

On the morphological status of *-te*, *-ta*, and related forms in Japanese: Evidence from accent placement

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Abstract The morphological structure of Japanese predicate forms with the morphemes /te/, /ta/, /tara/, /tari/, and /taQte/ (the *t*-morphemes), has been a point of contention. Modern grammarians have tended to consider the *t*-morphemes as inflectional affixes that directly follow the stem (the “attachment-to-stem” analysis). On the other hand, in the current school grammar (*gakkoo bunpoo*), as well as in some contemporary scholarly works, they are regarded as particles or the like following the infinitive form (*ren’yookei*) of a predicate (the “attachment-to-infinitive” analysis). This paper argues for the second view. With experimental data, it will be demonstrated that a *t*-morpheme may be separated from its host (the preceding item) by an accent phrase boundary with the host having the accent pattern expected for an infinitive form, whereas inflectional affixes like /reba/ (provisional) and /ru/ (present indicative) lack this property. This prosodic contrast agrees well with the “attachment-to-infinitive” analysis, while it is hard to account for under the “attachment-to-stem” analysis.

Key Words: Japanese morphology, predicate paradigms, accent, particles, inflectional affixes

1. Introduction

The morphological treatment of Japanese predicate forms with the morphemes /te/, /ta/, /tara/, /tari/, and /taQte/ (henceforth the *t*-morphemes),¹ has been a point of contention.

Modern grammarians have tended to consider the *t*-morphemes as inflectional affixes that directly follow the stem (the “attachment-to-stem” analysis; Bloch 1946; Teramura 1984; Suzuki 1996; Narrog 1998; Tsujimura 2007, among others). On the other hand, in the current school grammar (*gakkoo bunpoo*), as well as in some contemporary scholarly works (Martin 1967; Shibatani 1990; Rickmeyer 1995; Iwasaki 2002; Bekki 2010), they are regarded as particles or the like which follow the infinitive form (*ren'yookei*) of a predicate (the “attachment-to-infinitive” analysis). This paper argues for the second, attachment-to-infinitive analysis.

Section 2 provides an overview of the two major lines of analyses of the *t*-morphemes (the attachment-to-stem/attachment-to-infinitive analyses). Section 3 presents a version of the attachment-to-infinitive analysis, where the five *t*-morphemes are considered monomorphemic particles.

Section 4 provides evidence for the attachment-to-infinitive analysis based on phonological grounds. It will be pointed out that a *t*-morpheme may be separated

¹ Throughout the paper, Japanese expressions will be transcribed in the following way. In the text, individual expressions are referred to by a phonemic representation put between slashes, where /H/, /Q/, and /N/ represent “special phonemes”; /H/ lengthens the preceding vowel, /Q/ geminates the subsequent obstruent, and /N/ is realized as a syllable-final nasal. Lexemes are referred to by labels in small capitals. Example sentences are transcribed in the Hepburn Romanization style with minor modification.

from its host (the preceding element) by an accent phrase boundary with the host having the accent pattern expected for an infinitive form, whereas inflectional affixes like /reba/ (provisional) and /ru/ (present indicative) lack this property. This contrast agrees well with the proposed analysis, but is hard to account for under the competing attachment-to-stem analysis.

Section 5 presents experimental evidence that predicate forms with a *t*-morpheme indeed have the discussed tonal property. Section 6 discusses some ramifications of the presented argument on the general issue of how the accent patterns of verb forms are determined.

Clarification of the terms “inflection” (*kussetsu* in Japanese) and “conjugation” (*katsuyoo*) will be necessary before we proceed, as they have been used in different ways by different authors (see Booij 2007; Dixon 2010; Haspelmath and Sims 2010 for overviews). The term inflection will refer to the morphological process whereby a lexeme (lexical entry) is realized as word-forms which carry systematically contrasting functions/meanings and are formally differentiated by such means as affixation and vowel alternations. Inflection is a one-time process, in the sense that an inflected word-form cannot be further inflected; it contrasts with derivation, which is a process where one lexeme is produced out of another and which can be recursively applied (a derived lexeme can further be derived into another lexeme). Inflection subsumes conjugation and declension, which are respectively concerned with predicates and nominals (i.e., conjugation and declension are subtypes of inflection). The term “ending” will be assumed to be synonymous with inflectional suffix. The term “paradigm” will refer to the collection of all inflected forms of a given lexeme.

2. Overview of the previous analyses

2.1. Basic facts

The forms /te/, /ta/, /tara/, /tari/, and /taQte/ are a major factor contributing to irregularity in Japanese predicate morphology. Only in combination with these forms, the stem of a Type I verb (consonant-final verb) undergoes a sound change. Forms of the verb KAKU ‘write’, for example, all begin with the string /kak/, except when combined with a *t*-morpheme. This is illustrated in Table 1, with the labeling terms adopted in the current work and used in Bloch (1946).²

² Bloch (1946) does not discuss /taQte/.

Table 1 Forms of KAKU with and without a *t*-morpheme

terms in the current work		Bloch's terms
some forms of KAKU without a <i>t</i> -morpheme		
/kaku/	present indicative	non-past indicative
/kaki/	infinitive	infinitive
/kake/	imperative	imperative
/kakeba/	provisional	provisional
/kakoH/	presumptive	non-past presumptive
forms of KAKU with a <i>t</i> -morpheme		
/kaita/	past indicative, or <i>ta</i> -form	past indicative
/kaite/	gerund, or <i>te</i> -form	gerund
/kaitara/	conditional, or <i>tara</i> -form	conditional
/kaitari/	representative, or <i>tari</i> -form	alternative
/kaitaQte/	concessive conditional, or <i>tatte</i> -form	—

With a Type II verb (vowel-final verb), such as AKERU ‘open’, or an irregular verb (SURU ‘do’ or KURU ‘come’), a form with a *t*-morpheme is string-identical with the concatenation of the infinitive form and the *t*-morpheme (e.g., the infinitive /ake/ and the past indicative /aketa/).

Based on the described morphophonological property, the five forms can be reasonably regarded as a natural class. Scholars such as Bloch (1946) and Teramura (1984) also include /taroH/ (past presumptive; as in /kaitaroH/) in this class, treating it as monomorphemic. In line with such works as Sunakawa et al. (1998) and Takahashi et al. (2005), however, I will consider /taroH/ to be a contracted form of the sequence of the past marker /ta/ and the presumptive

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auxiliary /*daroh*/ (e.g., /*kaitadaroH*/ → /*kaitaroH*/); whether one adopts this position or not is not directly relevant to the argument to be developed.

It is widely agreed that /*ta*/, /*tara*/, and /*tari*/ etymologically originate in the sequence of /*te*/ and a form of the archaic existential verb *ARI* (Yamaguchi and Akimoto 2001: 458; Frellesvig 2010: 103–105, 332–333). It is said that /*taQte*/ began to be used in the Edo period, originating in the sequence of /*ta*/ and the now archaic conjunctive particle /*tote*/, the latter of which originates in the sequence of /*to*/, a quotative particle, and /*itte*/, the *te*-form of *IU* ‘say’ (Yamaguchi and Akimoto 2001: 444). Contemporary grammarians, however, generally treat /*ta*/, /*tara*/, /*tari*/, and /*taQte*/ (in the present-day grammar) as monomorphemic, and I too adopt this view.

Usage of the five *t*-morphemes is exemplified in (1)–(5).³

(1) /*ta*/ (past indicative)

Hiroshi-ga tegami-o kaita.

H.-NOM letter-ACC (write)

‘Hiroshi wrote a letter.’

³ The abbreviations used in the glosses are: ACC = accusative, ATTR = attributive, AUX = auxiliary, COMP = complementizer, DAT = dative, DP = discourse particle (sentence-final particle), GEN = genitive, INF = infinitive, IPFV = imperfective, NEG = negative, NOM = nominative, PROV = provisional, PRS = present indicative, PST = past indicative, Q = question particle, QUOT = quotative particle, TOP = topic.

(2) /te/ (gerund)

Hiroshi-wa tegami-o kaitete tokan-shita.

H.-TOP letter-ACC (write) drop.into.mailbox-PST

‘Hiroshi wrote a letter and dropped it into a mailbox.’

(3) /tara/ (conditional)

Hiroshi-ga tegami-o kaitara Yumi-wa yorokobu-daroo.

H.-NOM letter-ACC (write) Y.-TOP rejoice.PRS-probable

‘Yumi will probably be delighted if Hiroshi writes her a letter.’

(4) /tari/ (representative)

Hiroshi-wa tegami-o kaitari denwa-o kaketari shiteita.

H.-TOP letter-ACC (write) phone-ACC (call) do.IPFV.PST

‘Hiroshi was doing such things as writing letters and making phone calls.’

(5) /taQte/ (concessive conditional)

Hiroshi-ga tegami-o kaitatte, Yumi-wa konai-daroo.

H.-NOM letter-ACC (write) Y.-TOP come.NEG.PRS-probable

‘Yumi will probably not come even if Hiroshi writes her a letter.’

Type I verbs can be classified into five classes, depending on the patterns of sound change occurring when they are combined with a *t*-morpheme; for convenience, I will refer to the five classes as Classes (i)–(v) (Table 2).⁴

⁴ The labels Class (i), Class (ii), etc., are not part of the established terminology, and introduced by the current author for convenience.

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Table 2 Five classes of Type I verbs

	present	infinitive	past	gerund
	indicative		indicative	
(i) KASU ‘lend’, etc.	/kasu/	/kasi/	/kasita/	/kasite/
(ii) KAKU ‘write’, etc.	/kaku/	/kaki/	/kaita/	/kaite/
(iii) OYOGU ‘swim’, etc.	/oyogu/	/oyogi/	/oyoida/	/oyoide/
(iv) NORU ‘ride’, etc.	/noru/	/nori/	/noQta/	/noQte/
(v) NOMU ‘drink’, etc.	/nomu/	/nomi/	/noNda/	/noNde/

Classes (i)-(v) can easily be distinguished by looking at the last consonant in their present indicative or infinitive form. For Class (i) verbs, it is /s/. For Class (ii), it is /k/.⁵ For Class (iii), it is /g/. For Class (iv), it is /r/, /t/, or /w/. For Class (v), it is /b/, /m/, or /n/. When combined with verbs of Class (iii) or (v), the *t*-morphemes themselves undergo a sound change process whereby their initial consonant becomes voiced.

In connection with the conjugation of adjectives (e.g., AKAI ‘(be) red’), /te/ and /taQte/ on the one hand and /ta/, /tara/, and /tari/ on the other behave differently, requiring the preceding string to be /ku/ and /kaQ/, respectively (Table 3). Under the assumption that the *t*-morphemes follow the infinitive form, /ta/, /tara/, and /tari/ may be regarded as a cause of irregularity.

⁵ IKU ‘go’ exceptionally belongs to Class (iv).

Table 3 Forms of the adjective AKAI

some forms of AKAI without a <i>t</i> -morpheme	
/akai/	present indicative
/akaku/	infinitive
forms of AKAI with /te/ and /taQte/	
/akakute/	gerund
/akakutaQte/	concessive conditional
forms of AKAI with /ta/, /tara/, and /tari/	
/akakaQta/	past indicative
/akakaQtara/	conditional
/akakaQtari/	representative

The *t*-morphemes /ta/, /tara/, and /tari/ (but not /te/ and /taQte/) also occur with the copula DA and nominal adjectives (Narrog 1998; Nishiyama 1999). In this work, however, I will concentrate on the verb and adjective forms.

2.2 The “attachment-to-stem” analysis

Many grammarians consider the *t*-morphemes inflectional affixes (Bloch 1946; Teramura 1984; Suzuki 1996; Narrog 1998; Tsujimura 2007, among others). Teramura (1984), building on Bloch (1946), proposes the verbal and adjectival paradigms summarized in Table 4.⁶ (Note that the negative affix /(a)na/, the

⁶ Teramura does not use special phonemes /H/, /Q/, and /N/ in his (at least partly phonemic) representation; this point has little empirical bearing on the discussion.

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passive affix */(r)are/*, the causative affix */(s)ase/*, etc., are considered derivational affixes and thus are not included.)

Table 4 Paradigms in Teramura (1984)

mood	predicate type	basic endings	<i>ta</i> -series endings
indicative	Type I verb	/u/	/ta/~da/
	Type II verb	/ru/	/ta/
	Adjective	/i/	/katta/
presumptive	Type I verb	/oo/	/taroo/~daroo/
	Type II verb	/yoo/	/taroo/
	Adjective	/karoo/	/kattaroo/
imperative	Type I verb	/e/	—
	Type II verb	/ro/	—
	Adjective	—	—
conditional	Type I verb	/eba/	/tara/~dara/
	Type II verb	/reba/	/tara/
	Adjective	/kereba/	/kattara/
suspensive	Type I verb	/i/	/te/~de/, /tari/~dari/
	Type II verb	∅	/te/, /tari/
	Adjective	/ku/	/kute/, /kattari/

In Teramura's analysis, the *t*-morphemes are considered verbal inflectional endings that form a class called the “*ta*-series endings (*ta-kei gobi*)” (note that he includes /taroH/ and does not consider /taQte/).⁷ When combined with a Type I

⁷ Considering that the functions carried by the *tari*-form and the *tatte*-form (exemplification and

verb stem (ending with a consonant other than /t/), a *ta*-series ending causes a phonological change on the stem, following the patterns summarized in Table 5. As Teramura (1984: 46) himself notes, this is roughly equivalent to saying that most Type I verbs have two variant forms of the stem, e.g., the basic /kak/ and the variant /kai/ for KAKU (see also Suzuki 1972, 1996).

Table 5 Morphophonological rules postulated by Teramura (1984)

-k	KAKU 'write'	/kak/+/ta/ → /kaita/
-s	KASU 'lend'	/kas/+/ta/ → /kasita/
-r	NORU 'ride'	/nor/+/ta/ → /notta/
-w	KAU 'buy'	/kaw/+/ta/ → /katta/
-t	TATSU 'stand'	/tat/+/ta/ → /tatta/
-g	OYOGU 'swim'	/oyog/+/ta/ (→ /oyogda/) → /oyoida/
-m	NOMU 'drink'	/nom/+/ta/ (→ /nomda/) → /nonda/
-n	SINU 'die'	/sin/+/ta/ → /sinda/

In Teramura's system (as well as Bloch's), /te/, /ta/, etc., occurring as part of adjective forms are treated as subparts of monomorphemic endings such as /kute/ and /katta/. One may alternatively postulate that the *t*-morphemes serve as inflectional endings for adjectives too, and that they cause a phonological change of the stem whereby the string /ku/ or /kat/ (/kaQ/) is inserted (Table 6).

concessive conditionality, respectively) are rarely, if ever, inflectionally expressed across languages, one may find it more plausible to recognize only /te/, /ta/, and /tara/ as inflectional affixes and to treat /tari/ and /taQte/ as particles or the like. Note that, under this option, one must postulate /te/, /ta/, and /tara/ on the one hand and /tari/ and /taQte/ on the other trigger the same morphophonological processes despite belonging to different morphological categories.

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Table 6 Two possible analyses of adjective forms

	Teramura (1984)	alternative analysis
basic indicative	/aka+/i/	(same)
basic suspensive	/aka+/ku/	(same)
<i>ta</i> -series indicative	/aka+/katta/	/aka+/ta/ → /akakatta/
<i>ta</i> -series presumptive	/aka+/kattaroo/	/aka+/taroo/ → /akakattaroo/
<i>ta</i> -series conditional	/aka+/kattara/	/aka+/tara/ → /akakattara/
<i>ta</i> -series suspensive	/aka+/kute/	/aka+/te/ → /akakute/
	/aka+/kattari/	/aka+/tari/ → /akakattari/

2.3. The “attachment-to-infinitive” analysis

Some scholars, including Martin (1967), Shibatani (1990), Rickmeyer (1995), Iwasaki (2002), and Bekki (2010), regard the *t*-morphemes as following an infinitive form (*ren'yookai*), i.e., the same grammatical unit as the one boldfaced in (6).⁸

- (6) *Hiroshi-wa tegami-o **kaki** tookan-shita.*
 H.-TOP letter-ACC write.INF drop.into.mailbox-PST
 ‘Hiroshi wrote a letter and dropped it into a mailbox.’

This view is also present in the current school grammar, which is based on Shinkichi Hashimoto’s work in the early 20th century and has its root in classical grammar developed in the period between the late 18th century and the early 19th

⁸ This form has been given various labels; e.g., basic suspensive form (Teramura 1984); adverbial form (Shibatani 1990), verb base (Rickmeyer 1995).

century by scholars such as Tojo Gimon (Gimon 1844; Hashimoto 1948; Shibatani 1990; Suzuki 1996).⁹

Under this line of analysis, irregularity in *te*-forms, *ta*-forms, etc., of Type I verbs are attributed to morphophonological processes whose inputs involve an infinitive form (e.g., /kak/+i/+te/ → /kaite/; see Section 3 for a more systematic presentation).

If the *t*-morphemes follow an inflected form, they are likely not to be derivational affixes (universally there is a strong tendency that inflection is expressed at the periphery of words, while derivation is expressed close to the root; see, e.g., Haspelmath and Sims 2010: 95). They cannot be inflectional affixes either, if one assumes, in line with Teramura, Suzuki, Rickmeyer, etc., that each inflected form contains at most one inflectional affix. One plausible candidate for the category of *t*-morphemes is “particles”, although some may wish to avoid this label because of its wastebasket-like character (see Section 3 for discussion).

2.4. Comparison of the two analyses

It is widely acknowledged that at an earlier stage of the Japanese language the *t*-morphemes (or their etymological origins) are attached to the infinitive form (e.g., Watanabe 1997: 78–93).¹⁰ Thus, the attachment-to-stem analysis amounts to

⁹ In the school grammar, /te/, /tari/, /taQte/ are regarded as particles while /ta/ and /tara/ are regarded as inflected forms of an auxiliary.

¹⁰ Martin (1987: 191–192) discusses evidence that /te/ was accentually separated from its host (= the infinitive form) in 11th-century Kyoto Japanese.

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saying that the morphological distribution (position) of the *t*-morphemes has changed at some point.

I believe that this hypothesis is sensible and worth thorough consideration. To my knowledge, however, no convincing argument has been presented in the literature that favors it over the competing hypothesis that the *t*-morphemes (still) follow an infinitive form. One may find it appealing to postulate similar structures for the present indicative form and the past indicative form, or for the provisional form and the conditional form, which have comparable functions and largely overlapping distributions. The fact must not be overlooked, however, that cross-linguistically it is not rare for one form to be realized inflectionally while another form with a similar or minimally contrasting function is realized analytically; such states are called *categorial periphrasis* (Haspelmath 2000: 660–661). To give an example, modern colloquial French has conjugated forms for “present” and “imperfective past”, while it uses a phrase consisting of an auxiliary verb and a past participle to express “perfective past” (labeled “*passé composé*/compound past” in reference grammars), which historically superseded a conjugated form (“*passé simple*/simple past”). To give another, in English, the perfective past is expressed by a single inflected form, while the imperfective (progressive) past is expressed by a combination of an auxiliary verb (*be*) and a participle (e.g., *walked* vs. *was walking*; note that in many related languages, such as Modern Greek, the analogous distinction is coded by inflection alone). There is thus no a priori reason to assume that the present and past indicative forms, or the provisional and conditional forms, in Japanese must have parallel structural make-ups.

In the next section onward, I will argue that the *t*-morphemes follow an infinitive form, rather than a stem. I will assume that Teramura’s “basic endings” for verbs are indeed inflectional affixes and furthermore they constitute a nearly

complete list of verbal inflectional affixes (see Section 7 for what is missing from the list). I will also follow him, as well as Suzuki (1992, 1996), Narrog (1998), and Iwasaki (2002), in accepting the premise that a predicate form contains at most one inflectional affix.

It must be noted, however, that the main claim of the current work is not dependent on these assumptions. My main aim is to establish that the structural analysis (7a) is more appropriate than the one in (7b) for the underlying representation of a verb form with a *t*-morpheme; determining the exact morphological category (categories) of the *t*-morphemes and the exact structural make-up of the infinitive form is of secondary concern.

- (7) a. [V_{infinitive} + *t*-morpheme]
 b. [V_{stem} + *t*-morpheme]

If one, departing from Teramura, takes the view that a predicate may be combined with more than one inflectional affix (a cluster of inflectional affixes), or considers /i/ and \emptyset to be *derivational* affixes (as in Iwasaki 2002), then it will be possible to treat *t*-morphemes as inflectional affixes, and to maintain structural analyses along the lines of (8b) or (8c), rather than (8a).

- (8) a. [[/kak/ ('write'; stem) + /i/ (infl. affix)] + /te/ (particle)]
 b. [[/kak/ ('write'; stem) + /i/ (infl. affix)] + /te/ (infl. affix)]
 c. [[/kak/ ('write'; stem) + /i/ (der. affix)] + /te/ (infl. affix)]

The argument to follow is compatible with any of the structural analyses shown in (8a–c).

3. Proposal

This section presents a version of the attachment-to-infinitive analysis of *t*-morphemes where they are treated as particles. As a preliminary, I will make some clarifications regarding the definition of the category called particles.

3.1. Particles

The delimitation and taxonomy of particles have been subject to extensive debates in the literature; one possible classification is provided in (9):

(9) *typically attached to nouns*

(i) case particles (*kaku joshi*): /ga/, /o/, /ni/, /made/, etc.

(ii) conjoining particles (*heiritsu joshi*): /to/, /ya/, /ka/, etc.

(iii) focus particles (*toritate joshi*): /wa/, /mo/, /sae/, /dake/, etc.

attached to clauses

connective particles (*setsuzoku joshi*): /to/, /ga/, /kara/, /keredo/, etc.

attached to utterance units

discourse particles (*shuu joshi*): /yo/, /ne/, /ka/, /mono/, etc.

Particles are often regarded as clitics, a morphological unit that is not as independent as a word but is not as tightly bound as an affix (see Vance 1993 and references therein; see also Halpern 2001 for general discussion of clitics).¹¹

¹¹ Vance argues that at least some classes of particles are better treated as words rather than clitics.

There is room for debate as to whether particles form a coherent grammatical category. One might find it implausible, for example, to treat “case particles” and “connective particles” as subtypes of the same grammatical category, and rather opt to assign them entirely distinct labels such as adpositions (for the former) and bound connectives (for the latter).

The main reason I treat the *t*-morphemes as particles, rather than affixes, is that they follow an inflected form (under the attachment-to-infinitive analysis). Connective and discourse particles follow an inflected form; within the Bloch-Teramura framework, which is adopted in the current work, a derivational or inflectional affix never follows an inflected form (a derivational suffix such as /*(r)are*/ always occurs closer to the stem than an inflectional suffix, and there cannot be more than one inflectional suffix within a single predicate form). Connective particles, discourse particles, and the *t*-morphemes pattern the same in that they follow an inflected form, which provides motivation to call all of them particles.

It is worth noting that the so-called topic-marking particle /*wa*/ may trigger phonological changes that take place when attached to certain lexical categories, evidencing that a morphophonological process may apply over the boundary between a particle and its host. Namely, in colloquial speech, when *wa* follows certain pronominals, pseudo-nouns (*keishiki meishi*; e.g., *koto* ‘fact, matter’), or particles, a phonological process optionally takes place which can be roughly characterized as: (i) the final vowel of the host is replaced by the semi-vowel /*y*/ if it is a front vowel, and is entirely dropped if it is a back vowel, (ii) the consonant

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/w/ in /wa/ is dropped, and (iii) the vowel /a/ in /wa/ is lengthened.¹² As shown in (11), the same does not occur when the host is a common noun.

- (10) a. /boku/ ‘I’ + /wa/ → /bokaH/
b. /sore/ ‘that’ + /wa/ → /soryaH/
c. /soNna/ ‘such’ + /koto/ ‘matter’ + /wa/ → /soNnakotaH/
d. /oHsaka/ ‘Osaka’ + /ni/ (dative particle) + /wa/ → /oHsakanyaH/
- (11) a. /baku/ ‘tapir’ + /wa/ → */bakaH/
b. /sumire/ ‘violet (plant)’ + /wa/ → */sumiryaH/
c. /soNna/ ‘such’ + /koto/ ‘harp’ + /wa/ → */soNnakotaH/

3.2. Analyses

3.2.1. *Verb forms with a t-morpheme.*

I propose that verb forms with a *t*-morpheme have structures presented in the rightmost column of Table 7. /i/ is an inflectional affix;¹³ I remain neutral as to whether the infinitive form of a Type II verb involves a zero suffix or not. The

¹² In some varieties of the Ryukyuan dialect group, the counterpart of /wa/ (e.g., /ja/ in the Shuri dialect) often undergoes morphophonological processes that are comparable to those in (10) but are obligatory and more systematic. According to Nakamatsu (1999: 71), in the Shuri dialect, /ja/ is realized (i) as /ja/ when it follows /e/ or /o/, (ii) as /ee/, /aa/, and /oo/ when it follows /i/, /a/, and /u/, respectively, and (iii) as /noo/ when it follows /N/. The sequence of the first person pronoun /waN/ and /ja/ is exceptionally realized as /waNee/.

¹³ Some scholars consider /i/ occurring in the infinitive form of a Type I verb an epenthetic vowel, rather than a genuine suffix (McCawley 1968; Nishiyama 1999). The choice between the two options does not have a direct bearing on the main point of the current article.

appearance of “irregular” forms, such as /kaite/ for KAKU, is accounted for by the morphophonological processes schematized with arrows (formation of the *tatte-*, *tara-* and *tari-*forms patterns the same as that of the *te-* and *ta-*forms).

Table 7 The proposed analysis of verb forms with a *t*-morpheme

verb type	stem	infinitive form	<i>te</i> -form & <i>ta</i> -form
Type I verb			
Class (i)	/kas/	/kas+/i/	/kas+/i+/te/ /kas+/i+/ta/
Class (ii)	/kak/	/kak+/i/	/kak+/i+/te/ → /kaite/ /kak+/i+/ta/ → /kaita/
Class (iii)	/oyog/	/oyog+/i/	/oyog+/i+/te/ → /oyoide/ /oyog+/i+/ta/ → /oyoida/
Class (iv)	/nor/	/nor+/i/	/nor+/i+/te/ → /noQte/ /nor+/i+/ta/ → /noQta/
Class (v)	/nom/	/nom+/i/	/nom+/i+/te/ → /noNde/ /nom+/i+/ta/ → /noNda/
Type II verb	/ake/	/ake/(+Ø)	/ake/(+Ø)+te/ /ake/(+Ø)+ta/

In the literature, it is commonplace to regard the morphophonological changes in Type I verb forms with *t*-morphemes as combined effects of more basic processes, such as assimilative voicing of the *t*-morpheme, deletion of the stem-final

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consonant, and insertion of /N/ or /Q/ (McCawley 1968; Davis and Tsujimura 1991; Sasaki 2005). Here, I abstract away from the details.¹⁴

3.2.2. *Adjective forms with a t-morpheme.*

Regarding the adjective forms with *t*-morphemes, it seems reasonable to posit, in line with Rickmeyer (1995), that the *ta-*, *tara-*, and *tari-* forms involve a derivational (verbalizing) affix /kar/, which derives Class (iv) verbs.¹⁵

The infinitive form of an adjective form (e.g., /akaku/) may occur on its own and serve as the head of a subordinate clause, as in (12), or occur in combination with /te/ or /taQte/.

- (12) *Yane-wa akaku, kabe-wa shiroi.*
roof-TOP red.INF wall-TOP white.PRS
‘The roof is red and the wall is white.’

The infinitive form of a deadjectival verb with /kar/ (e.g., /akakari/) never occurs on its own, but only serves as the host of /ta/, /tara/, or /tari/ (Table 8).¹⁶

¹⁴ It is worth mentioning that Sasaki (2005) argues that a more parsimonious account of the morphophonological processes applying to the *te-* and *ta-* forms of Type I verbs is made possible under the assumption that /te/ and /ta/ follow an infinitive form, rather than a stem.

¹⁵ One may further decompose /kar/ into /k/ and /ar/, as in Nishiyama (1999).

¹⁶ One may alternatively identify /kereba/ in the provisional form as a monomorphemic ending (i.e., /aka+/kereba/).

Table 8 Adjective forms

forms without /kar/	
present indicative	/aka+/i/
infinitive #1	/aka+/ku/
gerund	/aka+/ku+/te/
concessive conditional	/aka+/ku+/taQte/
forms with /kar/	
provisional	/aka+/kar+/eba/ → /akakereba/
presumptive	/aka+/kar+/oH/
infinitive #2	/aka+/kar+/i/ (never realized on its own)
past indicative	/aka+/kar+/i+/ta/ → /akakaQta/
conditional	/aka+/kar+/i+/tara/ → /akakaQtara/
representative	/aka+/kar+/i+/tara/ → /akakaQtari/

As it is an established fact that earlier stages of Japanese (Early Middle Japanese, in particular) had the verbalizing suffix /kar/ (formed by the fusion of /ku+/ar/), this analysis amounts to saying that the modern language still retains it.

4. Empirical support for the attachment-to-infinitive analysis

As has been illustrated, there are two conceivable analyses with regard to the internal make-up of predicate forms with a *t*-morpheme: one is that they are suffixes following a stem (e.g., /kak/ + /te/ → /kaite/), and the other is that they

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are particles or the like following an infinitive form (e.g., /kak/ + /i/ + /te/ → /kaite/).

This section provides support for the second analysis, based on tonal observations. The argument runs as follows:

- (13) (i) The *t*-morphemes can be separated from their host by an accent phrase boundary. When they are, their host has the accent pattern expected for an infinitive form.
- (ii) The same does not happen with genuine inflectional affixes.
- (iii) This contrast is a matter of course under the attachment-to-infinitive analysis, but is hard to explain under the attachment-to-stem analysis. Therefore, the attachment-to-infinitive analysis is more plausible than the attachment-to-stem analysis.

4.1. Accented vs. unaccented verbs

As a preliminary, let us first review basic accent patterns of verb forms. Japanese verbs have been classified into two tonal classes: “accented” and “unaccented” (e.g. McCawley 1968; Vance 2008). Accented verbs (e.g., Type II NAGERU ‘throw’, Type I SASU ‘stick, pierce’) are those verbs whose present indicative, imperative, and infinitive forms carry an accent on one of their non-final moras (in most cases the penultimate mora; exceptional cases will be taken up below). Unaccented verbs (e.g., Type II AKERU ‘open’, Type I KASU ‘lend’) in these forms do not (Table 9; an apostrophe indicates an accent nucleus).

Table 9 Accent patterns of present indicative, imperative, and infinitive forms

	present indicative	imperative	infinitive
accented	/nage'ru/, /sa'su/	/nage'ro/, /sa'se/	/na'ge /, /sa'si/
unaccented	/akeru/, /kasu/	/akero/, /kase/	/ake/, /kasi/

There is reason to believe that putatively unaccented verb forms actually carry an accent on their final mora (e.g., Martin 1967:250–251; Vance 2008: 164). To illustrate with an example, in (14), a steep pitch fall follows /akeru/ when it precedes a particle. Here and thereafter, braces ({...}) indicate accent phrase (AP) boundaries; the diacritic ˀ is used to indicate a pitch fall occurring after the first accented mora in an accent phrase, and ˁ is used to indicate a phrase tone (a pitch rise that occurs between the first and second moras of an accent phrase, in all cases except when the first mora is accented).

- (14) a. *Dare-ga akeru-ka tashikameru.*
 who.NOM open.PRS-Q check.PRS
 '(I) will check who opens (it).'
- b. ... {a ˁ ke ru' ˀ ka} ...

The provisional form of an accented verb typically carries an accent on its antepenultimate mora, and that of an unaccented verb always carries an accent on its penultimate mora (Table 10). This suggests that /(r)eba/ itself carries an accent on its first mora, which is realized only when the host does not carry an accent. The accented/unaccented distinction is neutralized for presumptive forms, the accent always being on the penultimate mora (e.g., Martin 1988: 610).

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Table 10 Accent patterns of provisional and presumptive forms

	provisional	presumptive
accented	/nage're'ba/, /sa'se'ba/	/nageyo'H/, /saso'H/
unaccented	/akere'ba/, /kase'ba/	/akeyo'H/, /kaso'H/

The accent patterns of the forms with a *t*-morpheme are shown in Table 11 (only Type II verbs are included). When the host of a *t*-morpheme is accented, the accent appears on the same syllable as in the infinitive form; when the host is unaccented, the accent within a polymoraic *t*-morpheme is realized.

Table 11 Accent patterns of forms with a *t*-morpheme

	<i>te</i> -form	<i>ta</i> -form	<i>tara</i> -form	<i>tari</i> -form	<i>tatte</i> -form
accented	/na'gete/	/na'geta/	/na'geta'ra/	/na'geta'ri/	/na'geta'Qte/
unaccented	/akete/	/aketa/	/aketa'ra/	/aketa'ri/	/aketa'Qte/

These patterns conform well to the attachment-to-infinitive analysis, although they are not incompatible with the attachment-to-stem analysis. That is, the accent pattern of the /na'geta'ra/ can be analyzed as parallel to the combination of an accented noun and an initial-accented bimoraic particle such as /ma'de/ 'to, until, even', as in (15), and the accent pattern of /aketa'ra/ can be analyzed as parallel to the combination of an unaccented noun and /ma'de/, as in (16) (see Kubozono 1999, Tsujimura 2007 and Vance 2008 for general discussions of the accentual properties of particles).

(15) /kana'zawa/ 'Kanazawa (city name)' + /ma'de/ 'to'

{ka ɾ na' ɿ za wa ma' de}

(16) /hirosima/ 'Hiroshima (city name)' + /ma'de/ 'to'

{hi ɾ ro si ma ma' ɿ de}

4.2. Accentual separation of a *t*-morpheme from its host

A crucial observation for my claim is that a *t*-morpheme can be separated from its host by an accent phrase boundary, with the host having the same accent pattern as the infinitive form. To give an example, the *tara*-form of the accented verb HARERU 'clear up, become sunny' is typically pronounced as in (17a), but it can be realized as in (17b) too, conveying an emphatic effect.¹⁷

(17) a. {ha' ɿ re ta' ra}

b. {ha' ɿ re} {ta' ɿ ra}

The same can be done with accented verbs in Class (i); it is not very clear to me whether it can be done with verbs in Classes (ii)–(v), which undergo a morphophonological change with a *t*-morpheme. (Below, I illustrate cases of Classes (i) and (ii) only.)

¹⁷ When an accent phrase with an accent on its first mora follows another accent phrase, a pitch rise is observed between the last mora of the preceding accent phrase and the first mora of the subsequent (Oshima 2006: 461); this kind of pitch rise is not explicitly indicated by a diacritic in (17b) and what follows.

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(18) SASU ‘stick, spear’ (Class (i))

a. {sa’ ɿ si ta’ ra}

b. {sa’ ɿ si} {ta’ ɿ ra}

(19) KAKU ‘write’ (Class (ii))

a. {ka’ ɿ i ta’ ra}

b. ?{ka’ ɿ i} {ta’ ɿ ra}

A pattern analogous to (17) is exhibited by the combination of an accented noun and an initial-accented bimoraic particle, such as /kana’zawama’de/ ‘to Kanazawa’; in addition to the unmarked pronunciation in (20a), where the accent of the particle is not realized (or at least significantly subdued), the pattern in (20b), which involves two pitch falls, is observed in certain discourse contexts (e.g., when the particle itself or the noun accompanied by the particle is emphasized; Kubozono 1993: 103–105; Vance 2008: 186–187).

(20) a. {ka ɿ na’ ɿ za wa ma’ de}

b. {ka ɿ na’ ɿ za wa} {ma’ ɿ de}

By way of illustration, Figure 1 shows an actual F0 contour of /kana’zawama’de/ uttered as a single accent phrase, i.e., in the way schematized in (20a), and Figure 2 as the sequence of two accent phrases, i.e., in the way schematized in (20b).

(Analogous pitch tracks of predicate forms with a *t*-morpheme will be provided in Section 5.)

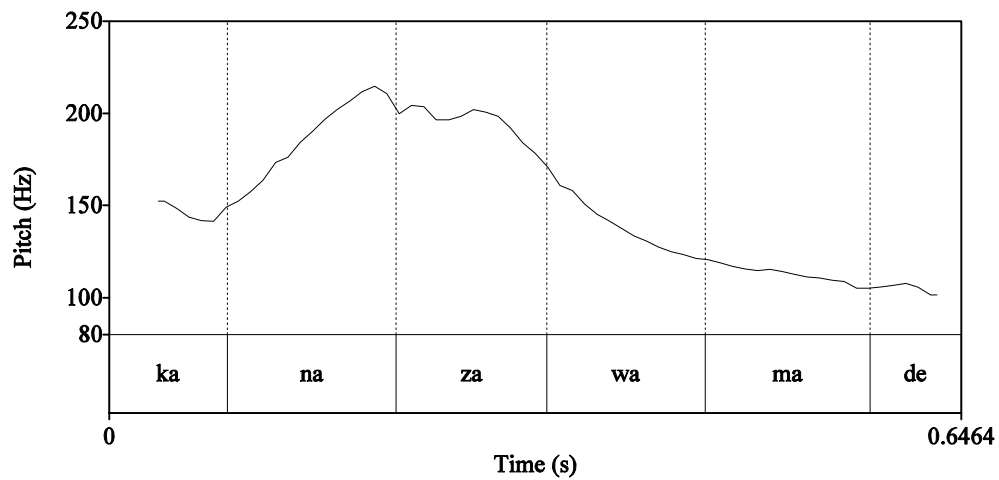


Fig. 1 /kana'zawa+/ma'de/ pronounced as a single accent phrase

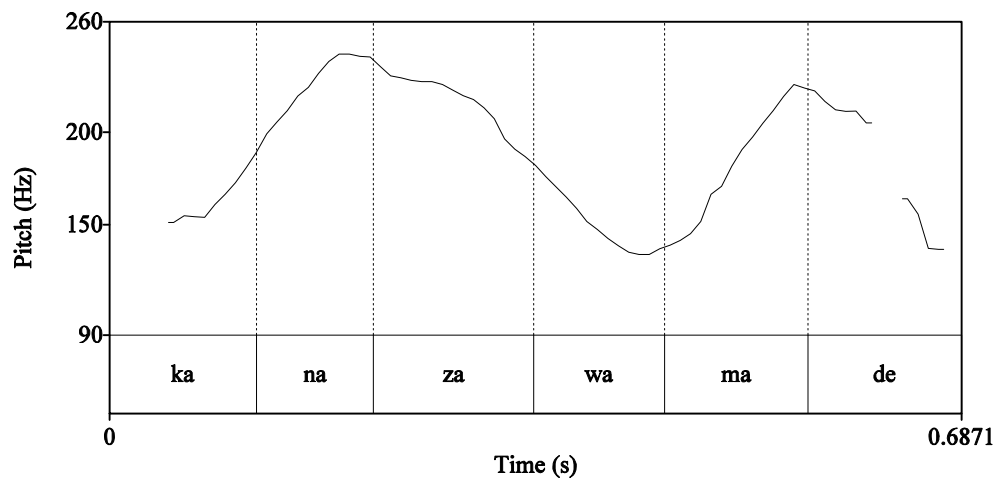


Fig. 2 /kana'zawa+/ma'de/ pronounced as the sequence of two accent phrases

Now let us observe what happens when we attempt to accentually separate an inflectional suffix from its host, taking the provisional form of HARERU as an example. The only natural way to pronounce it is (21a), and the patterns in (21b–

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d) are all highly awkward (an apostrophe put between parentheses indicates that an accent nucleus may or may not be present).

- (21) a. {ha[⌈] re' ɿ re' ba}
- b. *{ha[⌈] re^(s)} {re' ɿ ba}
- c. *{ha[⌈] re^(s)} {re[⌈] ba}
- d. *{ha' ɿ re} {re' ɿ ba}
- e. *{ha' ɿ re} {re[⌈] ba}

The unacceptability of (21b) does not need to be attributed to a strong morphological tie between the host and the suffix (which would hinder accentual separation). One reasonable account is that it is unacceptable because the first component (the stem) has an accent on its final mora and the second on its first mora (I will suggest an alternative account in Section 6). Generally, when the accent on a bound form and the accent on its host are on consecutive moras, the two forms cannot be separated by an AP boundary; this phenomenon, which arguably has to do with avoidance of accent clash, is illustrated in (22) and (23).¹⁸

- (22) /u'mi/ 'sea' + /ma'de/ 'to'
- a. {u' ɿ mi ma' de}
- b. {u' ɿ mi} {ma' ɿ de}

¹⁸ Thanks to the JEAL reviewer who directed my attention to this point.

- (23) /kawa'/ 'river' + /ma'de/ 'to'
- a. {ka[┘] wa' [┘] ma' de}
- b. *{ka[┘] wa'} {ma' [┘] de}

The unacceptability of (21c) is not surprising at all, as it is natural to assume that /reba/ is accented on its first mora.

What is important, however, is the unacceptability of (21d,e). Under the attachment-to-stem analysis, /ha're/ in (17b) is regarded as a verb stem constituting an AP on its own. Consequently, the attachment-to-stem analysis predicts that the stem of an accented Type II verb can be accentually separated from an inflectional affix (and thus be accentually isolated), and when it is, its accent pattern is the same as that of the infinitive form exemplified in (24):

- (24) *Asa-wa hare, gogo-wa ame-ga futta.*
 morning-TOP clear.up.INF afternoon-TOP rain-nom fall.PST
 'It was sunny in the morning, and it rained in the afternoon'
 (... {ha' [┘] re} ...)

This prediction, however, is incompatible with the unacceptability of (21d,e). If one assumes (i) that /ta'ra/ and /re'ba/ both follow a stem, (ii) the stem of HARERU is accented on /ha/, and (iii) that (17a,b) are derived through a process schematized in (25), the pronunciation in (21d), or at least (21e) (with some account regarding the non-realization of the accent within /re'ba/), is expected to be possible, due to a process schematized in the right part of (26).

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(25) /ha're/ (stem) + /ta'ra/ (affix)

↓

{ha' re ta' ra}

(unmarked AP segmentation)

↓

{ha' re} {ta' ra}

(alternative AP segmentation)

(26) /ha're/ (stem) + /re^(')ba/ (affix)

↓

{ha re' re^(') ba}

(possible AP segmentation;

the accent on the stem shifted

to the right)

↓

*{ha' re} {re^(') ba}

(impossible AP segmentation)

One may attempt to save the attachment-to-stem analysis by postulating that the stem of an accented verb underlyingly carries its accent on its final mora and that accent change (shifting, deletion, or addition) takes place before AP segmentation. Thus one might propose a scheme like (27), where /re'ba/ causes accent shifting before AP segmentation, to account for the contrast between (17b) and (21d).

(27) /ha're/ (stem) + /re'ba/ (suffix) (underlying representation)

↓

/hare're'ba/ (accent shifting to right, triggered by suffixation of /re'ba/)

↓

(i) {hare're'ba} (possible AP segmentation)

(ii) *{hare'} {re'ba} (impossible AP segmentation, due to consecutive accents)

(iii) *{ha're} {re'ba} (impossible pattern, due to the wrong accent placement)

Alternatively, one could start from a different underlying representation, as in (28)/(29) regarding the *t*-morpheme as an accent-shift trigger.

(28) /hare'/ (stem) + /re'ba/ (suffix) (underlying representation)

↓

/hare're'ba/ (no accent change)

↓

(i) {hare're'ba} (possible AP segmentation)

(ii) *{hare'} {re'ba} (impossible AP segmentation, due to consecutive pitch accents)

(iii) *{ha're} {re'ba} (impossible pattern, due to the wrong accent placement)

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(29) /hare'/ (stem) + /ta'ra/ (suffix) (underlying representation)

↓

/ha'reta'ra/ (accent shifting to left, triggered by suffixation of /ta'ra/)

↓

(i) {ha'reta'ra} (possible AP segmentation)

(ii) {ha're} {ta'ra} (another possible AP segmentation)

There is, however, reason to believe that accent change does not take place when the trigger and the target belong to different APs. This can be illustrated with particles /dake^(s)/ 'only' and /hodo^(s)/ 'approximately', which optionally deletes the accent of its host, at least when the host is an adverbial quantifier.

(30) /gohyaku'eN/ '500 yen' + /dake^(s)/ 'only' (as in *Gohyakuen-dake watashita* '(I) handed (him) 500 yen only.')

a. {go^hɾ hya ku^h e N da ke^(s)} (no accent deletion)

b. {go^hɾ hya ku e N da ke^(s)} (accent deletion)

(31) /gohyaku'eN/ '500 yen' + /hodo^(s)/ 'approximately' (as in *Gohyakuen-hodo watashita* '(I) handed (him) about 500 yen.')

a. {go^hɾ hya ku^h e N ho do^(s)} (no accent deletion)

b. {go^hɾ hya ku e N ho do^(s)} (accent deletion)

Crucially, accent deletion is blocked when /dake^(s)/ and /hodo^(s)/ are accentually separated, as shown in (32) and (33).

- (32) /gohyaku'eN/ '500 yen' + /dake^(s)/ 'only'
- a. {go^ɾhya ku' ɳ e N} {da^ɾ ke^(s)}
- b. *{go^ɾhya ku e N} {da^ɾ ke^(s)} (accent deletion impossible)
- (33) /gohyaku'eN/ '500 yen' + /hodo^(s)/ 'approximately'
- a. {go^ɾhya ku' ɳ e N} {ho^ɾ do^(s)}
- b. *{go^ɾhya ku e N} {ho^ɾ do^(s)} (accent deletion impossible)

The scheme along the lines of (27)–(29), where accent shifting takes place before AP-segmentation, wrongly predicts that (32b)/(33b) are well-formed, and thus cannot be maintained.¹⁹ (34) illustrates this point.

¹⁹ The potential accounts schematized in (27) and (29) can also be formulated in Optimality Theoretic terms, with the constraints presented below; (i) corresponds to (27), and (ii) corresponds to (29). R-SHIFT and L-SHIFT are assumed requirements of accent shift triggered by /re'ba/ and /ta'ra/, respectively. NOCLASH penalizes accents on consecutive moras and is responsible for the unacceptability of [{ka^ɾ wa'} {ma' ɳ de}] (illustrated in (23)).

(i)

Input: /ha' re re' ba/	R-SHIFT	NOCLASH
{ha' re re' ba}	*!	
☞ {ha re' re' ba}		
{ha' re} {re' ba}	*!	
{ha re'} {re' ba}		*!

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(34) /gohyaku'eN/ '500 yen' + /dake^(s)/ 'only'

↓

/gohyakueNdake^(s)/ (accent deletion due to attachment of /dake^(s)/)

↓

(i) {gohyakueNdake^(s)} (actually possible AP segmentation)

(ii) *{gohyakueN} {dake^(s)} (AP segmentation wrongly predicted to be possible)

If accent change and AP segmentation take place in a certain order, the latter should be prior to the former, as in

(ii)

Input: /ha re' ta' ra/	L-SHIFT	NOCLASH
{ha re' ta' ra}	*!	*
☞ {ha' re ta' ra}		
{ha re'} {ta' ra}	*!	*
☞ {ha' re} {ta' ra}		

Note, however, that such analyses still assume that it is possible for a lexically-triggered accent change to take place across an AP-boundary (i.e., with the trigger and the target belonging to different APs), and therefore lead to the wrong predictions about the unacceptability of outputs like (32b)/(33b).

(35).

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(35) /gohyaku'eN/ '500 yen' + /dake^(s)/ 'only'

↓	↓
{gohyaku'eNdake ^(s) }	{gohyaku'eN} {dake ^(s) }
↓	↓
{gohyakueNdake ^(s) }	*{gohyakueN} {dake ^(s) }
(optional accent deletion)	(accent deletion hindered by an AP boundary)

The observations so far imply that if both /ta'ra/ and /re'ba/ directly follow a stem, either of the following should hold: (i) (the stem of HARERU is inherently accented on /ha/ and) [{ha're}{re^(s)ba}] is possible, as in (36) or (ii) (the stem of HARERU is inherently accented on /re/ and) [{ha're}{ta'ra}] is impossible, as in (37). In actuality, however, neither holds true.

(36) /ha're/ + /re^(s)ba/

↓	↓
({ha'rere ^(s) ba})	*{ha're} {re ^(s) ba}
(intermediate representation)	(wrongly predicted to be possible)
↓	
{hare're ^(s) ba}	
(obligatory accent shifting)	

- (37) /hare'/ + /ta'ra/
- | | |
|-------------------------------|--------------------------------------|
| ↓ | ↓ |
| ({hare'ta'ra}) | {ha're} {ta'ra} |
| (intermediate representation) | (wrongly predicted to be impossible) |
| ↓ | |
| {ha'reta'ra } | |
| (obligatory accent shifting) | |

Thus, to account for the presented facts — the acceptability of (17b) and the unacceptability of (21b–e) — it is necessary to either (i) consider that /ha're/ in (17b) is an infinitive form and has a different accent property than a stem (see Section 6 for discussion of the accent patterns of stems), or (ii) postulate that, although /re'ba/ and /ta'ra/ are both affixes that follow a stem, the former cannot be accentually separated from the host due to some idiosyncratic property inherent to it. The latter solution is rather ad hoc and not appealing; besides, there is reason to believe that /re'ba/ does not have such a property.

The argument so far has assumed that /re'ba/ cannot be accentually separated from its host, but there are data that suggest otherwise. This can be illustrated with some accented verbs with an exceptional accent pattern; there are two classes of such verbs to be considered here. The first is a subclass of Type I verbs which include KAERU 'return home', KAESU 'give back', HAIRU 'enter', and TOORU 'pass' (the KAERU-class verbs).²⁰ Their present indicative, infinitive, and

²⁰ The accentual characteristic of KAERU-class, and that of the KANGAERU-class to be taken up below, obviously have to do with the fact that their stems have a vowel sequence (or perhaps a diphthong) or a long vowel toward their end. Note, however, that some verbs whose stems end with a vowel sequence have a regular accent pattern (e.g., /hae'ru/ 'grow (present indicative)').

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imperative forms have an accent on the third-from-last mora (rather than the expected second-from-last mora), and their provisional forms have an accent on the fourth-from-last mora, (rather than the expected third-from-last mora) (Vance 2008: 165–166).

- (38) {ka' ɿ e ru^(s)} (present indicative), {ka' ɿ e re' ba} (provisional),
{ka' ɿ e re^(s)} (imperative), {ka e ro' ɿ H} (presumptive),
{ka' ɿ e ri^(s)} (infinitive)

These verbs allow accentual separation of /e'ba/ (although the host and /e'ba/ have to be fused in syllable structure; here, I take realization of an inherent accent to indicate accentual independence/separation). The acceptability of (39b) is comparable to that of (17b), repeated as (40).

- (39) /ka'er/ 'return home (stem)' + /e'ba/ 'PROVISIONAL'

- a. {ka' ɿ e re' ba}
b. {ka' ɿ e} {re' ɿ ba}

- (40) /ha're/ 'clear up' + /ta'ra/

- {ha' ɿ re} {ta' ɿ ra}

/e'ba/ and /re'ba/ are often regarded as allomorphs, and /e'ba/ is more tightly fused to the host than /re'ba/ is in the sense that its first segment forms a syllable together with the last segment of the host. Thus, the pattern shown in (39b)

strongly suggests that /e'ba/ and /re'ba/ can be accentually separated from their host, in the absence of other factors hindering it (e.g. the general constraint that bans a configuration like (23b)).

The second class to be considered is a subclass of Type II verbs which include KANGAERU 'think', KOTAERU 'answer', and OBOERU 'remember' (the KANGAERU-class). The present indicative, provisional, and imperative forms (but not the presumptive and infinitive forms) of these verbs have two possible accentual realizations (although individual speakers might prefer one pattern to the other; Vance 2008: 165). To illustrate with KANGAERU:

- (41) a. the “regular” pattern (like all other Type II verbs)
- {ka[⌈] N ga e' ɿ ru^(ˈ)} (present indicative),
- {ka[⌈] N ga e re' ɿ ba} (provisional), {ka[⌈] N ga e' ɿ ro^(ˈ)} (imperative),
- {ka[⌈] N ga e yo' ɿ H} (presumptive), {ka[⌈] N ga' ɿ e} (infinitive)
- b. the “irregular” pattern
- {ka[⌈] N ga' ɿ e ru^(ˈ)}, {ka[⌈] N ga' ɿ e re' ba}, {ka[⌈] N ga' ɿ e ro^(ˈ)}

The provisional form of a KANGAERU-class verb allows – at least marginally – a “double fall” pronunciation illustrated in (42b), where one accent fall is within the stem and the other within /re'ba/.

- (42) a. {ka[⌈] N ga' ɿ e re' ba}
- b. (?) {ka[⌈] N ga' ɿ e} {re' ɿ ba}

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The acceptability of the pattern in (42b), however, appears to be somewhat degraded in comparison to the analogous pattern with a KAERU-class verb (as in 39b)), for some reason unknown to me.

The new premise that /*(r)e'ba*/ can be accentually separated from its host strengthens, rather than weakens, my argument, because it excludes the possibility that (/ta'ra/ and /re'ba/ are both inflectional affixes and) the contrast between (17b) and (21d) is due to some idiosyncratic property of /re'ba/ that makes it inseparable.

4.3. A systematic investigation of the *t*-morphemes and suffixes

Let us now consider if the other *t*-morphemes share with /ta'ra/ the phonological property discussed above. It was mentioned in Section 4.1 that the polymoraic *t*-morphemes, /ta'ra/, /ta'ri/, and /ta'Qte/, carry an accent on their first mora. Monomoraic /te/ and /ta/ too can be regarded as accented, considering that a steep pitch fall follows them when they precede another particle, as shown in (43) and (44).

(43) a. *akete-mo wakaranakatta.*
open+te-also understand.NEG.PST
'(He) could not figure it out even after opening (it).'

b. {a[↑] ke te' ɿ mo^(s) ...

(44) a. *aketa-kara wakatta.*
open+ta-because understand.PST
'(He) could figure it out because (he) opened (it).'

b. {a^ɾ ke ta' ɿ ka' ra ...}

A potential problem for the supposition that /te/ and /ta/ are accented is the fact that when they precede a predicate or noun (other than the pronoun /no/, which too may be regarded as a particle) within the same accent phrase, as in (45) and (46), a steep pitch fall does not occur.

(45) a. *akete kimereba*
 open+te decide.PROV
 'if (he) opens (it) and decides'

b. {a^ɾ ke te ki me re' ɿ ba }

c. *{a^ɾ ke te' ɿ ki me re' ba }

(46) a. *aketa gishi*
 open+ta engineer
 'the engineer who opened (it)'

b. {a^ɾ ke ta gi' ɿ si }

c. *{a^ɾ ke ta' ɿ gi' si }

If /te/ and /ta/ are regarded as accented, thus, one must also postulate that their accent is deleted or not realized under the described configuration. An analogous issue arises with case particles like /ni/ and /kara/, which arguably carry an accent on their sole or final mora, as illustrated below (Vance 2008: 160–161).

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(47) /hirosima/ ‘Hiroshima’ + /ni/ ‘DAT’ + /mo^(s)/ ‘also, even’

{hi ʔ ro si ma ni ʔ mo^(s)}

(48) a. *Hiroshima-ni todoketa.*

Hiroshima-DAT deliver+*ta*

‘(He) delivered (it) to Hiroshima.’

b. {hi ʔ ro si ma ni to do ʔ ke ta ʔ}

c. *{hi ʔ ro si ma ni ʔ to do ʔ ke ta ʔ}

Accental separation of a *t*-morpheme and its host can be most easily shown with /*tara*/, probably because it is often natural to emphasize that the content of a clause is a mere provision, rather than a fact. It can be done, however, with the other *t*-morphemes too. It is not terribly unnatural, for example, to pronounce the *te*-form of HARERU followed by /*mo*/ ‘also, even’ in the tonal pattern given in (49c), and the *ta*-form of HARERU followed by the quotative particle /*to*/ in the tonal pattern given in (50c).

(49) a. *harete-mo ikanai.*

clear.up+*te*-even go.NEG.PRS

‘(He) will not go even if it clears up.’

b. {ha ʔ re te ʔ mo^(s) i ka na i^(s)}

c. {ha ʔ re} {te ʔ mo^(s) i ka na i^(s)}

- (50) a. *hareta-to itta.*
 clear.up+*ta*-QUOT say.PST
 ‘(He) said that it cleared up.’
- b. {ha’ ʔre ta’ to^(ʔ) i Q ta’}
- c. {ha’ ʔre} {ta’ ʔto^(ʔ) i Q ta’}

(51) and (52) illustrate discourses where it is relatively natural to accentually separate /ta’ri/ and /ta’Qte/ from their host.

- (51) A: *Kinoo Yumi-to gohan-o tabeta-nda-tte?*
 yesterday Y.-with meal- ACC eat+*ta*-AUX-DP
 ‘I heard that you had dinner with Yumi yesterday.’
- B: *Ma, gohan-o tabetari-ne.*
 well meal-ACC eat+*tari*-DP
 ‘Well, I did have dinner with her – not to mention other things I did.’
 ({ta’ ʔbe} {ta’ ʔri ne^(ʔ)})

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(52) A: *Haretara ikanai-no? Dooshite?*

clear.up+*tara* go.NEG.PRS-DP why

‘Will you not go if it is sunny? Why is that?’

B: *Iya, haretatte ikanai-to itta-nda.*

no clear.up+*tatte* go.NEG.PRS-QUOT say+*ta*-AUX

Kazegimi-da-kara uchi-ni iru-yo.

slight.cold-be.PRS-because home-DAT stay.PRS-DP

‘No, I said I won’t go even if it is sunny. I’ll stay home because I have a slight cold.’

({ha’ ɿ re} {ta’ ɿ Q te})

In each case, the host accentually separated from the *t*-morpheme exhibits the same accent pattern as the infinitive.

Inflectional affixes /ru/ (present indicative), /yoH/ (presumptive) and /ro/ (imperative), in contrast, pattern the same as /reba/ in that they cannot be accentually separated from a host like HARERU.²¹

²¹ One may further add forms like /(a)neba/ (negative conditional), /(a)nu/ (negative present indicative), and /(a)zu/ (negative infinitive), as in /hareneba/, /harenu/, and /harezu/, to the list of inflectional affixes (see Section 7). Prosodically, they largely pattern like /(r)eba/ and /(r)u/, and contrast with the *t*-morphemes.

(53) a. *hareru-to itta.*
 clear.up.PRS-QUOT say.PST
 ‘(He) said that it would clear up.’

b. {ha[↑] re’[↓] ru⁽²⁾ to⁽²⁾ i Q ta’}

c. *{ha’[↓] re} {ru’[↓] to⁽²⁾ ...

d. *{ha’[↓] re} {ru[↑] to⁽²⁾ ...

(54) a. *tabeyoo-to itta.*
 eat.PRESUMPTIVE-QUOT say.PST
 ‘(He) said that he would eat (it).’

b. {ta[↑] be yo’[↓] H to⁽²⁾ i Q ta’}

c. *{ta’[↓] be} {yo’[↓] H to⁽²⁾ ...

(55) a. *tabero-to itta.*
 eat.IMP-QUOT say.PST

‘(He) told (her) to eat.’

b. {ta[↑] be’[↓] ro⁽²⁾ to⁽²⁾ i Q ta’}

c. *{ta’[↓] be} {ro’[↓] to⁽²⁾ ...

d. *{ta’[↓] be} {ro[↑] to⁽²⁾ ...

These observations establish that, while the *t*-morphemes may optionally be separated from their host by an AP boundary with the host having the accent

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pattern expected for an infinitive form, inflectional affixes such as /reba/ and /ru/ lack this property.

4.4 Accent deletion triggered by the *t*-morphemes

As mentioned above, (at least some) putatively unaccented predicate forms can be regarded as carrying an accent on their final mora. The same applies to the infinitive forms of unaccented verbs, which are followed by a steep pitch fall when they precede a particle.

- (56) a. *ake-mo shita.*
open.INF-also do+*ta*
'(I) opened (it) too.'
- b. {a[↑] ke' ɿ mo ...

Within verb forms which consist of an unaccented verb and a *t*-morpheme, however, such a fall is not observed, apparently contradicting the proposed analysis.

- (57) a. *ake-te tashikameta.*
open+*te* confirm+*ta*
'(I) opened (it) and confirmed (it).'
- b. {a[↑] ke te' ...
- c. *{a[↑] ke' ɿ te' ...

- (58) a. *ake-ta*.
 open+*ta*
 ‘(I) opened (it).’
- b. {a^ˈ ke ta’}
- c. *{a^ˈ ke’ ɿ ta’}

The illustrated patterns can be accounted for if we assume that the *t*-morphemes trigger deletion, or hinder realization, of an accent on the final mora of the host (when they belong to the same AP as their host).²² This property is exhibited by some other particles too, including the genitive case particle /no^(ˈ)/ (Vance 2008: 156–157) and the discourse particle /yo^(ˈ)/ (Todoroki 1993), although (for many speakers) they trigger the deletion of the immediately preceding accent only optionally (in the case of /yo^(ˈ)/, the type of the utterance-final intonation is relevant too).

²² If the infinitive form of an unaccented verb carries an accent on its final mora, it is predicted that a *t*-morpheme cannot be separated from it by an AP-boundary, an AP structure like (i) being blocked for the same reason as [[ka^ˈ wa’] {ma’ ɿ de}] in (23):

- (i) AKERU ‘open’
 *{a^ˈ ke’} {ta’ ɿ ra}

I am not aware of any empirical data incompatible with this prediction.

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(59) /imoHto/ ‘younger sister’ + /no^(s)/ ‘GEN’

a. {i[↑] mo H to[↑] ɿ no^(s)}

b. {i[↑] mo H to no^(s)}

(60) *akeru-yo?*

opwn.PRS-DP

‘(I) am going to open it, okay?’

a. {a[↑] ke ru[↑] ɿ yo^(s)}

b. {a[↑] ke ru yo^(s)}

It is also worth noting that the particle /gu'rai/ ‘at least, approximately’ often, if not obligatorily, deletes the accent of the host, whether or not it is on the final mora (Tsuji-mura 2007: 92; Vance 2008: 159). /dake^(s)/ ‘only’ and /hodo^(s)/ ‘approximately’ have a similar property, as mentioned above.

The morphemes /tu'tu/ ‘while’ and /na^(s)gara/ ‘while’, which are commonly regarded as connective particles following the infinitive form a verb (on a par with /te/ and /tari/, in the school grammar), also trigger deletion of the accent of the host. However, they contrast with the *t*-morphemes and particles in general, in that they cannot be accentually separated from their host.

(61) a. {na^ɾ ge tu' ɿ tu}

{na^ɾ ge na' ɿ ga ra} / {na^ɾ ge na ga ra}

b. *{na' ɿ ge} {tu' ɿ tu}

*{na' ɿ ge} {na' ɿ ga ra} / *{na' ɿ ge} {na^ɾ ga ra}

This suggests that /tu'tu/ and /na^(s)gara/ are better treated as bound bases that are compounded with a verb to form an adverb.

5. Experimental Results

5.1. Design

A production experiment was conducted, in 2011–2012, to demonstrate that the *t*-morpheme /tara/ can be separated from the preceding element by an AP boundary, with the host having the accent pattern expected for an infinitive form.

In the experiment, twenty native speakers uttered discourse segments presented to them as part of “scripts” presented on a monitor. Among the subjects, nine were males and eleven were females; the age range was 19–39 years. The dialect backgrounds of the speakers were not controlled, although all of them were confirmed to use standard Japanese in daily life.

Four of the scripts contained the *tara*-form of an accented verb, and the target strings were situated in a context where it is natural to emphasize the meaning

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carried by /*tara*/, i.e., hypotheticality. A sample script is given below, with the target string in boldface.²³

(62) Situation: You (= Speaker B) have a side-job, although it is not allowed by your main employer. Your close colleague (= Speaker A) knows about it.

A: *Sonna koto-o shiteiru-no-ga baretara*
such thing-ACC do.IPFV.PRS-COMP-NOM be.found.out+*tara*
kubi-ni-naru-kamoshirenai-yo.
be.fired.PRS-possible.PRS-DP.
'If they find it out, you may get fired.'

B: ***Baretara-ne.*** *Yokei-na koto-o*
be.found.out+*tara*-DP unnecessary-be.ATTR matter-ACC
iwanakereba bare-kko nai-yo.
say.NEG.PROV be.found.out-possibility not.exist.PRS-DP
'Well, if they do. There's no way they will, unless I bother to tell them.'

The *tara*-forms in the three other scripts were: /*haretara*/ 'clear.up+*tara*', /*katetara*/ 'be.able.to.win+*tara*', and /*oboeraretara*/ 'be.able.to.memorize+*tara*'. Four other scripts were minimally different from the aforementioned four, with the *tara*-form being replaced by the provisional form (with /*reba*/) of the same verb, e.g., /*barereba*/ 'be.found.out.PROV'.

²³ The actual scripts were all in Japanese.

Each subject completed the same eight tasks. Each task consisted of the following procedure: (i) the subject silently reads a script like (62) presented on a monitor, and (ii) the subject reads aloud his or her part (i.e., speaker B's words). The utterances recorded thus were put to tonal analyses.

5.2. Results

Among the twenty subjects, four (three males and one female) uttered at least one *tara*-form (followed by the discourse particle /ne/) with two steep pitch falls, the first within the verb stem and the second within /tara/.²⁴ The F0 contour tracking of an actual utterance of this kind (by a male speaker) is presented in Figure 3.

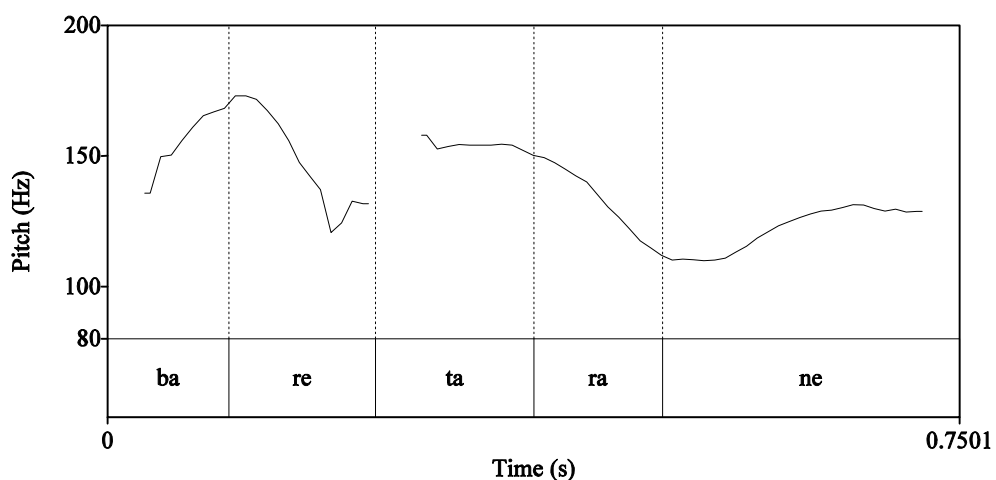


Fig. 3 A *tara*-form consisting of two accent phrases

This observation endorses the claim that /tara/ can be separated from its host by an AP boundary, with the host having the same accent pattern as the corresponding infinitive form. By way of comparison, Figure 4 illustrates a *tara*-

²⁴ The places where they spent their formative years are Ibaraki, Toyama, Aichi, and Okayama.

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form uttered (by a different male speaker) as a single accent phrase, with a single steep pitch fall.

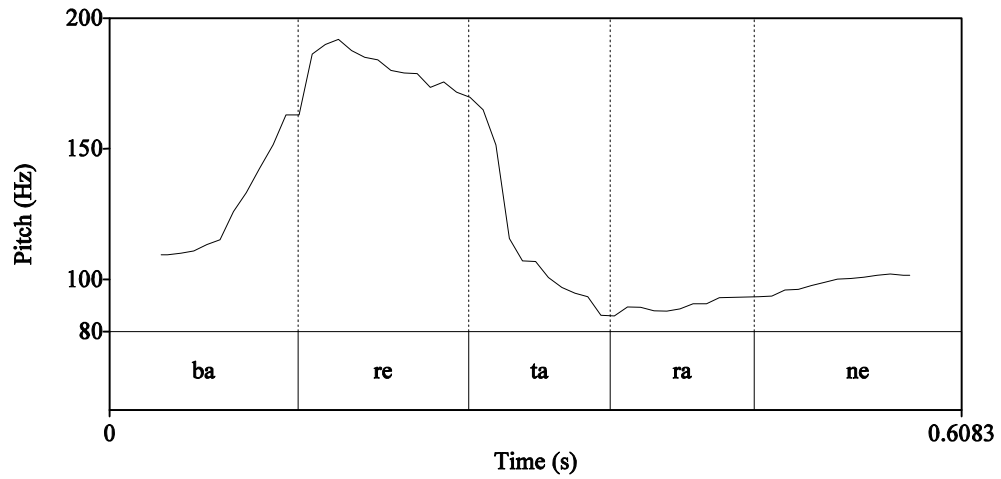


Fig. 4 A *tara*-form consisting of a single accent phrase

A provisional form with */reba/* (followed by */ne/*) was invariably uttered as a single accent phrase, with a single steep pitch fall. The F0 contour of an actual utterance is illustrated in Figure 5.

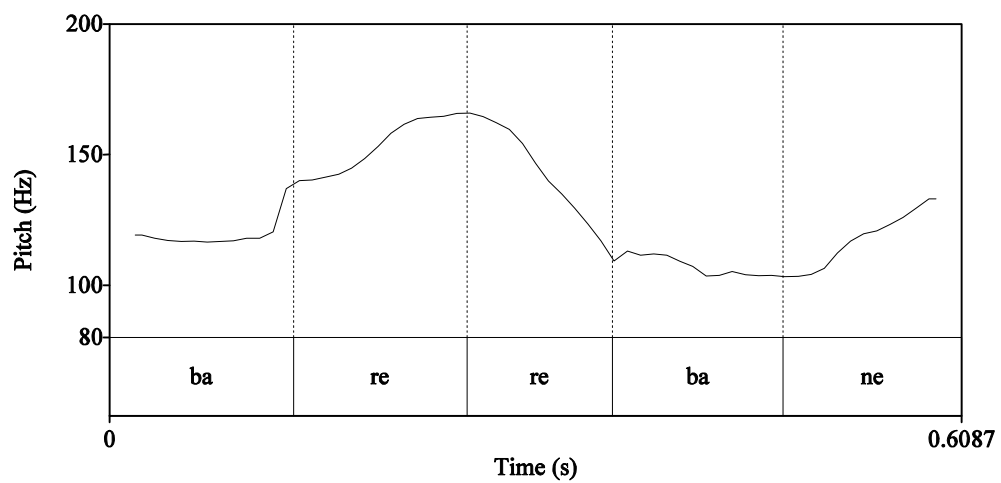


Fig. 5 A provisional form consisting of a single accent phrase

This observation is consistent with the assumption that /reba/ is an inflectional affix following a stem.

6. Generalizations on accent patterns of verb forms

In Section 4.2, it was observed that /re'ba/ is accentually separable as long as there is no other factor prohibiting it. In view of the general constraint which bans a configuration like: [ka[↑] wa'] {ma' ɿ de} (= (23b)), the unacceptability of a configuration like (63) (≈ (21b)) can be accounted for by postulating that the stem of an accented verb is accented on the final mora.

(63) *{ha[↑] re'} {re' ɿ ba}

This move, however, clashes with the view adopted by authors such as McCawley (1968) and Martin (1988) that the basic accent location of a verb coincides with the accented mora of the infinitive form (in the case of HARERU, the accented mora of its infinitive form is /ha/). A problem here is that there is no unequivocal way to identify the basic accent location of a verb (McCawley 1968: 143); while it makes sense to hypothesize that suffixation with /ru/, /reba/, etc., triggers rightward accent shifting, one might conversely claim that inflection into the infinitive form causes an accent to shift leftward (this accent shift might be construed as a way of marking the infinitive form, similar in function to suffix /i/).

As a way of avoiding murky debate, I suggest that, for most verbs, there is no such thing as the “basic accent location”. A stem is a more abstract entity than

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inflected word forms, and it is not necessary or desirable to assign to it a specific accent pattern. Rather, I propose that most verb stems (verb lexemes) are only associated with an abstract binary feature, $[\pm A(\text{ccented})]$. The rules that yield “regular” accent patterns of inflected forms can be stated as follows:

(64) The rules to determine the accent pattern of an inflected verb form [V(erb stem) + S(uffix)]:

- a. If V is $[-A]$,
 - (i) if S is null, an accent is placed on the final mora (e.g., {ake’});
 - (ii) otherwise, the only accent of the entire form is the one inherent to S (e.g., {akeru’}, {akeyo’H}, {kasi’}, {kase’ba}).
- b. If V is $[+A]$,
 - (i) if S is $/(y)o’H/$, the only accent of the entire form is the one inherent to $/(y)o’H/$ (e.g., {nageyo’H});
 - (ii) if S is null, an accent is placed on the penultimate mora (e.g., {na’ge});
 - (iii) otherwise, an accent is placed on the mora immediately preceding the mora containing the first segment of S (e.g., {ka’ku’}, {ka’ki’}, {ka’ke’ba}, {nage’re’ba}).²⁵

(64) needs to be amended to deal with the KAERU-class and KANGAERU-class verbs discussed in Section 4.2. I propose that the KAERU-class verbs are exceptional in that their accent location is lexically specified (e.g., KAERU is

²⁵ A form of a $[+A]$ verb with $/(a)nu/$, $/(a)zu/$, or $/(a)neba/$ (see Section 7) has an accent on the mora that contains the last segment of the stem ({kaka’zu^(s)}, {kaka’ne’ba}, {nage’zu^(s)}, {nage’ne’ba}).

inherently accented on /ka/), whereas regular accented verbs are only associated with feature [+A] and do not have an “inherent accent location”. KANGAERU-class verbs each have two variants, one whose accent location is lexically specified (on a par with a KAERU-class verb) and one which is like a regular accented verb. I further suggest that the accent placement rules (64) take effect only within a single AP, so that the stems of regular accented verbs will not be assigned any specific accent pattern if they neither (i) form an AP together with an inflectional suffix nor (ii) form an AP on their own as an infinitive form. This explains why they can never be accentually independent; it is impossible to pronounce a word (word segment) whose accent pattern is unspecified, there being no “correct” pronunciation. KAERU-class and KANGAERU-class verbs, on the other hand, do not face this problem, so that their stems can be accentually separated from the inflectional affix.

The assumed inherent accent of a KAERU/KANGAERU-class verb does not manifest itself when it is combined with presumptive suffix /oH/;²⁶ one should thus add (64x) to the set of the rules, postulating that it takes priority over (64a,b).

- (64) x. If V is lexically specified to be accented on a specific mora,
- (i) if S is /(y)o’H/, the only accent of the entire form is the one inherent to /(y)o’H/ (e.g., {kaero’H});
 - (ii) otherwise, the lexically specified accent is retained (e.g., {ka’eru’}, {ka’eri’}).

²⁶ Also, with /(a)nu/, /(a)zu/, and /(a)neba/ (see Section 7), the accent inherent to the stem is shifted to the mora containing the last segment of the stem (e.g., {kaera’zu^(s)}, {kaera’ne’ba}); see also fn.25).

7. Conclusion

This paper argued that Japanese morphemes: /te/, /ta/, /tara/, /tari/, and /taQte/ (the *t*-morphemes), which share a common morphophonological characteristic, should be treated as particles which follow an infinitive form, contrary to the common assumption in the literature that they are inflectional affixes following a stem.

The proposed analysis was defended on tonal grounds. It was demonstrated that a *t*-morpheme, but not an inflectional affix, may be separated from its host by an accent phrase boundary with the host having the accent pattern expected for an infinitive form. The last point was endorsed by the results of a production experiment, which demonstrate that the *tara*-form of an accented verb can be pronounced with two steep pitch falls within it.

The presented analysis has a significant impact on a proper description of the Japanese grammar, implying that the language (i) has considerably fewer inflectional affixes than commonly assumed and (ii) uses analytic forms, in addition to inflected forms, to indicate tense and mood. Table 12 presents what I consider the complete paradigms of Type I and Type II verbs (represented by KASU ‘lend’ and AKERU ‘open’, respectively), which are built on Teramura’s (1984; see Table 4) but departs from them in two respects: (i) they do not include forms with *t*-morphemes (“*ta*-series endings”), and (ii) they include three negative forms which are archaic and/or stylistically restricted, and (perhaps for this reason) are left out by Teramura. Negative forms like /kasanai/ ([/kas/+/ana/]+/i/), as well as passive forms, causative forms, polite forms, etc., are not included because they involve derivation.

Table 12 Complete paradigms of regular verbs

mood	polarity	predicate type	forms
present indicative	affirmative	Type I verb	/kas/+/u/
		Type II verb	/ake/+/ru/
	negative	Type I verb	/kas /+/anu/ (/aN/)
		Type II verb	/ake/+/nu/ (/N/)
infinitive	affirmative	Type I verb	/kas/+/i/
		Type II verb	/ake/(+ \emptyset)
	negative	Type I verb	/kas/+/azu/
		Type II verb	/ake/+/zu/
provisional	affirmative	Type I verb	/kas/+/eba/
		Type II verb	/ake/+/reba/
	negative	Type I verb	/kas/+/aneba/
		Type II verb	/ake/+/neba/
presumptive		Type I verb	/kas/+/oH/
		Type II verb	/ake/+/yoH/
imperative		Type I verb	/kas/+/e/
		Type II verb	/ake/+/ro/

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