地域記号化体系の普遍的な生成的性質

—— 記号情報論確立の基礎として ——

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Universal Generative Property in Regional Symbolizing Systems: As a Base to Establish Information Semiotics

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Abstract

We observe the negative, non-past and adverbial forms of verbs in the Tokyo dialect and the Ariake western Saga dialect. We will show that no single form of the verb forms in the paradigm alone can identify the derivational and inflectional class that the paradigm belongs to in the Tokyo dialect or in the Ariake western Saga dialect, and further that a pair of the patterns of the non-past forms and the adverbial forms can identify the derivational and inflectional class that the paradigm belong to, i.e., can be a predictor of the other verb forms in the two dialects. It suggests an explanation to why the children acquire the language in a relatively short period of time. The current study implies that some pair of the patterns of two forms in the paradigm identify the derivational or inflectional class that the paradigm belongs to. Dialects share the morphological generative property on what form identifies the derivational and inflectional class that the paradigm belongs to.

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I Introduction

1.1 Predictions between Verb Forms

We will observe verb forms (especially, three verb forms) of the Tokyo dialect and the Ariake western Saga dialect, as provided in Koga *in review* and Koga 2012b, and discover what follow. No pattern of the verb forms alone can identify the derivational and inflectional class their paradigms belong to, i.e., can be a predictor of the others in the paradigms, and yet a pair of the patterns of the non-past forms and the adverbial forms together can. (The three verb forms we are concerned with are the adverbial forms, the non-past forms and the negative forms.) For example, if the non-past form is /kiru/, then it alone cannot identify the derivational and inflectional class that the paradigms belong to, and so its negative form cannot be uniquely determined: either /kinai/ or /kiranai/. If a pair of a non-past form and an adverbial form in this order is (/kiru/, /kiri/), then the pair alone can identify the derivational and inflectional class that the paradigm belongs to: /kiranai/. The current study of generative linguistics implies to the study of regional symbolizing system that local symbolizing systems share the morphological generative property on what form identifies the derivational and inflectional class that the paradigm belongs to.

1.2 Verb Forms of the Tokyo Dialect and the Ariake western Saga Dialect

Table 1 exemplifies the non-past form (dictionary form), the adverbial form and the negative form of one verb for each group of the same stem-final verbs in the Tokyo dialect and the Ariake western Saga dialect (Kyushu Hougengakkai, 1969; Koga and Ono, 2010; Koga, 2011; 2012a; 2012b). The data of the non-past forms in this paper are those of a group of the native speakers of the Ariake western Saga dialect who prefer the glottal stop to the lengthened vowel for compensation. They are the same as those in a minority of the native speakers of the Takeo Saga dialect (Koga *in review*). There are four derivational and inflectional classes for the verbs of the Tokyo Japanese. Each derivational and inflectional class is a set of the paradigms that exhibit the same derivational and inflectional patterns (Haspelmath and Sims, 2010). For example, the paradigm of the verb *mat* `wait' is {*matu [matsu]*[Vform non-past], *mati [matʃi]*[Vform adverbial], *matanai*[Vform negative and non-past]} in the Tokyo dialect and is {*matu [matsu]*, *mati [matʃi]*, *mataN*} in the Ariake western Saga dialect.[1,2] See the table in the footnote 1 for the non-past form (dictionary form), the adverbial form and the negative form of one verb for each group of the same stem-final verbs in the Tokyo dialect and the Ariake western Saga dialect.

The four classes are 1) of the consonant-final stem verbs, 2) of the vowel-final stem verbs, 3) of the multiple stem *k/ko* verb and 4) of the multiple stem *s/si* verb. The

paradigm {*matu [matsu]*[Vform non-past], *mati [matʃi]*[Vform adverbial], *matanai*[Vform negative and non-past]},
for example, is a member of the derivational and inflectional class of the consonant–final stem
verbs of the Tokyo dialect.

   The derivational and inflectional class of the consonant-final stem verbs is further
broken into nine groups depending on which consonant among *t, r, w, n, m, b, k, g* and
s the verb stem ends with.

   Additionally, the derivational and inflectional class of the vowel final-stem verbs is
further broken into two classes depending on which vowel between *e* and *i* the verb not-
shorter stems end with in the Ariake western Saga dialect. The `vowel /e/-final' stem
verbs are of multiple stem verbs with the longer stem ending with /e/ and the shorter
stem with the stem-final /e/ absent in the Ariake western Saga dialect (Koga and Ono
2010; Koga *in review*). The multiple stems of the verb with the meanings of do are *s/se*
in the Ariake western Saga dialect. Many parts of the Saga dialects are said to be the
remnants of the language in Muromachi Era, in the 14th to the 16th century.

   The differences in the three verb forms between the Tokyo dialect and the Ariake
western Saga dialect are:

1) If a verb is a so-called `vowel /e/-final stem' verb in the Tokyo dialect, which means
   its non-past form is in the scheme of *Xeru*, then the same non-past form is in the
   Ariake western Saga dialect except for the sequence *uʔ* replacing the final sequence
   eru, as *neru* `sleep' corresponds to *nuʔ* in the table.

2) If a non-past form ends with *ru* in the Tokyo dialect, then the same non-past form is
   in the Ariake western Saga dialect except for the glottal stop replacing the final
   sequence *ru*, as *toru* corresponds to *toʔ*, *kuru* to *kuʔ* and *suru* to *suʔ* in the table.

3) The Ariake western Saga dialect counterparts of the negative forms are the same as
   that of Tokyo dialect except for the syllabic nasal *N* replacing the final *nai*, as *yomanai*
   in the Tokyo dialect corresponds to *yomaN* in the Ariake western Saga dialect.[3] If the
   verb is a vowel /i/-final stem verb, then its negative form is preferred to be one with
   the sequence *ra* inserted as opposed to the ordinary one, as *minai* `do not look at'
   corresponds to *miraN* and ?*miN*. If the verb is a `vowel /e/-final stem' verb and the
   number of the moras of the stem is no more than two, then its negative form is
   preferred to be one with *ra* inserted as opposed to the ordinary one, as *nenai* `do not
   sleep' corresponds to *neN* and *neraN*.

II. Prediction of Verb Forms in Word-based Morphology

There are two lines of theory in morphology: Morpheme-based Morphology and Word-
based Morphology. We will discuss what pattern of the verb forms can identify the

derivational and inflectional class that their paradigm belongs to, i.e., can be a predictor of the other forms in word-based theory, as discussed in several parts of Haspelmath and Sims (2010).

 The forms we are concerned with in this paper are the three verb forms, 1) adverbial forms, 2) non-past forms and 3) negative forms. What follows describes where the adverbial forms, the non-past forms and the negative form occur grammatically. First, the adverbial forms, or the present participle forms and the gerundive forms, occur

   1) as the theme verb of the desiderative forms like *yomi-ta-i* `want to read', *tabe-ta-i* `want to eat', *ki-ta-i* `want to come' and *si-ta-i* `want to do',

   2) as the theme verb of the honorific and humble forms like *o-yomi-ni naru* `graciously read', *o-tabe-ni naru* `graciously eat', *o-ki-ni naru cf. *irassharu* and *o-si-ni naru cf. *nasaru*, and

   in many other verb forms.[4]

The adverbial forms of the Tokyo dialect and those of the Ariake western Saga dialect are the same.

   Second, the non-past forms occur

   1) as the dictionary forms,

   2) sentence-finally,

   3) as the theme verb clause for the affixes like *to* for the Tokyo dialect and *gii* for the Ariake western Saga dialect `if' like *yomu-to* `if you read …,', *taberu-to* `if you eat …', *kuru-to* `if you come,' and *suru-to* `if you do …,', *yomu-gii, tabug-gii, kug-gii* and *sug-gii* and

   4) in many other verb forms, e.g., negative imperative forms and conjecture forms. In addition, the non-past forms are the `inputs' for the other forms, e.g., the /ba/-conditional forms, as, for example, formulated as [*Xu* [Vform non-past]] <-> [*Xeba* [Vform conditional]] `if X' in the Tokyo dialect.

        Third, the negative forms are the `inputs' to derive other forms, e.g., the negative conditional forms, as, for example, formulated as [*Xanai* [Vform negative]] `don't do X' <-> [*Xanakereba* [Vform negative conditional]] `if … don't do X, …' in the Tokyo dialect.

2.1 Whether Any Pattern of Verb Forms Alone Can be Predictor of Other Forms

No pattern of the verb forms alone can identify the derivational and inflectional class that the paradigms belong to, i.e., can be a predictor of the other patterns of the verb forms in the paradigms.

a. Adverbial Forms Alone as Predictor

The pattern of the adverbial forms alone cannot identify the derivational and inflectional class that the paradigm belongs to. For example, if an adverbial form takes the pattern *Xi*, then it alone cannot identify the derivational and inflectional class that the paradigm belongs to. Its non-past form, for example, cannot be uniquely determined, or is either *Xu* of the C-final class, *Xiru* of the /i/-final class or *Xuru* of the multiple stem classes in the Tokyo dialect. This holds true in the Ariake western Saga dialect.

Stem Type	Adverbial Forms	Non-past Forms
C-Final	*Xi* (e.g., *aki* `opening')	*Xu* (*aku*)
Vowel /e/-Final	*Xe*	*Xeru*; *Xuʔ*
Vowel /i/-Final	*Xi* (e.g., *aki* `being tired')	*Xiru*; *Xiʔ* (*akiru; akiʔ*)
Two Stems, `come'	*Ki*	*kuru*; *kuʔ*
Two Stems, `do'	*Si*	*suru*; *suʔ*

Table 2: The Morphological Schemes of Three Verb Forms[5]

Specifically, if the adverbial form is *aki*, then its non-past form cannot be uniquely determined, or is either *aku* `open', which is a consonant-final stem verb, or *akiru* `get tired', which is a vowel /i/-final stem verb.[6] The finding is similar to the fact in the Latin nouns that the nominative singular alone cannot identify the inflectional class that the paradigm of the Latin noun belongs to (Haspelmath and Sims 2010: 167).

b. Non-past Forms Alone as Predictor

The pattern of the non-past forms alone cannot identify the derivational and inflectional class that the paradigms belong to, either. For example, if the non-past form takes the pattern *Xiru* for the Tokyo dialect and *Xiʔ* for the Ariake western Saga dialect, it alone cannot identify the derivational and inflectional class that the paradigms belong to. Its adverbial form, for example, cannot be uniquely determined, or is either *Xi* of the vowel /i/-final stem paradigm or *Xiri* of the consonant-final stem paradigm. If the non-past form is specifically *kiru* for the Tokyo dialect and *kiʔ* for the Ariake western Saga dialect, its adverbial form is either *ki* `wearing', which is a vowel /i/-final stem verb, or *kiri* `cutting', which is a consonant-final stem verb.

Stem Type	Non-past Forms	Adverbial Forms
C-Final	*Xu* (e.g., *kaeru* `return', *nuʔ* `paint', *kiru/kiʔ* `cut'; *kuru/kuʔ* `turn'; *suru/suʔ* `scratch')	*Xi* (*kaeri, nuri, kiri, kuri, suri*)
Vowel /e/-Final	*Xeru* (e.g., *kaeru* `change'); *X(j)uʔ* (*nuʔ* `sleep')	*Xe* (*kae, ne*)
Vowel /i/-Final	*Xiru*; *Xiʔ* (e.g., *kiru* `wear')	*Xi* (*ki*)
Two Stems, `come'	*kuru*; *kuʔ* (*kuru/kuʔ*)	*Xi* (*ki*)
Two Stems, `do'	*suru*; *suʔ* (*suru/suʔ*)	*Xi* (*si*)

Table 3: The morphological schemes of the three verb forms

c. Negative Forms Alone as Predictor

The pattern of the negative forms alone cannot identify the derivational and inflectional class that the paradigms belong to, either. <u>Tokyo Dialect</u>: If the negative form takes the pattern *Xinai*, it alone cannot identify the derivational and inflectional class that the paradigms belong to. Its non-past form cannot be uniquely determined, or is either *Xiru* of the vowel /i/-final stem paradigm or *Xuru* of the multiple stem *s/si* paradigm. For example, if the negative form is *kisinai*, its non-past form can be either *kisuru* `attribute', the head of which is the multiple stem *s/si* verb, or *kisiru* `squeak', which is a vowel /i/-final stem verb. <u>Ariake western Saga Dialect</u>: If the negative form is *XiraN*, its adverbial form is not uniquely determined, or is either *Xi* of the vowel /i/-final stem paradigm or *Xiri* of the consonant-final stem paradigm. For example, if the negative form is *kiraN*, then its adverbial form is either *ki* `wearing', which is a vowel /i/-final stem verb, or *kiri* `cutting', which is a consonant-final stem verb.

Stem Type	Negative Forms	Non-past Forms
C-Final	*Xanai*; *XaN* (*seraN* `not compete'; *kiraN* `not cut')	*Xu* (*seʔ, kiʔ*)

Vowel /e/-Final	*Xenai*; *XeN, XeraN* (**seN*, **seraN*)	*Xeru* (*kae, ne*); *Xu?*
Vowel /i/-Final	*Xinai* (e.g., *kisinai* `make sounds'); *XiN, XiraN* (*kiN, kiraN* `not wear')	*Xiru* (*kisiru*); *Xi?*
Two Stems, `come'	*konai*; *koN* (*kuru/ku?*)	*kuru* (*ki*); *ku?*
Two Stems, `do'	*sinai* (*kisinai* `attribute'); *seN* (*seN*)	*suru* (*si*); *su?*

Table 4: The morphological schemes of the three verb forms

2.2 Whether Any Pair of Patterns of Verb Forms Alone can be Predictor of Other Forms

Some pair of patterns of the verb forms can identify the derivational and inflectional class that the paradigms belong to, i.e., can be a predictor of the other forms.

a. Pair of Non-past Forms and Negative Forms Alone as Predictor

The pair of the patterns of the non-past forms and the negative forms alone can identify the derivational and inflectional class that the paradigms belong in the Tokyo dialect, whereas they alone CANNOT in the Ariake western Saga dialect, as both will be discussed below.

Tokyo Dialect: There are four possibilities in which one non-past form takes two or more patterns of paradigms, for example, the non-past form *kaeru* takes the patterns of *Xu* of the consonant-final stem paradigm and *Yeru* of the vowel /e/-final stem paradigm: 1) **Xu** and **Yeru**, 2) **Xu** and **Yiru**, 3) **Xu** and **kuru** and 4) **Xu** and **suru**, where the symbols *X* and *Y* are different variables.

     1) If a non-past form takes the pattern **Xeru** of the vowel /e/-final stem paradigm, then it can also take the pattern **Yu** of the consonant-final stem paradigm. Then, its negative form will be either **Xenai** of the vowel /e/-final stem paradigm or **Xeranai** of the consonant-final stem paradigm. If the non-past form takes the pattern

Xeru and the negative form takes the pattern *Xenai*, then its adverbial form will uniquely be determined to take the pattern *Xe* of the vowel /e/-final stem paradigm. If the non-past form takes the pattern *Xeru* and the negative form is *Xeranai*, then the adverbial form is *Yeri* of the consonant-final stem paradigm.

Stem Type	Non-past Forms	Negative Forms	Adverbial Forms
C-Final	*Xu* (e.g., *kiʔ*)	*Xanai*; *XaN* (*kiraN*)	*Xi* (*kiri*)
Vowel /e/-Final	*Xeru*; *Xuʔ*	*Xenai*; *XeN*, *XeraN*	*Xe*
Vowel /i/-Final	*Xiru*; *Xiʔ (kiʔ)*	*Xinai*; *XiN*, *XiraN* (*kiran*)	*Xi* (*ki*)
Two Stems, `come'	*kuru*; *kuʔ*	*konai*; *koN*	*ki*
Two Stems, `do'	*suru*; *suʔ*	*sinai*; *seN*	*si*

Table 5: The morphological schemes of the three verb forms

 2) If the non-past form takes the pattern *Xiru* of the vowel /i/-final stem paradigm, then it can also take the pattern *Yu* of the consonant-final stem paradigm. Then, its negative form will be either *Xinai* of the vowel /i/-final stem paradigm and *Xiranai* of the consonant-final stem paradigm. If the non-past form takes the pattern *Xiru* and the negative form takes the pattern *Xinai*, then its adverbial form will uniquely be determined to take the pattern *Xi* of the vowel /i/-final stem paradigm. If the non-past form takes the pattern *Xiru* and the negative form is *Xiranai*, then the adverbial form will uniquely be determined to take the pattern *Xiri* of the consonant-final stem paradigm.

 3) If a non-past form is *kuru*, then its negative form is either *konai* of the multiple stem *k/ko* paradigm or *kuranai* of the consonant-final stem paradigm. If the non-past form takes the pattern *kuru* and the negative form takes the pattern *konai*, then its adverbial form will uniquely be determined to take the pattern *ki* of the multiple stem *k/ko* paradigm. If the non-past form takes the pattern *kuru* and the negative form is *kuranai*, then the adverbial form will uniquely be determined to take the pattern *kuri* of the consonant-final stem paradigm.

 4) If a non-past form is *suru*, then the negative forms will be *sinai* of the multiple

stem *s/si* paradigm and **suranai** of the consonant final stem paradigm. If the non-past form takes the pattern **suru** and the negative form takes the pattern **sinai**, then its adverbial form will uniquely be determined to take the pattern **si** of the multiple stem paradigm. If the non-past form takes the pattern **suru** and the negative form is **suranai**, then the adverbial form will uniquely be determined to take the pattern **suri** of the consonant final stem paradigm.

In all the four cases, if a pair of the non-past form and the negative form is determined, then its adverbial form will be uniquely determined in the Tokyo dialect. The patterns of the non-past forms and the negative forms alone thus identify the derivational and inflectional class that the paradigms belong to in the Tokyo dialect.

Ariake western Saga Dialect: On the other hand, the pair of the patterns of the non-past forms and the negative forms alone CANNOT identify the derivational and inflectional class that the paradigms belong to in the Ariake western Saga dialect. If a pair of the patterns of the non-past forms and the negative forms takes the pattern (*XiʔirP, XiraN*), then their adverbial forms cannot be uniquely determined, or are either **Xi** of the vowel /i/-final stem paradigm or **Xiri** of the consonant-final stem paradigm. For example, the paradigm of (**kiʔ, kiraN, ki**) is of the verb with the meaning of wear in the dialect, and the paradigm of (**kiʔ, kiraN, kiri**) is of the verb with the meaning of cut. Note that the negative form of the verb with the meaning of wear is **kiraN** as well as **kiN** in the Ariake western Saga dialect. The former **kiraN** is preferable, as seen in the table at the beginning of this paper.

b. Pair of Adverbial Forms and Negative Forms Alone as Predictor

The pair of the patterns of the adverbial form and the negative form alone CANNOT identify the derivational and inflectional class that the paradigms belong to either in the Tokyo dialect or in the Ariake western Saga dialect.

Tokyo Dialect: The pair of the patterns of the adverbial forms and the negative forms alone CANNOT identify the derivational and inflectional class that the paradigm belong to in the Tokyo dialect. If pairs of the adverbial forms and the negative forms take the pattern (*Xi, Xinai*), then their non-past forms cannot be uniquely determined, or are either **Xiru** of the vowel /o/-final stem paradigm or **Xuru** of the multiple stem *s/si* paradigm. For example, the paradigm of (**si, sinai, suru**) is of the verb with the meaning of do in the dialect, and the paradigm of (**si, sinai, siru**) is of the vowel /i/-final stem verb theoretically although the latter is not a word in the dialect.[7]

Stem Type	Adverbial Forms	Negative Forms	Non-past Forms
C-Final	*Xi*	*Xanai*; *XaN*	*Xu*
Vowel /e/-Final	*Xe*	*Xenai*; *XeN*, *XeraN*	*Xeru*; *Xuʔ*
Vowel /i/-Final	*Xi* (*si*)	*Xinai* (*sinai*); *XiN*, *XiraN*	*Xiru*; *Xiʔ*
Two Stems, `come'	*ki*	*konai*; *koN*	*kuru*; *kuʔ*
Two Stems, `do'	*si* (*si*)	*sinai* (*sinai*); *seN*	*suru*; *suʔ*

Table 6: The morphological schemes of the three verb forms

Ariake western Saga Dialect: The pair of the patterns of the adverbial forms and the negative forms alone CANNOT identify the derivational and inflectional class that their paradigms belong to in the Ariake western Saga dialect, either. If a negative form takes the pattern **seN**, then its adverbial form takes the pattern **si or se**. Then, their non-past forms will be **suʔ** of the paradigm of the multiple stem *s*/*se* verb and **suʔ** of the paradigm of the vowel /e/-final verb. The difference between the paradigms can be seen in the passive forms; *sareru* for the multiple stem *s/se* verb and *serareru* for the hypothetical `vowel /e/-final' stem verb.

c. Pair of Adverbial Forms and Non-past Forms Alone as Predictor

The pair of the patterns of the adverbial forms and the non-past forms alone can identify the derivational and inflectional class that the paradigms belong to both in the Tokyo dialect and the Ariake western Saga dialect.

Tokyo Dialect: There are five possibilities in which an adverbial form takes two or more patterns: 1) **Xi** of the consonant-final stem paradigm and **Xi** of the vowel /i/-final stem paradigm, 2) **ki** of the consonant-final stem paradigm and **ki** of the multiple stem paradigm, 3) **si** of the consonant-final stem paradigm and **si** of the multiple stem paradigm, 4) **ki** of the vowel /i/-final stem paradigm and **ki** of the multiple stem paradigm, 5) **si** of the vowel /i/-final stem paradigm and **si** of the multiple stem paradigm.

    1) If an adverbial form takes the patterns **Xi** of the consonant-final stem and

vowel /i/-final stem paradigms, their non-past forms will be *Xu* and *Xiru* in the Tokyo dialect. If the adverbial form takes the pattern *Xi* and the non-past form takes the pattern *Xu*, then the negative forms will uniquely be determined to take the pattern *Xanai* of the consonant-final stem paradigm. If the adverbial form takes the pattern *Xi* and the non-past form is *Xiru*, then the negative form is *Xinai* of the vowel-final stem paradigm.

Stem Type	Adverbial Forms	Non-past Forms	Negative Forms
C-Final	*Xi*	*Xu (X?)*	*Xanai*; *XaN*
Vowel /e/-Final	*Xe*	*Xeru*; *Xu?*	*Xenai*; *XeN, XeraN*
Vowel /i/-Final	*Xi*	*Xiru*; *Xi?*	*Xinai*; *XiN, XiraN*
Two Stems, `come'	*Ki*	*kuru*; *ku?*	*Xonai*; *XoN*
Two Stems, `do'	*Si*	*suru*; *su?*	*Xinai*; *XeN*

Table 7: The morphological schemes of the three verb forms

2) If an adverbial form takes the patterns *ki* of the multiple stem paradigm and *ki* of the consonant-final stem paradigm, the non-past form will be *kuru* of the multiple stem paradigm and *ku* of the consonant-final stem paradigm. If an adverbial form takes the pattern *ki* and the non-past form takes the pattern *kuru*, then its negative form will uniquely be determined to take the pattern *konai* of the multiple stem paradigm. If an adverbial form takes the pattern *ki* and the non-past form is *ku*, then the negative form will uniquely be determined to take the pattern *kanai* of the consonant-final stem paradigm.

3) If an adverbial form takes the patterns *si* of the multiple stem paradigm and *si* of the consonant-final stem paradigm, the non-past form will be *suru* of the multiple stem paradigm and *su* of the consonant-final stem paradigm. If an adverbial form takes the pattern *si* and the non-past form takes the pattern *suru*, then its negative form will uniquely be determined to take the pattern *sinai* of the multiple stem paradigm. If an adverbial form takes the pattern *si* and the non-past form is *su*, then the negative form will uniquely be determined to take the pattern *sanai* of the consonant-final stem

paradigm.

4) If an adverbial form takes the patterns *ki* of the multiple stem paradigm and *ki* of the vowel /i/-final stem paradigm, the non-past form will be *kuru* of the multiple stem paradigm and *kiru* of the vowel /i/-final stem paradigm. If an adverbial form takes the pattern *ki* and the non-past form takes the pattern *kuru*, then its negative form will uniquely be determined to take the pattern *konai* of the multiple stem paradigm. If an adverbial form takes the pattern *ki* and the non-past form is *kiru*, then the negative form will uniquely be determined to take the pattern *kinai* of the vowel /i/-final stem paradigm.

5) If an adverbial form takes the patterns *si* of the multiple stem paradigm and *si* of the vowel /i/-final stem paradigm, the non-past form will be *suru* of the multiple stem paradigm and *siru* of the vowel /i/-final stem paradigm. If an adverbial form takes the pattern *si* and the non-past form takes the pattern *suru*, then its negative form will uniquely be determined to take the pattern *sinai* of the multiple stem paradigm. If an adverbial form takes the pattern *si* and the non-past form is *siru*, then the negative form will uniquely be determined to take the pattern *sinai* of the vowel /i/-final stem paradigm.

<u>Ariake western Saga Dialect</u>: Since the differences in the adverbial forms and the non-past forms are only that the non-past forms ending with *ru* in the Tokyo dialect whereas those non-past forms the same except for the glottal stop replacing the final *ru* in the Ariake western Saga dialect. The discussions for the Tokyo dialect hold true for the Ariake western Saga dialect.

In all the five cases for the two dialects, if a pair of an adverbial form and a non-past form is determined, then its adverbial form will be uniquely determined. The pairs of the patterns of the non-past forms and the negative forms thus identify the derivational and inflectional class that the paradigms belong to. From the discussions in 2.2.1 to 2.2.3, only the pair of the patterns of non-past forms and adverbial forms can identify the derivational and inflectional class that the paradigms belong to, i.e., be a predictor of the other verb forms both in the Tokyo dialect and in the Ariake western Saga dialect.

III. Rules in Word-based Morphology

We will summarize what we found in the previous section in rules of word-based theory. The derivational and inflectional classes are formulated in the corresponding schemes of the forms like $\{Xi_{\text{[Vform adverbial]}}, Xu_{\text{[Vform non-past]}}, Xanai_{\text{[Vform negative]}}\}$ (or $\{(yomi, yomu, yomanai), (kaki, kaku, kakanai), \cdots\}$) for the paradigms of the verb forms of the

consonant-final stem verbs (Haspelmath and Sims 2010). As concluded in the previous section, what identifies the derivational and inflectional class that the paradigms belong to is the pair of the non-past forms and the adverbial forms. We can formulate the derivational and inflectional class of the consonant-final stem verbs as {*Xi*[Vform adverbial] & *Xu*[Vform non-past] -> *Xanai*[Vform negative]} for the set of the paradigms. The derivational and inflectional class is {(*Xi, Xu, Xanai*) | *Xi*[Vform adverbial] & *Xu*[Vform non-past] -> *Xanai*[Vform negative]}. The formula says that if some segment sequence satisfies *Xi* for its adverbial form and *Xu* for its non-past form like *yom*, then its negative form will be predicted by plugging the sequence to derive the negative form, as in *yom* plugged in *Xanai* to derive *yomanai*.

The four derivational and inflectional classes with the predictors specified in the Tokyo dialect are formulated as follows.

Tokyo Dialect

[Vform *adverbial*]		[Vform *non-past*]		[Vform *negative*]
Xi	&	*Xu*	->	*Xanai*
XV	&	*XVru*	->	*XVnai,* where V = *e* or *i*
ki	&	*kuru*	->	*konai*
si	&	*suru*	->	*sinai*

Since the predictor defines the derivational and inflectional class, all the other forms are also uniquely determined. For example, the passive forms are those as appearing in each paradigm as follows.

[Vform *adverbial*]		[Vform *non-past*]		[Vform *passive*]
Xi	&	*Xu*	->	*Xareru*
XV	&	*XVru*	->	*XVrareru,* where V = *e* or *i*
ki	&	*kuru*	->	*korareru*
si	&	*suru*	->	*sareru*

The five paradigms with the predictors specified in the Ariake western Saga dialect are formulated as follows.

Ariake western Saga Dialect

[Vform *adverbial*]		[Vform *non-past*]		[Vform *negative*]
Xi (*Yri*)	&	*Xu* (*Yʔ*)	->	*XaN* (*YraN*)

Xe	&	*Xuʔ*	->	*XeN, XeraN*
Xi	&	*Xiʔ*	->	*XiN, XiraN*
ki	&	*kuʔ*	->	*koN*
si	&	*suʔ*	->	*seN*

[Vform *adverbial*]	[Vform *non-past*]		[Vform *passive*]
Xi (*Yri*)	&	*Xu* (*Yʔ*)	->	*Xaruʔ* (*Yraruʔ*)
Xe	&	*Xuʔ*	->	*Xeraruʔ*
Xi	&	*Xiʔ*	->	*Xiraruʔ*
ki	&	*kuʔ*	->	*koraruʔ*
si	&	*suʔ*	->	*saruʔ*

The analysis of the word-based morphology of the verb forms in the Japanese dialects provides an explanation to how children acquire various verb forms. The suggestion is that the children identify the derivational and inflectional class that the paradigm of the verb belongs to through being exposed to the non-past form and the adverbial form, and then derive the other verb forms applying the correspondence rules between word schemes. This helps the second language learners of Japanese to acquire how to create word forms of verbs, which is perplexing to the learners.

However, the word-based morphology does not explain why these correspondence rules hold between word schemes if there is any reason for the derivational and inflectional endings. Since Japanese is an agglutinative language, lexical stems affix to verbs to create the verb forms. That is, most of the derivational and inflectional endings are articulated from their stems. Morpheme-based morphology can capture it. The appendix provides Koga's (*in review*; 2010; 2011; 2012a; 2012b) on-going research of verb forms in the Tokyo dialect and the Ariake western Saga dialect.

Conclusion

We observed the negative, non-past and adverbial of verbs in the Tokyo dialect and the Ariake western Saga dialect and the dialectal differences. We showed that no pattern of the verb forms alone can identify the derivational and inflectional class that the paradigms belong to in the Tokyo dialect or in the Ariake western Saga dialect, and further that a pair of the patterns of the non-past forms and the adverbial forms can identify the derivational and inflectional class that the paradigms belong to, i.e., can be a predictor of the other verb forms in the two dialects. The conclusion suggests an explanation to why the children acquire the language in a relatively short period of time. There is no

explanation to the correspondences between word schemes. The current study implies that some pair of the patterns of two forms in the paradigm identify the derivational or inflectional class that the paradigms belongs to. Dialects share the morphological generative property on what form identifies the derivational and inflectional class that the paradigm belongs to.

Acknowledgements

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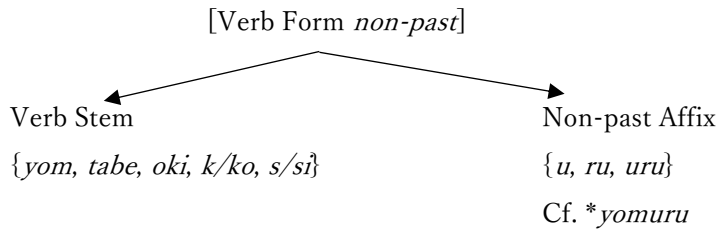
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Appendix: Derivation of Verb Forms in Morpheme-based Morphology

Koga and Ono (2010), Koga (2011; 2012a; 2012b; *in review*) are the on-going research that attempt to explain the non-past or negative forms of the Saga dialects.

1 Tokyo Dialect

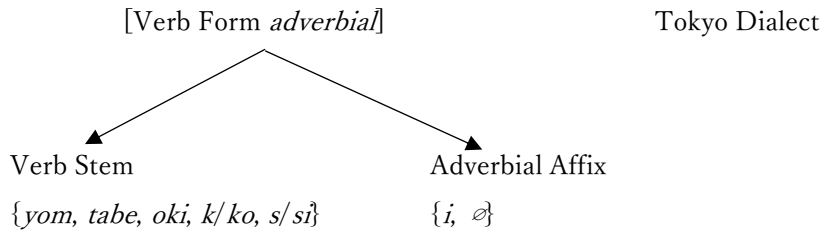The non-past affix combines with a verb stem to form a non-past form of the verb, as the affixation represented below.

[Verb Form *non-past*]

Verb Stem   Non-past Affix

{*yom, tabe, oki, k/ko, s/si*}   {*u, ru, uru*}

                                                     Cf. **yomuru*

The relevant constraints given below on the non-past forms of the verbs are:

1) Syllables have onsets (McCarthy 2008).

2) The longest allomorph /uru/ will be used only if the stem consists only of one consonant (Koga and Ono 2010).

3) Words must be heavier than one heavy syllable (Koga and Ono 2010).

4) The non-past affix selects the shorter allomorph of the stem (Koga 2012a).

The longest allomorph *uru* is created by the two allomorphs *u* and *ru*. The second constraint is stipulative (although it predicts the ungrammaticality of, for example, **yomuru* `read-Non-past').

The adverbial affix combines with a verb stem to produce an adverbial form. The allomorphs are *i* and the zero affix.

[Verb Form *adverbial*]   Tokyo Dialect

Verb Stem   Adverbial Affix

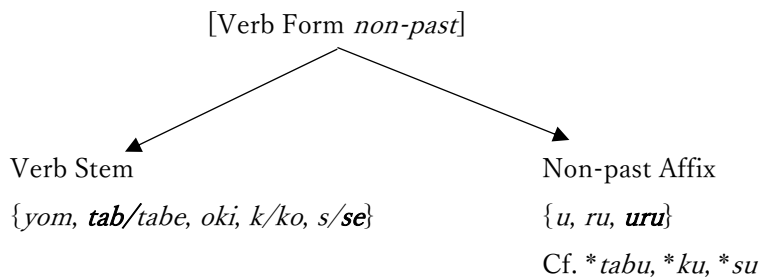{*yom, tabe, oki, k/ko, s/si*}   {*i,* ∅}

The adverbial affix selects the same allomorph of the stem as Koga's (2012a) core allomorph, which is the allomorph selected by the past affix.

The negative affix combines with a verb stem to produce a negative form.

[Verb Form *negative*]   Tokyo Dialect

Verb Stem   Negative Affix

{*yom, tabe, oki, k/ko, s/si*}   {*anai, nai*}
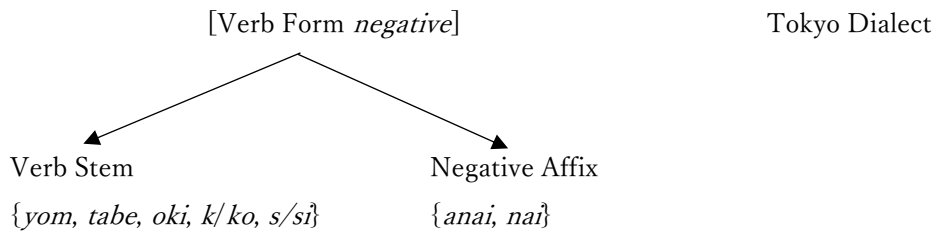
The negative affix selects the longer allomorph of the stem (Koga 2012a).

2 Ariake Western Saga Dialect

[Verb Form *non-past*]

Verb Stem   Non-past Affix

{*yom, **tab/**tabe, oki, k/ko, s/**se***}   {*u, ru,* ***uru***}

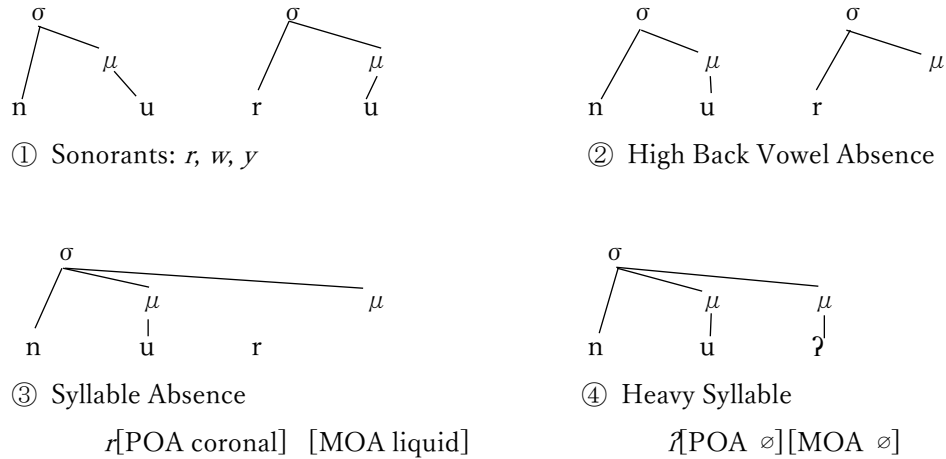   Cf. **tabu, *ku, *su*

Koga (2012a) attributes the ungrammaticality of **tabu* to the ungrammaticality of **nu,* which is explained by i) the violation of the prosodic minimality and ii) classification of them in the same derivational and inflectional class.
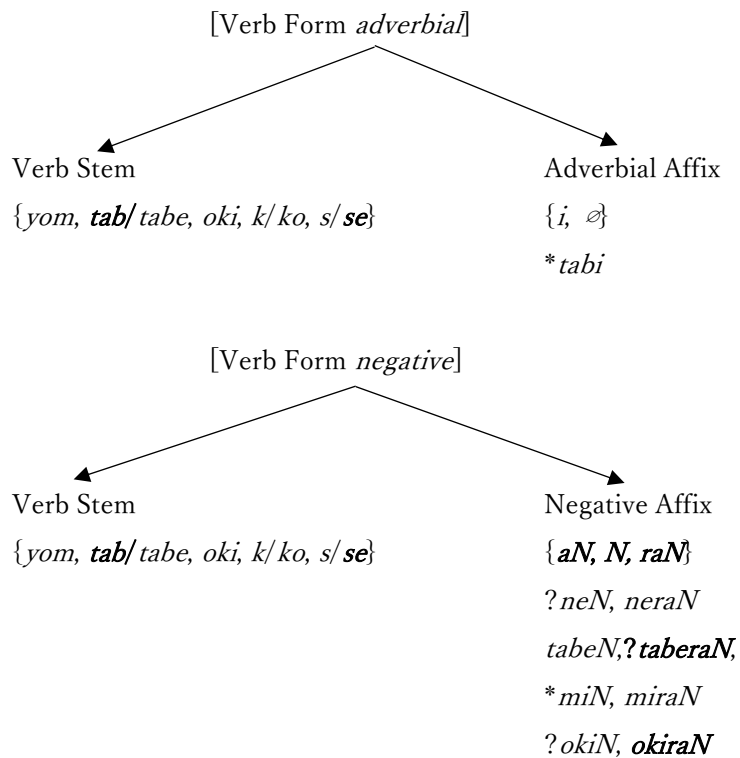
Underlying consecutive two light syllables [$_\sigma$ [C_1V_1] $_\sigma$ [C_2V_2]] may be pronounced as one heavy syllable with the last vowel unpronounced, $_\sigma$ [C_1V_1N] if $C_2 = n$ or $_\sigma$ [$C_1V_1ʔ$] if $C_2 = r$, as pointed out by Kubozono (1995), if the onset of the second syllable is a sonorant, for example, /r/.

See Yamada (1990) for syllabification of words in Japanese.

Compensation with the glottal stop:

① Sonorants: *r, w, y*   ② High Back Vowel Absence

③ Syllable Absence   ④ Heavy Syllable

r[POA coronal]　[MOA liquid]   *ʔ*[POA ∅][MOA ∅]

McCarthy (2008) explains the morpho-phonological differences adopting Hayes' (1989) syllable-moraic analysis.

[Verb Form *adverbial*]

Verb Stem   Adverbial Affix

{*yom, **tab**/ tabe, oki, k/ ko, s/ **se***}   {*i, ∅*}

                                     *tabi

[Verb Form *negative*]

Verb Stem   Negative Affix

{*yom, **tab**/ tabe, oki, k/ ko, s/ **se***}   {***aN, N, raN***}

                                    ?*neN, neraN*

                                    tabeN,?***taberaN***,

                                    **miN, miraN*

                                    ?*okiN,* ***okiraN***

The sonority difference between the nucleus and the coda must be bigger than that between *e*

and *n* (Koga 2012b), as exemplified in [σ [*aN*], ?[σ [*eN*] and *[σ [*iN*]:

Words with [Vform *negative*] must be heavier than one heavy syllable (Koga 2012b). The allomorph *ran* as in *miraN, neN*, is used only if the forms with *aN* and *N* are both ungrammatical, as in **miN*.

> Sonority Scale: *a* > {*e, o*} > {*i, u*} > n
>
> See Hayes (1989) for the syllable structures with moraic ones.
>
> See McCarthy (2016) for harmonic serialism in Optimality Theory.
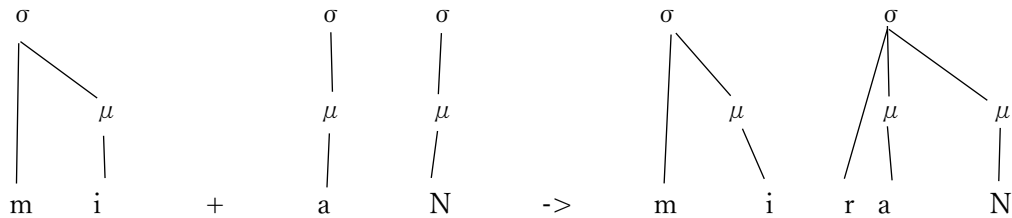
> Syllables have onsets.
>
> Liquid Emergence (Koga 2012b)

Chinese Compounds: [hakka] for /hat$_\mu$+ka/; [rakuteN] for /rak$_\mu$+ten/
The POA dorsal is marked, and the POA coronal is not marked (De Lacy (2006)). The POA dorsal must be preserved. On the other hand, the POA coronal can be absent. See Koga (in review) for how De Lacy (2006) works in the non-consonant cluster simplification.

Notes

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[1] The symbol ʔ is the glottal stop. There are phonological rules to have the effect of *ri* to *i* in the Ariake western Saga dialect, those to have the effect of *wu* to *u, tu* to *tsu, si* to *ʃi, wi* to *i, ti* to *ʧi, we* to *e, wo* to *o* in the Ariake western Saga dialect and the Tokyo dialect, and those to have the effect of some *ri* to *i* (e.g., *nasa(r)imasu*) in the Tokyo dialect.

	Tokyo Dialect			Ariake western Saga Dialect			
Stem Final Seg	Non-past	Adver-bial	Negative	Non-past	Adver-bial	Negative	Mean-ing

ment							
T	matu	mati	matanai	matu	mati	mataN	Wait
R	toru	tori	toranai	toʔ	tori/toi	toraN	Take
W	awu	awi	awanai	awu	awi	awaN	Meet
N	sinu	sini	sinanai	sinu	sini	sinaN	Die
M	yomu	yomi	yomanai	yomu	yomi	yomaN	Read
B	yobu	yobi	yobanai	yobu	yobi	yobaN	Call
K	oku	oki	okanai	oku	oki	okaN	Put
G	kagu	kagi	kaganai	kagu	kagi	kagaN	Smell
S	osu	osi	osanai	osu	osi	osaN	Push
E; E/N	neru	ne	nenai	nuʔ	ne	neraN/neN	Sleep
E; E/B	taberu	tabe	tabenai	tabuʔ	tabe	tabeN	Eat
I	miru	mi	minai	miʔ	mi	miraN/ʔmiN	Look at
I	okiru	oki	okinai	okiʔ	oki	okiraN/okiN	Get up
K/O	kuru	ki	konai	kuʔ	ki	koN	Come
S/I; S/E	suru	si	sinai	suʔ	si	seN	Do

[2] See Haspelmath and Sims (2010), for example, p. 158 for motivations for paradigms in the architecture of grammar.

[3] The negative morpheme of the Old Japanese is *nu*. The syllabic nasal N in the Ariake western Saga dialect seems to result from the apocope of *nu* and the preserved mora associating only with the nasal.

[4] The honorific form does not allow the theme verb in the gerundive form to be equal to or less than one mora.

[5] The symbols *X;Y* concerning data in the tables in the current paper means *X* in the Tokyo dialect and *Y* in the Ariake western Saga dialect.

[6] If there were a pause between *a* and *ki*, then the last form might mean *ki* `come'. Then, *a kuru* would be theoretically possible additionally.

[7] The fact that the lexicon of the dialect does not possess the word is just accidental since the vowel /i/-final stem verb *kisiru* `squeak' exists, as given previously.