /s ita/ 'do Past' and */k ita ta/ in contrast with /k ita/ 'come Past'.

c. (= #09) kuras eba
                live   if[Non-past]

'If (he) leads lives, ...'

That is, the forms /s u ru/ and /s u re/ of /s u reba/ should be interpreted as meaning that THE EVENT OF HIS/HER DOING IT OCCURS IN THE PRESENT OR FUTURE, OCCURS IN THE PRESENT OR FUTURE, which means nonsense, i.e., should lead to a vacuous quantification technically, as computed as follows:

$$\lambda X \lambda e \exists t[X(e)(t) \ \& \ t \in T_{NON-PAST}]$$
$$\big(\lambda X \lambda e \exists t[X(e)(t) \ \& \ t \in T_{NON-PAST}](\lambda e \lambda t[do'(e)(t) \ \& \ Cul/Hold(e)(t)])\big),$$

equivalently

$$\lambda X \lambda e \exists t[X(e)(t) \ \& \ t \in T_{NON-PAST}](\lambda e \exists t[do'(e)(t) \ \& \ Cul/Hold(e)(t) \ \& \ t \in T_{NON-PAST}]),$$

equivalently

$$\lambda e \exists t[(\lambda e \exists t[do'(e)(t) \ \& \ Cul/Hold(e)(t) \ \& \ t \in T_{NON-PAST}])(e)(t) \ \& \ t \in T_{NON-PAST}],$$

which cannot go through λ-conversion any more, and is not well-formed in semantics.

2.6 'Overgenerations' by the core components of the grammar only

[1] The proposed morpho-syntax and semantics of the grammar makes an incorrect prediction, for example, regarding the sequence of phonemes */kuras u ru/ (9).

(9) * (= (4e)) kuras u   ru
                  live   DfltMT DfltMT

(1) The morpho-syntax of our proposal INCORRECTLY predicts that this sequence of phonemes is grammatical, as analyzing it as in Figure 3.[22]
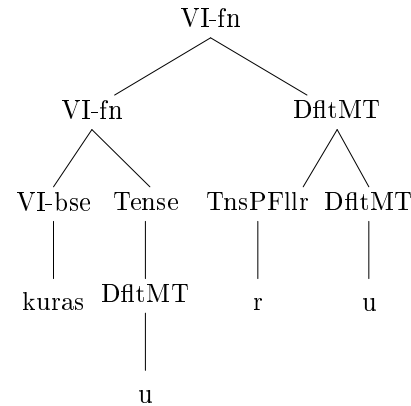

Figure 3: An analysis of (9) */kuras# u# ru/ (cf. /kuras# u/ 'live [Non-past]') by the proposed morpho-syntax

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[22]The morpho-syntactic rules $[_{VI-fn}$ $[_{VI-bse}$ X $][_{Tense}$ Y]] and $[_{Tense}$ $[_{DfltMT}$ X] are also relevant for left branch subtrees of the top-most subtree.

(2) The semantics CANNOT exclude */kuras# u# ru/ as ill-formed, either.

(10) a. kuras' = $\lambda e \lambda t[live'(e) \,\&\, Cul/Hold(e)(t)]$

      b. kuras u' = $\lambda X \lambda e \lambda t[X(e)(t)](\lambda e \lambda t[live'(e) \,\&\, Cul/Hold(e)(t)])$
         $= \lambda e \lambda t[live'(e) \,\&\, Cul/Hold(e)(t)]$
         $= (10a)$

      c. r u'
         $= \lambda Y \lambda X \lambda e \lambda t[Y(X)(e)(t)](\lambda X \lambda e \lambda t[X(e)(t)])$
         $= \lambda X \lambda e \lambda t[X(e)(t)]$

      d. kuras u r u'
         $= \lambda X \lambda e \lambda t[X(e)(t)](\lambda e \lambda t[live'(e) \,\&\, Cul/Hold(e)(t)])$
         $= \lambda e \lambda t[live'(e) \,\&\, Cul/Hold(e)(t)]$
         $= (10a)$

[2] Other 'overgenerations':

(11) (= as in Table 2) *su   / *ku
                       do [Non-past] / come [Non-past]

(12)   a. (= as in Table 2) *sinu / (= as in Table 2, (4c)) sinuru   [Yamaguchi]
                                                            die [Non-past]

       '/ (He) will die.'

       b. (= #6) sinu   / (= (4c)) *sinuru
                  die [Non-past]

       '/ (He) will die.'

3 An optimality-theoretic explanation: surface constraints

We use Ito's 1990 word size constraint (moraic one for standard, and syllabic one for Yamaguchi dialect), and propose an economy constraint, both as surface constraints.

3.1 Prosodic minimality

Moras and syllables in Japanese

- a syllable with one vowel (V) at its nucleus only,

- a syllable with one consonant (C) at the onset and one vowel (V) at its nucleus, and

- a syllable with a weight, or $[[(C) \ V \ _{nucleus}] \ C_{coda}]$ or $[[(C) \ V \ _{nucleus}] \ V_{coda}]$, where a consonant or vowel of a particular kind at the coda.[23]

Every word is phonologically a sequence of selections from among the three syllable patterns, which are given immediately above, with repetitions allowed, for example, V-CV-CVC$_i$-C$_i$V[Nasal]-CV-CV-CV, wihch is that of the phoneme sequence /a-ka-kat-taN-de-su-ka/ 'Is it that it was red?'.[24]

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[23]It is assumed that the consonants both at the onset and at the coda must not be complex, i.e., be only one.

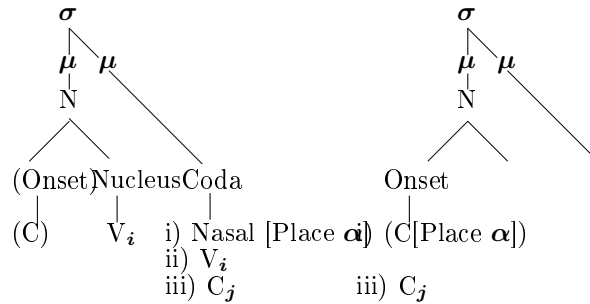[24]This is a surface constraint.

Figure 4: Syllable structure with weight, either (C)VC with its coda a homorganic nasal or nasal glide, or (C)VV with its coda the former part of a geminate CC or the latter part of a geminate VV

Proposal: The grammar of standard Japanese contains as a surface constraint (or an 'output' constraint):

(13) Prosodic moraic minimality constraint (ProsMini): $PrsSW(V[\mathit{fin}]) \geqq [\mu\ \mu]$

That is, the prosodic structure of the finite form of every verb, whether the finite form is a stem or a word, must consist of two or more moras in standard Japanese, i.e., be at smallest bimoraic.[25]

Speculation: The finite forms of verbs need to be audible enough (maybe because the 'pronominal drop' phenomenon is prevalent in Japanese, and many utterances actually consist only of a verb

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[25]The prosodic minimality 'output' constraint may also work for the stems of the /(r)eba/-conditional forms on the assumption that the base form of a verb plus the imperative morpheme /e/ is a stem as a finite form of the verb with the morpheme /ba/ as a suffix for the /(r)eba/-conditional forms. See the anticipation of our analysis for the /(r)eba/-conditional forms on page 11.

in a verbal form).[26]

Predictions:
[1] (11) */k# u/ 'come# DfltMT': $*[_{PrsSW} [_\sigma [_\mu [_N \text{k u}]]]]$ (Table 2)
[2] (#9) /kuras# u/ 'live# DfltMT': $[_{PrsSW} [_\sigma [_\mu [_N \text{k u}]]] [_\sigma [_\mu [_N \text{r a}]]] [_\sigma [_\mu [_N \text{s u}]]]]$

3.2 Economy on morpheme repetitions

(14) a. Economy on morpheme repetitions (EcoMRe): A word with one form (or allomorphs) of the same morpho-syntactic category consecutively repeated is not well-formed.

b. Nonviolability: ProsMini $\gg$ EcoMRe.

The formula ProsMini $\gg$ EcoMRe means that the constraint EcoMRe gets sacrificed in order not to violate the constraint ProsMini.[27]

Predictions: The economy constraint on morpheme repetitions in conjunction with the prosodic minimality correctly predicts the 'non-past' forms of the strong base verbs in standard Japanese.
E.g., [1] #15 /s# u# ru/ 'do [Non-past]': the upper right in Figures 5
[2] (that in Table 3) */s# u/: the upper left in Figures 5
[3] */s# u# ru# ru/: the lower in Figures 5
Table 5.[28]

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[26]The forms of the syntactic category V[*fin*] are actually the base forms of the smallest part of a verb suffixed with a tense morpheme, for example, /nak u/ 'cry DfltMT', which is of [VI-fn] in our grammar, /tabe ru/ 'eat DfltMT', which is of VP-fn minus ACCP (or the transitive verb in the finite form) in our grammar.

[27]Another economy may be relevant to restrict the number of repetitions.

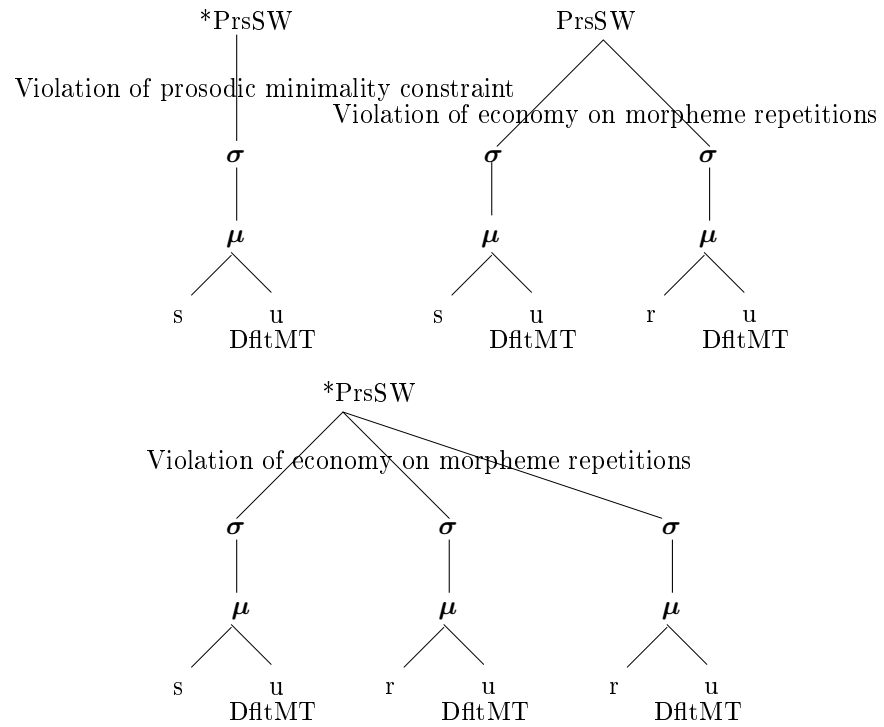[28]See Ishida 1956 for ideas related to the 'irregular' verbs.

Figure 5: Prosodic Structures of Words */s# u/, /s# u# ru/ 'do [Non-past]' and */s# u# ru# ru/

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	ProsMini	EcoMRe
a. s# u	*!	
☞ b. s# u# ru	√	*
c. s# u# ru #ru	√	*

Table 5: Analyses of */s# u/ and /s# u# ru/ 'do [Non-past]'

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3.3 Another prosodic minimality for Yamaguchi dialects

(15) a. (= Tables 2, 3) sin u   ru   [Yamaguchi dialect]
                      die DfltMT DfltMT

'(I) will die.'

b. * (= Table 2) sin u   [Yamaguchi dialect]
                      die DfltMT

c. (= Tables 2, 3) sin are   ru
                      die Pass Non-past

'(We) will suffer (his) dying.'

(16) a. (= Tables 2, 3) in   u   ru   [Yamaguchi dialect]
                      leave DfltMT DfltMT

'(I) will leave (here).'

b. * (= Tables 2) in   u   [Yamaguchi dialect]
                      leave DfltMT

c. (= Tables 2, 3) in   are   ru
                          leave Pass DfltMT

'(We) will suffer (his) leaving (here).'

There are only two /n/ consonant-final base verbs in Yamaguchi dialect: /sin/ 'die' and /in/ 'leave'.[29]

Assume in the phonology that /nu/ and /N/ are associable at the final of every word in Yamaguchi dialect.

$$\emptyset \quad \overset{assoc}{=} \begin{bmatrix} +back \\ +high \end{bmatrix} \Bigg/ \begin{bmatrix} dental \\ nasal \end{bmatrix} - \#\#$$

Figure 6: Association between Zero and final /u/ immediately after the dental nasal

Independent motivation of this assupmption: the final /u/ absence immediately after the dental nasal, or the negation form /N/ 'not' in place of /nu/.

(17) a. aw   aN   cf. awa nu [Yamaguchi dialect]
       meet not

       '(I) will not meet (her).'

    b. ne   raN   cf. ne ranu [Yamaguchi dialect]
       sleep not

       '(I) will not sleep.'

---

[29]Standard Japanese only contains /sin/ 'die' for the /n/ consonant-final base verbs. The word /in/ 'leave' is no more used in standard Japanese.

c. oki   raN   cf. oki ranu [Yamaguchi dialect]

    get up not

    '(I) will not get up.'

Predictions by the assumption

UR: /sin#u/	UR: /in#u/	
sin#	in#	S Final /u/-Deletion
siN	iN	Moraic Nasal

Table 6: Final /u/ absence in Yamaguchi dialect

Proposal: A syllabic counterpart of the prosodic minimality for Yamaguchi dialect (13):

(18) a. Prosodic syllabic minimality constraint (ProsMiniYama): $\text{PrsSW}(\text{V}[\mathit{fin}]) > [\sigma]$

     b. Nonviolability: $\text{ProsMiniYama}(, \text{ProsMini}) \gg \text{EcoMRe} (\gg \text{GloTCorres})$

This is reasonable since the dialects of Japanese respect syllables more in sounds whereas standard Japanese respects moras in sounds, as well known in the literature.

Predictions:
See Figure 7.
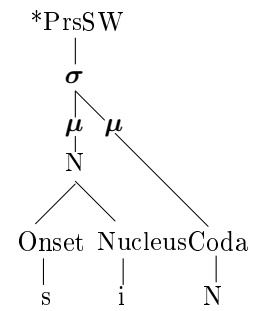
Figure 7: an analysis of */siN/

Upper part in Table 7.[30]

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[30]Our analysis articulates Sakurai's 1972 idea that the '/n/ irregular' verbs in classical Japanese is a kind of consonant-final base verbs.

	ProsMiniYama	EcoMRe
a. iN (= in# u)	*!	
☞ b. in# u# ru	√	*
a. siN (= sin# u)	*!	
☞ b. sin# u# ru	√	*
☞ a. kat# u	√	√
b. kat# u# ru	√	*
☞ a. am# u	√	√
b. am# u# ru	√	*

Table 7: Analyses of */in# u/ and /in# u# ru/ 'leave [Non-past]', */sin# u/ and /sin# u# ru/ 'die [Non-past]', /kat# u/ and */kat# u# ru/ 'win [Non-past]' and /am# u/ and */am# u# ru/ 'knit [Non-past]'

4   A further prediction: Morphological class constraint [Yanagawa dialect]

The Yanagawa-dialectal counterparts of the 'non-past' forms of the standard '/e/ vowel-final' base verbs, having the final /e/ absent from the base forms, contain the complex of the default morphemes of tense /u# ru/ in Yanagawa dialect (Matsuishi 1985). Table 8[31]

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[31] The list of words contain the 'non-past' forms of the standard '/e/ vowel-final' base verbs, having the final /e/ absent from the base forms, contain the complex of the default morphemes of tense /u# ru/. The glottal stop ʔ tends to occur in place of the final /ru/, as [iruʔ] occurring in place of /iruru/ 'put' in the conversation written in Matsuishi (1985: 30).

'/e/ vowel-final' base verbs in Yanagawa dialect (Matsuishi 1985)

Morpho-class	-'Non-past'	-'not'	-'if [Non-past]'	(-)'Prp'	verb meaning
mixed base: /...V/ or /...C/	**tab u ru** cf. *tab u	tabe N	**tab u reba** cf. *tab eba	tabe	#11b 'eat' #11c
	-'Pass'-'Non-past' **tabe rar u ru** **cf. *tab ar u ru**				
	n u ru cf. *n u	ne N	**n u reba** cf. *n eba	ne	#10b 'sleep' #10c
	-'Pass'-'Non-past' **ne rar u ru** **cf. *n ar u ru**				

Table 8: Non-past, negative, conditional, present participle and passive forms of the verbs with the base forms of /e/ vowel final and consonant final with the final /e/ absent in Yanagawa dialect

Yanagawa dialect is spoken in the area around the Yabe river in Fukuoka.

Assume that with an '/e/ vowel-final' base verb given, it may have another base form with the final vowel /e/ ABSENT, as given in (19).

(19) a. VT-bse → /tab/ [Yanagawa dialect]

     b. VI-bse → /n/ [Yanagawa dialect]

There is no base form of VT-bse → ∅ corresponding to the standard verb /e/ 'obtain'; the verb /e/ 'obtain' has only one base form in the dialect as well as in standard. .[32]
In addition, assume that the morphological class of these verbs is specified in the lexicon.

(20) The morphological class of the verbs /tab/ and /n/ are specified as the '/e/ vowel-final' base verbs with the vowel /e/ absent.

There is no other morphological class specified in the lexicon since base forms reflect the class of verbs by distinguishing whether they are consonant-final or vowel-final.

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[32]The fact that all the /e/ vowel final base verbs do not have two base forms supports our approach of lexical specifications and rejects Hayata's 1998 phonological rule to derive, for example, /tabu/ from /tabe/, phonologically.

Proposal: a surface constraint for Yanagawawa dialect

(21) a. Global total correspondence (Total Ident$_{lex}$ [F,G,...,H]): Given a subconstituent C of a candidate expression characterized by a set of syntactic specifications {[α F], [β G]..., [γ H]}, C stands in correspondence to EVERY OTHER listed allomorph that is characterized by the same set of syntactic values WITHIN ITS IMMEDIATE MORPHOLOGICAL CLASS.[33] [Yanagawa dialect]

   b. Nonviolability: GloTCorres ≫ EcoMRe.

The syntactic specification relevant here is the morpho-syntactic category of the allomorphs of the default morpheme of tense (DfltMT), e.g., /u/, /ru/, /u# ru/; these are referred globally within the immediate morphological class that the lexicon specifies.
This constraint in effect forces the numbers of the default morphemes of tense in the 'non-past' forms identical within the specified morphological class of verbs.

Predictions:

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[33]Steriade (2008: 336) proposes a global correspondence constraint, which states 'given a subconstituent C of a candidate expression characterized by a set of syntactic specifications {[α F], [β G]..., [γ H]}, C stands in correspondence to that one of its listed allomorphs that is characterized by the same set of syntactic values', in order to explain the fact that the other derivations of nouns are dependent on their plural forms in Romanian.

References: /u/, /ru/, /uru/, ...	ProsMini	TotalIdent$_{lex}$ [F,...]	EcoMRe
a. kowar# u	√	*!	
☞ b. kowar# u# ru	√	√	*
a. tab# u	√	*!	
☞ b. tab# u# ru	√	√	*
a. n# u	*!	*!	
☞ b. n# u# ru	√	√	*

Table 9: Analyses of */tab# u/ and /tab# u# ru/ 'eat [Non-past]', */kowar# u/ and /kowar# u# ru/ 'break [Non-past]' and */n# u/ and /n# u# ru/ 'sleep [Non-past]'
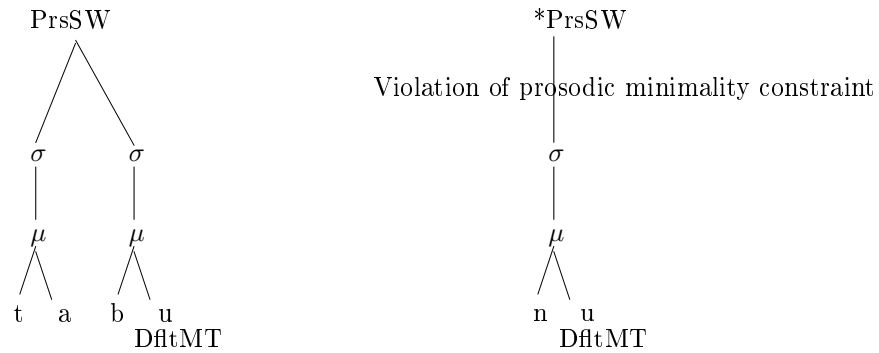

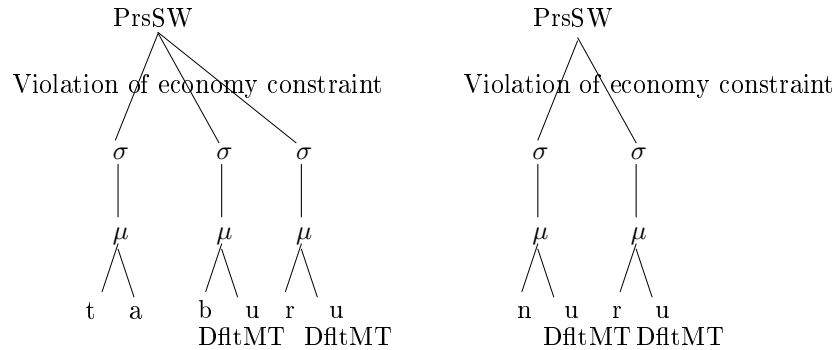Figure 8: Prosodic Structures of */tab# u/ and */n# u/

Figure 9: Prosodic Structures of Words /tab# u# ru/ 'eat [Non-past]' and /n# u# ru/ 'sleep [Non-past]'

5   Summary, implications and Future research

SUMMARY: After showing how the 'non-past', negative, /(r)eba/ conditional and present participle forms of verbs in standard Japanese are conventionally assumed in section 1.1, we argued in section 1.2 that the assumptions, if extended to Yamaguchi dialect, will not be adequate and end up with stipulating two base forms of a kind of the consonant-final base verbs. In sections 2 and 3, we proposed a grammar of the non-past tense, aiming a general grammar for Japanese and its dialects. In section 2, the architecture is presented in section 2.1, the core components (phonology, morphology, syntax, semantics and the lexicon), in section 2.2, and a conventional implicature, in section ??. A plausible phonological analysis that correctly predicts the 'non-past' forms of the '/n/ consonant-final' base verbs in Yamaguchi dialect is argued to face a critical problem and not to be natural in section 2.3. With our morpho-syntactic analysis given, the content of the default morpheme of tense is argued to be the identity function in section 2.5. After pointing out 'overgenerations', e.g., */kurasuru/

(cf. /kurasu/ 'live [Non-past]'), by the core components in section 2.6, surface constraints for prosodic moraic minimality and economy on morpheme repetitions in sections 3.1 and 3.2, built on the core components, are showed to explain the 'non-past' and /(r)eba/ conditional forms of the strong base verbs. In section 3.3, a syllabic prosodic minimality is showed to explain the phenomenon of Yamaguchi dialect, e.g., /sinuru/ 'die [Non-past]'. Furthermore, in section 4, a global totoal constraint in our proposed grammar is showed to explain the phenomenon of Yanagawa dialect, as in /taburu/ 'eat [Non-past]'.

IMPLICATIONS: The current study implies that the expanding of the scope of a grammar, for example, from one language to its dialects, led us to reconsider the demarcation of the phenomena concerning the 'non-past' and /(r)eba/ conditional forms of verbs, letting it in the scope of prosodic, morphological and morphological global surface constraints.

With a default morpheme and its non-default morpheme of a syntactic category given, the content of the default morpheme may be the identity function and receive the complementary meaning of the marked morpheme as a conventional implicature.

Whereas there is no present tense in English (Enç 1997:347), the default morpheme of tense with the content of the identity function is in Japanese.

FUTURE RESEARCH: If our analyses are correct, then we will have found that 1) the strong base verbs as well as the '/e/-vowel' verbs of Yanagawa dialect are actually verbs with two base forms, that 2) the /n/ 'consonant-final' base verbs in Yamaguchi dialect are actually the same as the /n/ consonant-final base verbs in standard.

[1] We have left the question for future research, why affixes do not take the other base form as not in */k anai/ (cf. /ko nai/ 'come not') and */ko ru/ (cf. /k u ru/ 'come [Non-past]') for the strong base verbs, and in */tab anai/ (cf. /tabe nai/ 'eat not') and */tabe ru/ (cf. /tab u ru/ 'eat [Non-past]') in Yanagawa dialect.

[2] Future research will clarify whether the core components of our grammar in conjunction with surface constraints, as done for Yamaguchi dialect and Yanagawa dialect, are general enough to be extended to explain the verbal forms of other dialects in Japanese.

Abbreviations:

Prp: present participle, Pass: passive, DfltMT: default morpheme of tense, X': the semantic content (or inherent meaning) of the form X, TnsPFllr: Tense-related Phonemic Filler, $T_{NON-PAST}$: a set of points in time in the future or present, Cul(e)(t): an event culminates at the time t, Hold(e)(t): an event holds at the time t, VI-bse: the base form of an intransitive verb, VT-bse: the base form of a transitive verb, VI-fn: the finite form of an intransitive verb, ACCP: an accusative phrase, VP-fn: a verb phrase with the verb (or the transitive verb) in the finite form, VP-bse: a verb phrase with the verb (or the transitive verb) in the base form, TC: a tensed clause, N: either nucleus or nasal, μ: mora, σ: syllable, V: vowel, C: consonant, PrsSW: a prosodic structure of a word, x » y: y is sacrificable, or is violable, in order for x, #: *either* a morpheme boundary *or* Number.

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Appendix

<u>Standard Japanese</u>

The current paper is responsible for the analyses written in the bold font.

Surface constraints:[34]
- **(13) Prosodic moraic minimality (ProsMini)**
- **(18) Prosodic syllabic minimality (ProsMiniYama)**
- **(21a) Global Total Correspondence (GloTCorres)**
- **(14a) Economy on morpheme repetitions (EcoMRe)**
- **(14b) ProsMini ≫ EcoMRe ≫ ProsMiniYama, GloTCorres**

Core Grammar: Phonology:
- **The targets of prosodic structures formed, which are words, are 1) a non-head daughter of a minimum syntactic sub-tree and 2) a morphological head daughter suffixed with the head of its non-head daughter minus a non-head daughter of a minimum syntactic sub-tree.**

Core grammar: Syntax:
- initial symbol: TC
- TC → NOMP VP-fn
- TC → NOMP VI-fn
- VP-bse → ACCP VT-bse

Core grammar: Morphology:
- $[_{Tense} \; [_{DfltMT} \;\; \mathbf{X}]]$
- $[_{DfltMT} \; [_{TnsPFllr} \; \mathbf{X}][_{DfltMT} \; \mathbf{Y}]]$
- $[_{VI-fn} \; [_{VI-fn} \; \mathbf{X}][_{DfltMT} \; \mathbf{Y}]]$ • $[_{VP-fn} \; [_{VP-fn} \; \mathbf{X}][_{DfltMT} \; \mathbf{Y}]]$
- $[_{VI-fn} \; [_{VI-bse} \; \mathrm{X}][_{Tense} \; \mathrm{Y}]]$ • $[_{VP-fn} \; [_{VP-bse} \; \mathrm{X}][_{Tense} \; \mathrm{Y}]]$
- $[_{NOMP} \; [_{N} \; \mathrm{X}][_{NOM} \; \mathrm{Y}]]$ • $[_{ACCP} \; [_{N} \; \mathrm{X}][_{ACC} \; \mathrm{Y}]]$

---

[34]There is a constraint that if a word is not phonologically a sequence of selections from among the three syllable patterns V, CV, and CVC$_{special}$ with repetitions allowed, then it is not wellf-formed, where C$_{special}$ is either nasal or the first part of a consonant geminate.

- **DfltMT → u**
- **TnsPFllr → r**
- VI-bse → kuras % 'live'
- VT-bse → kir % 'cut'
- VI-bse → nak % 'cry'
- VI-bse → sin % 'die'
- VI-bse → tabe % 'eat'
- VI-bse → ne % 'sleep'
- VT-bse → e % 'obtain'
- VT-bse → ki % 'wear'
- **VI-bse → k** % 'come'
- **VT-bse → s** % 'do'
- NOM → ga
- ACC → wo
- N → kodomo % 'child'
- N → funa % 'carp'
- N → kaki % 'persimmon'
- N → sanpo % 'walk'

Sᴇᴍᴀɴᴛɪᴄs:

- **DfltMT' $= \lambda X \lambda e \lambda t[X(e)(t)]$**
- **TnsPFllr' $= \lambda Y \lambda X \lambda e \lambda t[Y(X)(e)(t)]$**
- PAST' $= \lambda X \lambda e \exists t[X(e)(t) \ \& \ t \in T_{PAST}]$
- VI-bse'/VT-bse' $= \lambda e \lambda t[R(e) \ \& \ Cul/Hold(e)(t)]$,

where a *1* or *2*-place relation replaces R, e.g., sleep'.

- Case Morpheme (CM)' $= \lambda Y \lambda X \lambda e \lambda t[Y(\lambda x[X(e)(t) \ \& \ GF(e,x)])]$ (Koga 2000),

where either the pair (NOM, Subject) or the pair (ACC, Object) replaces the pair (CM, GF).

- N' $= \lambda Y[\exists x[N'(x) \ \& \ Y(x)]]$

Implicatures in semantics:

- **$\lambda X \lambda e \lambda t[X(e)(t) \ \& \ t \in T_{NON-PAST}]$ is free.**
- Existential Closure of Events: $\lambda X \exists e'[X(e')]$, where X is of $\lambda e[X(e)(t)]$.
- Existential Closure of Points in Time: $\lambda X \exists t'[X(t')]$, where X is of $\lambda t[X(e)(t)]$.

<u>Yamaguchi dialect</u>

The grammar of Yamaguchi dialect contains the same grammar of standard Japanese except that 1) the ranking of surface constraints (18b) replaces that of the standard (14b), 2) a constraint in phonology is added, and 3) a lexical item is added.

- **(18b) ProsMiniYama, ProsMini ≫ EcoMRe ≫ GloTCorres**

Core Grammar: Phonology:
- Association between zero and the final /u/ immediately after the dental nasal, Figure 6

Lexicon: Morphemes:
- **VI-bse → in**

Yanagawa Dialect

The grammar of Yanagawa dialect contains the same grammar of standard Japanese except that 1) the ranking of surface constraints (21b) replaces that of the standard (14b), and 2) the base forms of the verbs of one kind with the kind specification are added.

Surface constraints:
- **(21b) ProsMini, GloTCorres ≫ EcoMRe ≫ ProsMiniYama**

Lexicon: Morphemes:
- **VT-bse → tab**
- **VI-bse → n**
- **The verbs /n/ 'sleep' and /tab/ 'eat' belong to the group of verbs with the final /e/ vowel of its base form absent.**