

On the dual status of the bigrade endings in Old Japanese

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Abstract The Japanese language throughout its attested history has a good number of transitive-intransitive verb ‘pairs’. In Old Japanese, the vowel ending of the two bigrade conjugation classes, /e/ or /wi/, participates in transitivity alternations, but it apparently exhibits two opposite functions in different verb forms, namely transitivizing and detransitivizing. This paper provides a novel Distributed Morphology-based account of the Old Japanese facts, arguing that the bigrade endings have an asymmetrical dual status at this stage of the language. While some bigrade endings involve a *v* head -*y*-, which may be directly suffixed to the root, other bigrade endings manifest a separate suffix -*e*- which is located higher in the verbal domain. The *v* head -*y*- is an intransitivizer which invariably derives intransitive verbs, whereas the higher head -*e*- is in fact an inner-aspectual element underspecified regarding transitivity, whose real function is to license change of state. The two suffixes are historically related but must be treated synchronically as two distinct elements in Old Japanese.

Keywords: *transitivity alternation, verbal domain, Old Japanese, bigrade conjugation, historical linguistics, Distributed Morphology*

1 Introduction

A widely accepted view of modern Japanese morphology is that the ‘base’ of a verb may end in either a consonant or a vowel (Sakuma 1936, Bloch 1946, McCawley 1968, Martin 1975, Shibatani 1990, among many others). For example, as in Table 1, the bases of *kik*- ‘to listen’ and *tabe*- ‘to eat’ end with a consonant and a vowel, respectively, and they may be followed by suffixes with different (surface) forms.

This basic dichotomy has been assumed to hold true throughout the attested history of Japanese (see, e.g., Ohno 1953, Frellesvig 2010, Vovin 2020). In traditional terminology, the two major precursors of consonant and vowel verbs in premodern Japanese are called *yodan*/quadrigrade (henceforth QD) and *nidan*/bigrade verbs, respectively. Bigrade verbs are further classified as *simo-nidan*/lower bigrade (henceforth LB) and *kami-nidan*/upper bigrade (henceforth UB) verbs, depending on the final vowel of

Class	Consonant verb	Vowel verb
Base	<i>kik-</i> ‘to listen’	<i>tabe-</i> ‘to eat’
Non-past	<i>kik-u</i>	<i>tabe-ru</i>
Negative	<i>kik-ana-</i>	<i>tabe-na-</i>
Conditional	<i>kik-eba</i>	<i>tabe-reba</i>
Volitional	<i>kik-oo</i>	<i>tabe-yoo</i>
Imperative	<i>kik-e</i>	<i>tabe-ro</i>

Table 1: A partial paradigm of the two major verb conjugation classes in modern Japanese

the verb base (LB if the final vowel is /e/; UB if /i/ or /wi/).¹ Table 2 provides a partial paradigm of the three classes of verbs in Old Japanese (henceforth OJ), the earliest attested stage of the language. (The final vowel of the bigrade verb (i.e., /e/ or /wi/) is deleted in some inflected forms, following regular morphophonological rules.)

Class	QD (~75% of verbs)	LB (~20% of verbs)	UB (~thirty verbs)
Base	<i>kak-</i> ‘to write’	<i>ake-</i> ‘to open’	<i>okwi-</i> ‘to rise’
Conclusive	<i>kak-u</i>	<i>ak-u</i>	<i>ok-u</i>
Adnominal	<i>kak-u</i>	<i>ak-uru</i>	<i>ok-uru</i>
Imperative	<i>kak-ye</i>	<i>ake (yo)</i>	<i>okwi (yo)</i>
Infinitive	<i>kak-i</i>	<i>ake-Ø</i>	<i>okwi-Ø</i>
Conditional	<i>kak-aba</i>	<i>ake-ba</i>	<i>okwi-ba</i>
Concessive	<i>kak-edo</i>	<i>ak-uredo</i>	<i>ok-uredo</i>

Table 2: A partial paradigm of OJ verbs, ignoring minor and irregular classes (Frellesvig 2010:54; adapted)

However, the distinction between QD/consonant verbs and bigrade/vowel verbs is not merely a phonological one. There is good evidence that the final vowels of bigrade verbs are *functional*; that is, /e/ or /wi/ are not actually part of the verb *root*, but are realizations of independent elements attached to the root. First, the vowel ending of a bigrade verb ‘base’ is quite restrictive: It must be either /e/ or /wi/ (/i/ in later historical stages), even though the vowel inventory of Japanese has several other members (see fn.1). Throughout the attested history, one never finds a regular bigrade/vowel verb that ends with, for instance, /a/, one of the most frequent vowels in Japanese. This scenario is unexpected if the root of a verb may simply end with a vowel.

Further, notably, the bigrade/vowel endings play a key role in *transitivity alternations*, a phenomenon

¹ The UB ending in Old Japanese is /wi/, which merges into /i/ in later stages of the language.

This paper adopts the Frellesvig & Whitman transcription system for OJ (see Frellesvig & Whitman 2008, Frellesvig 2010). The traditional eight distinctive ‘vowels’ of OJ are transcribed/phonemically interpreted as follows: a = /a/, u = /u/, i₁ (*kōru* i) = /i/, i₂ (*otsurui* i) = /wi/, e₁ (*kōru* e) = /ye/, e₂ (*otsurui* e) = /e/, o₁ (*kōru* o) = /wo/, o₂ (*otsurui* o) = /o/; /i/, /e/, and /o/ are used for neutralized i₁₌₂, e₁₌₂, and o₁₌₂, respectively. For ease of exposition, I will still sometimes call complex units like /wi/ or /ye/ *vowels*, although in the Frellesvig & Whitman system they are not analyzed as single vowels.

found at all attested stages of Japanese (see, e.g., [Whitman 2008](#)). Descriptively, Japanese has a good number of transitive-intransitive verb ‘pairs’, where the two members of a pair overlap in their base forms. Some such pairs that are phonographically found already at the stage of OJ are listed in (1):²

(1)	Intransitive		Transitive
a.	<i>yake</i> - ‘to burn _{INTR} ’	vs.	<i>yak</i> - ‘to burn _{TR} ’
b.	<i>ide</i> - ‘to emerge’	vs.	<i>idas</i> - ‘to take out’
c.	<i>tat</i> - ‘to rise’	vs.	<i>tate</i> - ‘to raise’
d.	<i>tomar</i> - ‘to stop _{INTR} ’	vs.	<i>tome</i> - ‘to stop _{TR} ’
e.	<i>tir</i> - ‘to scatter _{INTR} ’	vs.	<i>tiras</i> - ‘to scatter _{TR} ’
f.	<i>kakar</i> - ‘to hang _{INTR} ’	vs.	<i>kak</i> - ‘to hang _{TR} ’
g.	<i>watar</i> - ‘to go across’	vs.	<i>watas</i> - ‘to make go across’

As a preliminary observation, two (overt) suffixes with an obvious function can be identified from (1): *-ar*- and *-as*-, which are associated with intransitive and transitive verbs, respectively. One may also identify a third suffix *-e*- from the pairs, which is exactly the LB ending addressed above. The data in (1) thus show clearly that the LB ending is structurally suffixal, not just a part of the verb root (the less frequent UB ending /wi/ will be discussed later). What is not immediately clear, however, is the function of the LB ending: The ending is associated with an intransitive meaning in some forms (e.g., *yake*- ‘to burn_{INTR}’, *ide*- ‘to emerge’), but it behaves like a transitivizer in other forms (e.g., *tate*- ‘to raise’, *tome*- ‘to stop_{TR}’). Indeed, the LB/*e*-ending is often informally referred to as a ‘transitivity flipper’ in the literature (see [Whitman 2008](#) for relevant discussion).

Although the above observations are by no means new, largely due to the difficulty in recognizing the exact function of the LB/*e*-ending, there has been a tradition of ignoring its morphemic status in school grammar as well as in some synchronic descriptive works (the ending is often identified only morphophonologically in order to sort conjugation classes, as in Tables 1 and 2; see, e.g., [Vovin 2003, 2020, Kupchik 2023](#)). Nevertheless, the ambivalent behavior of the LB/*e*-ending has attracted numerous studies, on both OJ and modern Japanese (see, e.g., [Kageyama & Jacobsen 2016](#)), among which many seek to relate the functional and distributional complexity of the ending to its origin in the proto-language (e.g., [Unger 1993, 2014, Frellesvig 2008, Whitman 2008, Frellesvig & Whitman 2016](#)), which in turn form an essential part of the reconstruction of proto-Japanese morphology.

While this line of research has been fruitful, and some broad consensus (regarding both OJ and the proto-language) has been reached in recent years (see the rest of the paper for more detailed discussion), this paper focuses on the *synchronic* status of the bigrade endings in OJ and submits a novel proposal within the framework of Distributed Morphology (henceforth DM; [Halle & Marantz 1993, 1994](#)). To the

² See [Narrog 2016](#) for lists of transitive-intransitive pairs in premodern Japanese. For comprehensive lists of such verb pairs in the modern language, see [Jacobsen 1992](#) and [Kageyama & Jacobsen 2016](#) (Appendices A and B).

extent that it is successful, the study can be taken as an example of how modern generative approaches to linguistics offer new insights into ‘old’ historical issues by addressing previously unasked questions.³

Specifically, I will argue that the bigrade endings in OJ are in fact *structurally ambiguous*. First, I will show that *some* of the bigrade endings in OJ involve a verbalizer/v head -y-, which may be directly suffixed to the root √ (2a), whose presence is masked by a regular phonological process (to be discussed later). Second, it will be proposed that *not all* bigrade endings can be analyzed as involving the verbalizer -y-, and a separate, structurally higher -e- suffix must also exist (located in a position which I label as Asp as in (2b)), which can be identified via its distinct distribution and special aspectual meaning:

- (2) a. [Asp [v [√ ...] -y-] -Ø-]
 b. [Asp [v [√ ...] -Ø-] -e-]

While both ideas (that the bigrade endings may underlyingly consist of something like -y-, and that the endings may be aspectual) have their precursors in some forms in the previous literature (relevant works will be addressed later in the paper), it is novel to propose, with a formal formulation (2), that the bigrade endings manifest such a dual status at the stage of OJ (see however Frellesvig 2008 for a different but important earlier non-unified analysis of the bigrade endings from a diachronic perspective). Building on this suggestion, the paper further addresses the aforementioned transitivity alternation puzzle regarding the bigrade endings, and shows that the proposed analysis in (2) sheds new light on this long-standing issue. It will be suggested that the apparent ambivalent behavior of the LB ending in OJ exemplified in (1) arises only if one views it as a homogeneous phenomenon; the correct question to ask for OJ is what the function of the verbalizer -y- (2a) is and what the function of the aspect marker -e- (2b) is, respectively. The conclusion will be that while the v head -y- functions as an *intransitivizer*, the Asp head -e- is dedicated to licensing *change of state*, which affects transitivity only in a much more indirect way. There is no single element in OJ that can be identified as a ‘transitivity flipper’.

The remainder of the paper is organized as follows. In Section 2 I argue that, primarily based on evidence regarding their distribution and phonological behaviors, -y- and -e- must be identified as two distinct suffixes in the verbal domain of OJ. Section 3 then discusses the functions of -y- and -e-. First, it is argued that the v head -y- is associated with intransitivity and it is also multifunctional (a typical property of v heads), and second, I show that the structurally higher -e- is not a dedicated transitivity marker, but it must be understood as a dedicated aspectual marker, the real function being marking change of

³ It is worth noting that, as pointed out by Calabrese (2023), with some notable exceptions (mostly on classical Indo-European languages), studies on historical morphology (understood in a broad way—including synchronic studies on ‘dead’ languages and diachronic studies on any language) in the generative framework are sparse (see Calabrese & Grestenberger 2024 for an overview), whereas generative work on historical phonology (e.g., Kiparsky 1982, 2015) and historical syntax (e.g., Lightfoot 1979, Harris & Campbell 1995, Roberts & Roussou 2003) has fared better. Note also that most works on the history of Japanese are non-generative (exceptions are found in the field of syntax; see, e.g., A. Watanabe 2002, Yanagida & Whitman 2009, Wrona 2017). The current research thus aims to (partially) fill the gap between theoretical morphology and historical linguistics, by studying OJ morphology from a generative perspective.

state. The two suffixes are synchronically still connected in the analysis, but at an abstract level: They both are argued to involve a formal feature, which I label as [BECOME]. Section 4 elucidates the ideas further by presenting three case studies that would be difficult to account for without the new proposal presented in this paper. Section 5 compares the dual-status analysis with previous studies on OJ bigrade conjugation, in particular Frellesvig & Whitman's (2016) articulated version of the GET hypothesis of the origin of the bigrade conjugation. Section 6 concludes the paper.

2 Structure of the bigrade endings

I first lay out the basics of the proposal by examining the form and distribution of the bigrade endings in OJ; their functions (which are responsible for the relevant cases of transitivity alternations in (1)) are then discussed in Section 3, building on the findings presented in this section. In Subsection 2.1 I identify a suffix *-y-* for OJ, which may then give rise to /e/ (the LB ending) or /wi/ (the UB ending) in different phonological contexts, via regular phonological rules. In Subsection 2.2, however, I argue that while all cases of the UB ending /wi/ involve *-y-*, many instances of the LB ending cannot be derived from *-y-* via the same process, and they thus must involve a separate, structurally higher suffix *-e-*. One decisive piece of evidence is the observation that *-y-* and *-e-* may actually co-occur in the same verb form.

2.1 Identifying *-y-*

This subsection argues that *some* bigrade endings in OJ involve a suffix *-y-* underlyingly. First, it needs to be clarified that it is not a new proposal that the bigrade endings are diachronically associated with a certain element whose phonological shape is something like /i/ (see below for further discussion). While details differ, it is a well-established view that both /e/ and /wi/ are *secondary* in OJ, in the sense that the two were recently developed via a class of sound changes which is often referred to as 'vowel contraction' at an earlier stage of the language (Yamaguchi 1971, Whitman 1985, 2016, Martin 1987, Unger 1993, Miyake 2003, Frellesvig & Whitman 2008, Frellesvig 2010, among others). For example, based on the now widely accepted six-vowel hypothesis for proto-Japanese, Whitman (2016) suggests that the following sound changes occurred in pre-OJ:

- (3) a. *ai > e
 b. *əi > e / C_[+cor] —
 c. *əi > wi / C_[-cor] —
 d. *ui > wi

In other words, all instances of /e/ and /wi/ in OJ are derived from pre-OJ via one of the rules in (3).⁴ Hence, the *phonological* shape of the bigrade endings must be /*Vi/ in pre-OJ. Regarding *morphological* reconstruction, Unger (1993) posits a transitivity-flipping suffix **-gi* for proto-Japanese, which then

⁴ Vovin (2011) and Pellard (2013) also suggest *oi > wi, yet another case of historical vowel contraction.

gives rise to the bigrade endings after the following sound changes (loss of /*g/ followed by vowel contraction):⁵

$$(4) \quad *CVCV\text{-}\underline{gi} > *CVCV\underline{i} > CVCV \quad (\underline{V} = /e/ \text{ or } /wi/ \text{ at the final stage})$$

At any rate, these previous works are primarily *diachronic* in nature; they address the questions of what the proto-language was like and how OJ developed from it. For OJ, a common, often implicit assumption has been that bigrade verbs are largely lexicalized at this stage. However, the phenomenon of transitivity alternations represented in (1) (as well as the role that the bigrade endings play) is a bona fide synchronic one, even though the function of the bigrade endings is at first glance not entirely transparent.⁶ Theoretically, it would not be a satisfactory situation if, for example, *yake*- ‘to burn_{INTR}’ and *yak*- ‘to burn_{TR}’ (1a) are taken to be two distinct tokens that have no derivational relations in the synchronic grammar of OJ. I show below that, synchronically, some bigrade endings in OJ are best analyzed as resulting from the contraction of a root-final vowel and a suffix -y-, in a sense comparable to Unger’s (1993) *-gi which is originally posited from a diachronic perspective (though see Section 5 for further discussion).

I start reviewing the synchronic issue by investigating the behavior of the other two suffixes identified from (1) in Section 1, namely the intransitive -ar- and the transitive -as-, which will help set up the novel dual-status approach to the bigrade endings to be spelled out in more detail below. First of all, both suffixes seem to have an initial vowel, as in *tir*- vs. *tiras*- (1e), where apparently a vowel-initial ending -as- alternates with a zero. However, while the most frequent initial vowel for both suffixes is indeed /a/ (as in (1) and (5a) below), the value of the vowel in fact varies, depending on the root they select. For example, as in (5b–d), the initial vowel of the two suffixes may be /o/ or /u/.⁷ Crucially, when the two suffixes occur in pairs, the initial-vowel alternation unexceptionally occurs in the same contexts; that is, the two do not differ on which roots condition the vowel change:

- (5) a. *kapar*- ‘to change_{INTR}’ vs. *kapas*- ‘to switch_{TR}’ (cf. *kap*- ‘to change’)
 b. *motopor*- ‘to go back’ vs. *motopos*- ‘to make go back’
 c. *otor*- ‘to be inferior’ vs. *otos*- ‘to drop’
 d. *sugur*- ‘to pass’ vs. *sugus*- ‘to let pass’

The pattern in (5) immediately casts some doubts on an analysis where the /a/ vowel in the *ar*- and *as*- endings is part of the suffixes, under which it is entirely a coincidence that the initial vowels of -as- and -ar- always covary.⁸ A more natural solution, then, is to take the vowels in question to be part of the

⁵ The reconstruction of /*g/ and its loss is not important for present purposes (also, this part has not gained general acceptance; see Miyake 2003, Francis-Ratte 2016). Note also that in Unger’s (1993) proposal, all verb roots in proto-Japanese end with a vowel (see further discussion in the main text below).

⁶ Unger (1993) relates his *-gi to the passive/causative marker -hi/ki/li/i- in Korean; see Whitman 2008 for criticism. The function of the suffix -y- proposed below is discussed in Subsection 3.1 and differs from Unger’s (1993) analysis.

⁷ While /o/ and /u/ are the most common alternates, other vowels are also attested, e.g., *kapyer*- ‘to return_{INTR}’ vs. *kapyes*- ‘to return_{TR}’ (these less common vowels in question are traditionally considered part of the root).

⁸ Note that the vowel alternation is not phonologically predictable in OJ. For example, *kakar*- ‘to hang_{INTR}’ vs. *kakur*- ‘to be hid-

root. That is, in *tir-* vs. *tiras-* (1e), the root for both forms is *tir(a)-*, and in the latter a transitive suffix *-s-* attaches directly to it. Likewise, for *kakar-* ‘to hang_{INTR}’ vs. *kak-* ‘to hang_{TR}’ (1f), I suggest that the root form is *kak(a)-* for both, and the former form involves an intransitive suffix *-r-*.

Treating the vowels in question as part of the root raises a complication, however: One then needs to explain why the final vowel of a verbal root like *tir(a)-* is sometimes present but sometimes not. I will suggest in Subsection 2.2 that the distribution of the OJ root-final vowel is conditioned entirely by phonological factors (by contrast, as stated in fn.8, the value of the vowel is not phonologically predictable). What is important for the current purposes is how the treatment of this vowel relates to the form of the bigrade endings in OJ. According to (1) and the discussion above, the bigrade endings may alternate with the intransitive *-r-* or the transitive *-s-* in a transitivity pair—it is important to note that whereas only LB verbs (i.e., those that end with /e/) are used in the examples in (1), UB verbs (i.e., those that end with /wi/) may also participate in such pairs. Importantly, the distribution of the two endings is not random: As shown in (6a) (see also (1)), /e/ is used for roots whose final vowel is /a/ (the vowel is absent on the surface in these bigrade verbs, but its value can be determined from the QD counterpart with *-s-* or *-r-*), while /(w)i/ almost unexceptionally occurs with roots whose final vowel is /o/ or /u/, as in ((6b–d)).⁹ Note that /wi/ regularly becomes /i/ after a coronal as in (6c), the rule being written as (7) (see Frellesvig 2010:33–34):¹⁰

- | | | | | |
|-----|----|---|-----|-------------------------------|
| (6) | a. | <i>ida-s-</i> ‘to take out’ | vs. | <i>id-e-</i> ‘to emerge’ |
| | b. | <i>oko-s-</i> ‘to wake/raise’ | vs. | <i>ok-wi-</i> ‘to arise’ |
| | c. | <i>oto-r-</i> ‘to be inferior’; <i>oto-s-</i> ‘to drop’ | vs. | <i>ot-i-</i> ‘to fall’ |
| | d. | <i>sugu-r-</i> ‘to pass’; <i>sugu-s-</i> ‘to let pass’ | vs. | <i>sug-wi-</i> ‘to pass time’ |

- (7) $wi > i / C_{[+cor]} __$ (/wi/~i/ merger after coronals)

The covariance between the value of the bigrade endings (/e/~wi/) and the value of the root-final vowel (/a/~o/ or /u/) is systematic. It should also be explained that the final vowel of a root is not directly present in bigrade verbs, which can be decomposed, at least, into a verb root and a bigrade ending. The analysis is as the following, which in fact highly resembles Unger’s (1993) reconstruction of the proto-language, addressed above. I propose the shaded forms in (8), where a *-y-* suffix that attaches to the vowel-ending roots is posited (discussion of the function of *-y-* is deferred to Section 3):

den’ are contrastive. This excludes the possibility that the values of the initial vowels of *-Vs-* and *-Vr-* are plainly conditioned by some phonological properties of the root in a parallel manner.

⁹ Two apparent exceptions are *kom-o-r-* ‘to hide_{INTR}’ vs. *kom-e-* ‘to enclose’ and *yoso-r-* ‘to be drawn near’ vs. *yos-e-* ‘to bring close’, where it is /e/ instead of /wi/ that alternates with /o/ (cf. Frellesvig & Whitman 2008). I put them aside here and will argue in Subsection 3.2 that *kom-e-* ‘to enclose’ and *yos-e-* ‘to bring close’ simply do not involve the same structure to be proposed in the current subsection, so they are not real exceptions.

¹⁰ This follows the Frellesvig & Whitman system (Frellesvig & Whitman 2008, Frellesvig 2010), in which the neutralization of o_1 and o_2 (see fn.1) is interpreted as the loss of /w/ in relevant contexts.

- | | | | |
|--------|---|-----|-------------------------------|
| (8) a. | <i>ida-s-</i> ‘to take out’ | vs. | <i>ida-y-</i> ‘to emerge’ |
| b. | <i>oko-s-</i> ‘to wake/raise’ | vs. | <i>oko-y-</i> ‘to arise’ |
| c. | <i>oto-r-</i> ‘to be inferior’; <i>oto-s-</i> ‘to drop’ | vs. | <i>oto-y-</i> ‘to fall’ |
| d. | <i>sugu-r-</i> ‘to pass’; <i>sugu-s-</i> ‘to let pass’ | vs. | <i>sugu-y-</i> ‘to pass time’ |

The shaded forms in (8) are the underlying representations of the bigrade verbs in (6), with the same root forms that can be suffixed with *-r-* or *-s-*. The bigrade endings in (6) (/e/ and /(w)i/) are derived via the rules in (9), which resemble the diachronic rules in (3) and I take to be entirely regular in OJ (see further below).¹¹ Following Frellesvig 2008, I will refer to the rules in (9) as vowel contraction rules throughout, although in Frellesvig & Whitman’s five-vowel system of OJ, adopted also in the current paper, (9a) is technically a case of vowel coalescence, and (the first step of) (9b) a case of glide formation.

- (9) a. ai > e
 b. oi or ui > wi (> i after coronals)¹²

I interpret the underlying phonological representation of the suffix *-y-* as /ɪ/, a vocalic unit which by itself is underspecified for syllabicity. It is realized as /i/ in nucleus positions and as a glide /y/ (= the IPA /j/) in onset or coda positions (see also Subsection 2.2).

Hence, an underlying form like *ida-y-* ‘to emerge’ in (8a) gives rise to *ide-* in (6a) as a result of regular phonology. In other words, the final vowel of a root is underlyingly present in the bigrade verb bases. Since OJ in general does not allow vowel hiatus (Russell 1997, 2003, Frellesvig 2008, among others), sequences like /ai/ or /oi/ are ill-formed in surface phonology. The rules in (9) are thus phonologically well motivated—they are hiatus resolution rules. Note that OJ has two primary strategies for resolving vowel hiatus: Besides vowel contraction, the other major strategy is vowel elision; that is, one of the vowels gets deleted in a vowel sequence (both strategies are typologically common; see Casali 2011 for an overview).¹³ In the next subsection, I will comment in more detail on the division of labor of the two types of hiatus resolution rules in OJ; for current purposes, it suffices to point out that the rules in (9) are also at work in other areas of the language. For instance, as in (10), the three rules in (9) are all attested for A-N compounds (Frellesvig & Whitman 2008:19):

- | | | | | |
|---------|--------------------------------------|---|--|-----------|
| (10) a. | <i>taketi</i> (proper name) | < | <i>taka</i> ‘high’ + <i>iti</i> ‘market’ | (ai > e) |
| b. | <i>opwisi</i> ‘big stone’ | < | <i>opo</i> ‘big’ + <i>isi</i> ‘stone’ | (oi > wi) |
| c. | <i>wakwiratukwo</i> (an appellation) | < | <i>waku</i> ‘young’ + <i>iratukwo</i> ‘honored male’ | (ui > wi) |

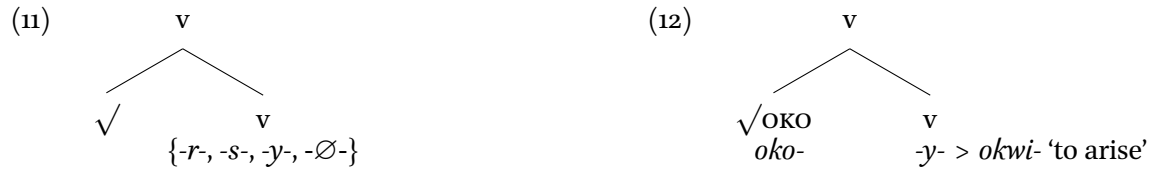
The above discussion thus suggests that, underlyingly, first, all OJ verb roots end with a vowel (this resembles Martin’s (1987) and Unger’s (1993) reconstruction of the proto-language; I will however occa-

¹¹ OJ /o/ corresponds to proto-Japanese *ə.

¹² In some cases /oi/ may become /e/ in OJ (cf. (3b)), but since there is no clear case where an LB ending involves a root-final /o/ plus *-y-*, I ignore this possibility in (9b) (see fn.9 and Section 3.2).

¹³ A typical example of vowel elision in OJ is the following: *wagapye* < *wa=ga ipye* ‘my house’, where the initial vowel of the noun *ipyē* ‘house’ gets deleted when the noun follows the possessive marker *=ga*.

sionally drop the final vowel of QD roots when citing them), and second, the root may be suffixed with one of the three markers: *-r-*, *-s-*, and *-y-*. I propose that *-r-*, *-s-*, and *-y-* are three verbalizers with different ‘flavors’ in OJ (see below). When the suffix is the verbalizer *-y-*, whose phonological shape is /ɪ/, it undergoes vowel contraction with the final vowel of the root, via the rules in (9). The relevant structure of the OJ verbal domain is represented in (11), where I adopt an often-made assumption from the DM literature that an open-class lexical item consists of (at least) an acategorical root and a category-defining element (Marantz 1996, 1997, Arad 2005, Harley 2005, 2014, Embick & Marantz 2008, Embick 2010, among many others), the general idea being that what is traditionally conceived as a ‘word’, say the noun *cat* in English, consists of (i) a root, here $\sqrt{\text{CAT}}$, which by itself is not specified for categorial information, and (ii) a categorizer, which in the case of *cat* is a nominalizer that lacks phonological content. Likewise, a *verb* is (minimally) the combination of a category-defining *v* head (i.e., a verbalizer) and a root, the latter by itself being category-neutral. For example, the structure of the UB verb form *okwi-* ‘to arise’ is given in (12): It consists of the root $\sqrt{\text{OKO}}$ and the verbalizer *-y-*; their phonological representations, namely /oko/ and /ɪ/, then trigger the contraction rule *oi > wi* (9b), resulting in the correct surface form.

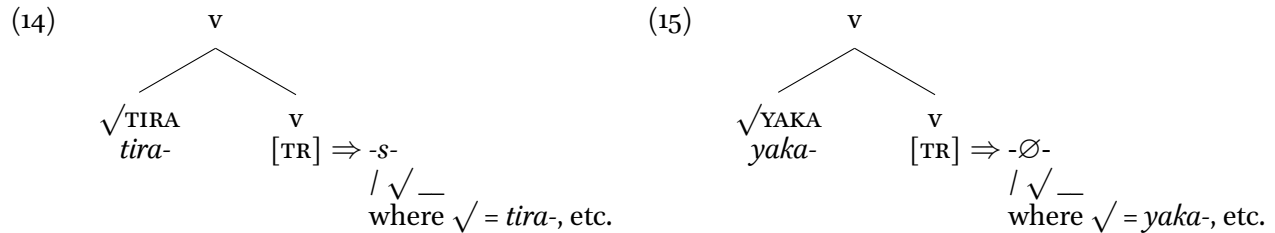


As in (11), *-r-*, *-s-*, and *-y-* are not the only possible exponents of *v* in OJ; the verbalizer can also be a phonetic zero *-∅-*: An OJ verb may simply lack an overt verbalizer (see below for further discussion of zero exponence). The four exponents occur in different verb forms. I propose that their distribution is conditioned by the following vocabulary insertion (VI) rules:

- (13) a. $[\text{TR}]_v \Rightarrow \text{-s- or -}\emptyset\text{-}$
 b. $[\text{INTR}]_v \Rightarrow \text{-r- or -}\emptyset\text{-}$
 c. $[\text{INTR, BECOME}]_v \Rightarrow \text{-y-}$

All vocabulary items in (13) may turn a root into a verbal projection. The first two rules (13a) and (13b) state that *-s-* and *-r-* are realizations of the [TR] feature and the [INTR] feature on *v*, respectively; the former feature gives a transitive verb and the latter an intransitive one. These two features can also be realized as *-∅-* on *v*, as both transitive and intransitive verbs in OJ may be zero-marked (see, e.g., (1)). The choice between an overt and a covert exponent in (13a) and (13b) is largely a matter of contextual allomorphy (see Bonet & Harbour 2012 for general discussion). That is, whether *-s-* or *-∅-* realizes [TR] depends on the environment in which [TR] occurs (the same applies to *-r-* and *-∅-* for [INTR]). For example, both *tiras-* ‘to scatter_{TR}’ and *yak(a)-* ‘to burn_{TR}’ are transitive verb forms, whose relevant structures are given in (14) and (15), respectively, where the [TR] feature on *v* is the same but is realized differently

in phonology, depending on the root (see further below).¹⁴

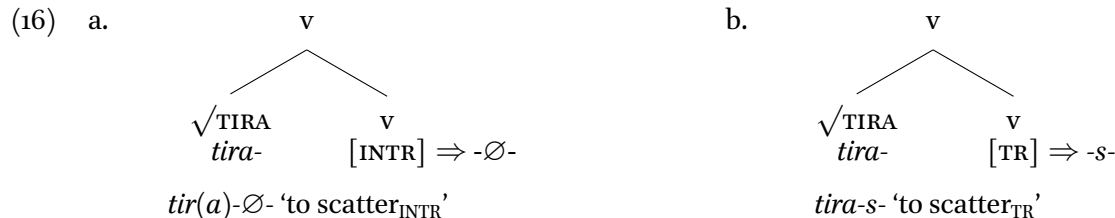


(13c) states that *-y-* realizes [INTR, BECOME] on *v*. While the reason for this treatment of *-y-* is discussed in Section 3, two brief clarifications are in order. First, just like *-r-*, *-y-* is taken to be an intransitivizer in OJ (albeit bigrade verbs apparently may be either transitive or intransitive; see (1)), and second, *-y-* is distinct from *-r-* in that the former is further associated with the [BECOME] feature (whose function is addressed in Section 3). For present purposes, it suffices to keep in mind that *-r-*, *-s-*, and *-y-* are three distinct exponents associated with different feature entries on *v*.

Moreover, category-defining heads such as *v* are very often multi-functional (e.g., a *v* head is often not merely category-defining—it may also encode information regarding transitivity), as is common for derivational morphemes. In the current case of *v* in OJ, the options listed in (13) not only endow the root with the categorial status as *verb*, but they also all have the function of making the verb they create transitive or intransitive (again, a typical property of *v*; see Marantz 1997, Coon & Preminger 2011, Harley 2017, among many others). For instance, a verb suffixed with *-r-* is invariably intransitive, and an *-s-*-suffixed verb is always transitive (there are also additional functions that *v* can have; see Section 3 for *-y-*).

We have seen in this subsection that to account for the formal behavior of the bigrade endings—especially the different distribution of the UB and the LB endings—a *v* head *-y-* must be identified for OJ, along with other verbalizers like *-r-* and *-s-*. It is interesting to note that, under the current analysis, there are no direct derivational relations between any of the verb forms in the transitivity alternation ‘pairs’ in (1). Consider *tir-* ‘to scatter_{INTR}’ vs. *tiras-* ‘to scatter_{TR}’ from (1e), for example. In traditional terms, it would be said that *tiras-* is directly derived from *tir-* by adding a transitivizing suffix to the latter *verb* (see, e.g., Suga & Hayatsu 1995, Narrog 2016). However, for the present account, the structural relation between the two verb forms is crucially symmetrical: Both are built on an acategorial root and a *v* head, as in (16):

¹⁴ The verb pair *pana-r-* ‘to be separated from’ vs. *pana-t-* ‘to separate_{TR}’ suggests that the feature [TR] on *v* may also be realized as *-t-*, besides *-s-* and *-∅-* (see Unger 2000, 2008). I will ignore this potential allomorph of the transitive *v* in the main text as it is only attested with the root *pana-* and thus may welcome other explanations.



In other words, it is simply not the case that the transitive verb *tiras-* is derived from the intransitive verb *tir-*, as the traditional description would state. Note that transitivity pairs like those in (1) have been extensively discussed in the typological literature from a cross-linguistic perspective (Croft 1990, Haspelmath 1993, Nichols et al. 2004, Haspelmath et al. 2014, among many others), regarding how the two members of a certain pair are relatively (un)marked.¹⁵ Take (1e–g), repeated below as (17a–c), for example. The three pairs would be described as involving ‘transitivizing’ (the transitive member is marked), ‘intransitivizing’ (the intransitive member is marked), and ‘equipollent’ (both members are equally marked) patterns, respectively:

(17)	Intransitive		Transitive		Pattern
a.	<i>tir-</i> ‘to scatter _{INTR} ’	vs.	<i>tiras-</i> ‘to scatter _{TR} ’		Transitivizing
b.	<i>kakar-</i> ‘to hang _{INTR} ’	vs.	<i>kak-</i> ‘to hang _{TR} ’		Intransitivizing
c.	<i>watar-</i> ‘to go across’	vs.	<i>watas-</i> ‘to make go across’		Equipollent

The traditional concern has been why certain pairs (both within a language and cross-linguistically) fall into one alternation pattern but not into others. In the current analysis, however, the question is crucially not about the relative structure of the two members (as there is no direct derivational relation between them), but about how the invariably symmetrical syntactic structures (as in (16)) are phonologically realized. In other words, instead of asking, for example, why the verb for ‘to scatter_{INTR}’ is apparently derived from the verb for ‘to scatter_{TR}’ in OJ, but not the other way around, the real question is why, for the root *tir(a)-*, the *v* head merged above it is overtly realized in phonology when it is transitive, but not when it is intransitive. While a systematic investigation of this issue lies outside the scope of the paper, it is worth noting that the proposed DM-based analysis provides a perspective on the transitivity-alternation debate quite different from that of the traditional typological studies.¹⁶

¹⁵ For discussion from a generative perspective, see Levin & Rappaport Hovav 1995, Alexiadou et al. 2006, 2015, Schäfer 2008, 2009, Martin et al. 2025, among others.

¹⁶ In general, regarding the question of why transitive or intransitive verbs are sometimes overtly marked but sometimes unmarked even when a relevant overt marker is available, functional-typological accounts usually rely on form-meaning parallelism or form-frequency correspondence (e.g., Haspelmath 1993, Haspelmath et al. 2014). These accounts are in principle compatible with the current analysis of OJ verbs proposed in this paper. For example, a frequency-based account would suggest that, within a certain transitivity alternation pair, the member that is more frequently used tends to be shorter/unmarked. For us, this would mean that the more frequently used *v* head (be it transitive or intransitive) for a certain root tends to be realized as *-Ø-*. In fact, for reasons of modularity, it would intuitively make more sense to view these functional principles, e.g., form-frequency correspondence, as factors that may condition the exponence, rather than as factors that would directly affect the ‘deep’ verbal structure (i.e., the derivational relations between two verb forms would

2.2 A higher -e-

We have seen in the last subsection that *some* of the bigrade endings in OJ underlyingly involve a verbalizer -y-; the surface forms (/wi/ for UB and /e/ for LB) are results of /ɪ/ (i.e., the phonological form of -y-) undergoing regular vowel contraction with a root-final vowel (9). The root-final vowel is /a/ in most cases, as it is simply the most frequent vowel in OJ (Frellesvig & Whitman 2008:18)—this provides one major reason why there are many more LB verbs than UB verbs in OJ: As mentioned in Table 2, around 20% of the OJ verbs are LB, whereas there are only around thirty UB verbs.

The analysis spelled out in Subsection 2.1, however, does not in fact cover the entire distribution of the bigrade endings—particularly of the LB ending /e/. For one thing, there are many attested cases where, an extra /e/ vowel occurs following -r- or -s-, which, as argued above, are themselves v heads:

- (18) a. *wakare-* ‘to be split’ (cf. *wak(a)-* ‘to distinguish’)
 b. (*m*)*umare-* ‘to be born’ (cf. *um(a)-* ‘to give birth’)
 c. *sirase-* ‘to inform’ (cf. *sir(a)-* ‘to know’)

Traditional grammar of OJ identifies -(a)*re-* as a passive marker and -(a)*se-* as a causative marker (see below for further comments on the two terms and their functions). Recall that the ‘initial vowel’ is argued to be part of the root in the last subsection, so in the following I will simply refer to the two traditional voice markers as -*re-* and -*se-*. The two markers both show LB conjugation; moreover, they may be further decomposed into -*r-e-* and -*s-e-*, respectively (see also Frellesvig & Whitman 2016), where the first element -*r-* or -*s-* is a verbalizer as established above. In other words, in terms of morphological structure, the ‘passive’ -*re-* contains the intransitive -*r-*, and the ‘causative’ -*se-* contains the transitive -*s-*.

The question is what this -*e-* that follows -*r-/s-* is. It crucially cannot involve the -y- suffix identified in Subsection 2.1, not only because -y- as a v head should in principle compete with -*r-* or -*s-* for the same position in the structure (so they cannot cooccur), as predicted by the $\sqrt{+v}$ analysis in (11), but also because in order for the surface form /e/ to show up, a (root-final) /a/ vowel immediately preceding -y- is required (so the condition of the vowel contraction rule (9a) is met); however, in (18), the extra /e/ is not adjacent to the root, which suggests that it cannot be treated the same way as other bigrade endings that are root-adjacent.

More importantly, there are in fact numerous cases where this extra -*e-* occurs right after -y-:

- (19) a. *sakaye-* ‘to prosper’ (cf. *sak(a)-* ‘to bloom’)
 b. *sinaye-* ‘to wither’ (cf. *sin(a)-* ‘to die’)
 c. *nakaye-* ‘to cry’ (cf. *nak(a)-* ‘to cry’)
 d. *kikoye-* ‘to be heard’ (cf. *kik(o)-* ‘to hear’)

The *ye*-ending, which can be identified from (19), is considered another passive marker in OJ (in addition

be flipped). Since the goal of this paper is not to explore what conditions zero exponence, I will leave this issue aside (see Calabrese 2011 for relevant discussion of zero exponence in generative grammar).

to *-re-* addressed above) by traditional grammar. It shows regular LB conjugation. Like the discussion of *-re-* and *-se-*, I suggest that *-ye-* can also be decomposed into *-y-* and *-e-*. The latter element *-e-* naturally fits in the discussion of (18): It must involve a distinct *-e-* suffix that is not the verbalizer *-y-*, because it is not adjacent to the root, in which case the phonological rules in (9) should not apply, but *-y-* only surfaces as /e/ (or /wi/) if vowel contraction takes place.

The first element in *-ye-*, namely *-y-*, is exactly the verbalizer *-y-* identified in Subsection 2.1. Notably, (19) are interesting cases in that the surface realization of the verbalizer *-y-* is the glide /y/, unlike previous cases where the underlying representation of the suffix, namely /ɪ/, is obscured by the contraction rules (9). A natural explanation of this fact is as follows: A form like *nakaye-* (19c) is syllabified as /na.ka.ye/, where /a/ and /y/ (< /ɪ/) in question are not in the same syllable, so (9a) does not apply here.¹⁷

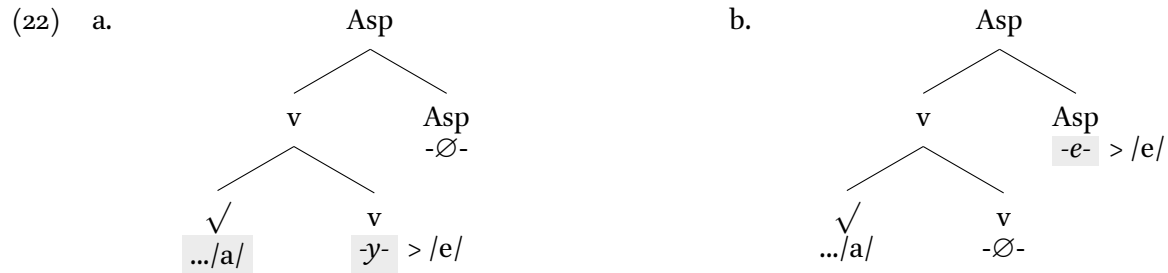
I identify the distinct *-e-* marker as an Asp(ect) head merged above v (the label is not important for now; it will be justified in the next section that *-e-* is indeed aspectual). For example, the form *nakaye-* ‘to cry’ is analyzed as in (20). (Henceforth, I will use the term ‘the verbal domain’ to refer to Asp and everything below it.)

(20) [Asp [v [√ *naka-*] *-y-*] *-e-*]

The VI rules in (21) are proposed. They will be discussed in Section 3.

- (21) a. []_{Asp} ⇒ -∅-
 b. [BECOME]_{Asp} ⇒ -e-

In (20), the verbalizer *-y-* and the higher element *-e-* cooccur in the same verb form. Thus, such cases strongly suggest that the LB ending in OJ has a dual status: In some cases, it results from the v head *-y-* fusing with a root-final vowel, which is usually /a/; in other cases, the ending involves a separate suffix *-e-*, which is structurally higher than *-y-*. The two possibilities that may give rise to an LB verb form are represented by the two diagrams in (22) (the shaded parts are responsible for the LB ending in each diagram):



(22a) is what was discussed in Subsection 2.1, with a higher Asp head also represented in the diagram.

¹⁷ Derivationally, the reasoning here implies that vowel contraction (of the root-final vowel and the v head *-y-*) must take place only after the structurally higher *-e-* is merged into the structure and interpreted by phonology. I will not attempt to deduce this assumption in the paper.

Here, the *v* head is *-y-* and the Asp head is occupied by a phonetic zero. In surface phonology, the structure gives rise to the LB ending /e/ as a consequence of the vowel contraction rule (9a) (recall that all verb roots in OJ end with a vowel, which is usually /a/). By contrast, in (22b), *v* is zero while Asp is realized as *-e-*. Here, one simply does not observe the occurrence of the root-final vowel, and the phonetic form of the aspect marker *-e-* remains unaffected in any case when it is present. In other words, the final vowel of the root simply gets deleted in forms like *tat-e-* ‘to raise’, whose *e*-ending will be shown in Subsection 3.2 to be the aspect marker *-e-* (22b), rather than consisting of the verbalizer *-y-* (22a) (that is, I will show that *tat-e-* ‘to raise’ is underlyingly *tat(a)-Ø-e-*, not *tat(a)-y-Ø-*). Recall that there are two strategies in OJ for resolving vowel hiatus: One is contraction (used in this paper as a covered term of vowel coalescence and glide formation), and the other is elision. While the former has been discussed in Subsection 2.1 for *-y-* and is what happens in (22a) (*a* > *e*), what happens in (22b) is apparently the latter (*ae* > *e*; see however below), whose rule for the current case is (23):¹⁸

$$(23) \quad V > \emptyset / _ V$$

One may wonder about the division of labor between vowel contraction and vowel elision in OJ. While a full discussion of this issue lies outside the scope of the paper (see Russell 2003 for detailed discussion), I would like to mention two points that are relevant to the current cases. First, there is simply no contraction rule available in OJ that may target /ae/. For the 25 (= 5 × 5) logically possible vowel combinations in OJ, unambiguously attested cases of vowel contraction are attested for only a small part of them (see fn.12 for *oi* > *e/wi*):¹⁹

	V ₂				
V ₁ \	i	e	a	o	u
i	–	–	ye	ye	–
e	–	–	–	–	–
a	e	–	–	–	–
o	e/wi	–	–	–	–
u	wi	–	wo	wo	–

Table 3: Attested cases of vowel contraction in OJ

While some of the gaps in Table 3 might be accidental, due to the fact that the OJ corpus is small, it is clear that /e/ systematically never participates in vowel contraction.²⁰ The suggestion is thus that, if there is no available contraction rule for a certain V₁-V₂ sequence, elision always applies.

¹⁸ Vowel elision may take place in two directions in OJ; that is, in a V₁-V₂ sequence, either V₁ or V₂ may get deleted, depending on the context. The deletion of V₂ only happens if it belongs to a polysyllabic element, which *-e-* is not (see Russell 1997, 2003, Frellesvig 2008 for discussion).

¹⁹ There are eight traditional ‘vowels’ in OJ, which are reduced to five vowel phonemes in Frellesvig & Whitman’s system (see fn.1).

²⁰ Recall from Subsection 2.1 that /e/ is a secondary vowel in OJ, in the sense that it is derived from pre-OJ via *diachronic* contraction rules (see (3)), which are the direct sources of the *synchronic* rules in (9). For this historical reason, there is no available contraction rule that may target a secondary vowel in OJ.

Second, it is possible that the application of different hiatus-resolution strategies in OJ is sensitive to structure: Vowel contraction (9) and vowel elision (23) may actually apply in different domains. I suggest that in OJ verbal morphology, linearly adjacent vowels occurring in two structurally non-adjacent positions trigger elision, not contraction.²¹ In (22a), the verbalizer *-y-* undergoes contraction with the preceding vowel because it is structurally adjacent to the root, where the preceding vowel is from. By contrast, in (22b), we get elision because the root and the Asp head *-e-* are not structurally adjacent.

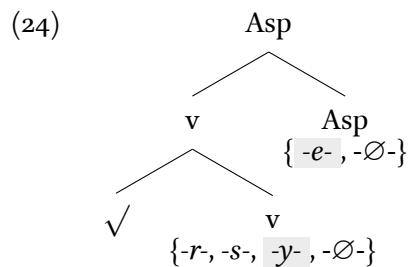
Hence, the division of labor between contraction and elision in OJ is captured by one of the two above reasons (or in fact the combination of the two). A more detailed investigation of this issue lies outside the scope of this paper—what is important for us is the conclusion that the surface forms of (22a) and (22b) are both derived by entirely regular phonology, both resulting in an LB ending /e/.

The above discussion crucially concentrates on the LB ending /e/, not the UB ending /wi/. The conclusion is that, in addition to the verbalizer *-y-* identified in the last subsection, which may give rise to /e/ via phonological rules, a structurally higher suffix *-e-* must also be posited (21b). That is, the LB ending may be derived in two different ways in OJ: It has a dual status. Hence, an individual LB verb is often apparently structurally ambiguous regarding its *form* as in (22) (apart from cases where the ending occurs after *-r-* or *-s-*, in which case it clearly involves *-e-*), although I will show in the next section that the structure of many LB verb forms may be revealed based on their *functions*; there is no real ambiguity in most cases.

By contrast, the UB ending /wi/ is always *-y-* plus contraction (9b). The Asp head *-e-* does not show any allomorphy (21b) (e.g., it does not alternate with *-wi-*). Thus, suffixal forms like **-r-i-* (< **-r-wi-*), **-s-i-* (< **-s-wi-*) are never attested. The scenario that the LB ending has a dual status while the UB ending is not is further supported by the discussion in Section 3, where it is shown that although the functions associated with the (homogeneous) UB ending do not vary, those associated with the (heterogeneous) LB ending do (as there are two possible underlying structures).

2.3 Interim summary and discussion

This section has proposed the structure in (24) for the verbal domain of OJ:



²¹ See also Russell 1997, where it is proposed that there are two types of morpheme boundaries in OJ, which are associated with contraction and elision, respectively.

In OJ, the UB ending /wi/ involves a v head -y-, which may give rise to /wi/ via vowel contraction in surface phonology if the final vowel of the root is /o/ or /u/. On the other hand, there are two ways of making an LB verb in OJ: One is to have the same v head -y- undergoing contraction with a root-final /a/; the other is via the occurrence of -e-, an Asp head merged above v. The two suffixes -y- and -e- differ in their distribution, forms, as well as their meanings (to be discussed in Section 3), and in addition, -y- and -e- may cooccur in the same verb form, as one observes from the traditional passive marker -ye-.

Recall that the -re-, -se- and -ye- endings in (18) and (19) have been traditionally considered three non-segmentable elements: -re- and -ye- have been viewed as two passive markers, and -se- a causative marker (see, e.g., Vovin 2020). However, under the current compositional view, the three forms are not individual voice markers, but they each involve a v head (i.e., -r-, -s-, -y-) and a separate aspect suffix (i.e., -e-) merged above v. The obvious formal parallelism between the three traditional voice markers and the three verbalizers -r-, -s-, -y- identified in Subsection 2.1 is thus captured. Note that v and Asp may both be realized as zeros. Hence, there are eight logically possible combinations of the v and Asp elements in OJ, their surface representations all attested and discussed above, which are organized in Table 4:

		v exponents			
		-∅-	-r-	-s-	-y-
Asp exponents	-∅-	∅	r	s	e/wi
	-e-	e	re	se	ye

Table 4: Possible combinations of v and Asp exponents in OJ

The organization of the OJ verbal domain is only partially obscured by the vowel contraction rules in (9), according to which the verbalizer -y- may surface as /e/, causing homophony with the aspect marker -e-. All other combinations of v and Asp in Table 4 are realized faithfully. To summarize, there are two possible sources for the bigrade endings in OJ: a structure with -y- in v and -∅- in Asp (22a) (for both UB and LB verbs), and a structure with -∅- in v and -e- in Asp (22b) (for LB verbs invariably).

Before closing this section, I briefly comment on previous views of the OJ verbal domain, with particular reference to the transitivity-related forms in Table 4. First, the forms in Table 4 have often been treated in quite different ways in the literature. For example, Vovin (2020) identifies -(a)s- and -(a)se- as two allomorphs of the same ‘causative’ morpheme (note that the two forms do not in fact involve the same semantics; see the next section for discussion), and -(a)re- and -(a)ye- as two distinct passive markers. However, he does not discuss -ar-, which is treated simply as part of the stem, and the structural status of the bigrade endings, the focus of the current paper, is also not addressed. Section 1 noted that there has been a tradition in synchronic descriptions of OJ (and later stages of Japanese as well) to disregard the functional status of the bigrade endings, treating them instead as merely part of the stem, whereas it has in fact long been acknowledged in the diachronic discussion that they have a functional

origin in the language. As mentioned there, one practical reason for ignoring the morphemic status of the bigrade endings in some of the previous analyses is that it appears difficult to determine their exact functions, as they somehow involve both intransitivizing and transitivizing, two apparently opposite functions (one may simply assume that the endings are largely lexicalized). However, as we will see in the next section, once it is established that the bigrade endings at the stage of OJ in fact have two sources, namely the verbalizer *-y-* and the Asp head *-e-*, their functions can be interpreted in a much more straightforward way; the seemingly contradictory uses of the endings should be considered as the result of /e/ corresponding to two underlying sources. In other words, the right question to ask is essentially not what functions the bigrade endings have, but rather what the functions of the verbalizer *-y-* and the Asp head *-e-* are, respectively. At any rate, the obvious parallelisms between the forms represented in Table 4 call for a decomposition of these forms, which is the goal of the current paper.

Second, the decompositional approach to the OJ bigrade endings naturally eliminates a problem addressed by Frellesvig (2008). As mentioned above, traditionally, (i) *-se-*, *-re-*, and *-ye-* are viewed as voice (causative and passive) markers in OJ, and (ii) the bigrade endings are considered part of the verb stem (i.e., bigrade verbs are taken to be fully lexicalized elements in the language). Based on these two assumptions (both are argued against in the current paper), a descriptive fact about OJ is that bigrade verbs cannot causativize or passivize. For example, the forms in (25b) are not grammatical in OJ:

- (25) a. *yaka-se-*, *yaka-re-*, *yaka-ye-* (base: QD *yaka-* ‘to burn_{TR}’)
 b. **ake-se-*, **ake-re-*, **ake-ye-* (base: LB *ake-* ‘to dawn’)

Note that intransitive verbs in principle can be passivized in OJ (see the next section for the functions of the so-called passive in OJ). Hence, the ungrammaticality of the forms in (25b) is viewed by Frellesvig (2008) as an arbitrary fact synchronically: Certain conjugation classes of OJ verbs cannot undergo certain derivations. Regarding this issue, Frellesvig (2008) provides a diachronic account. He argues that the bigrade conjugations are chronologically younger in the language: At the stage of OJ, these verbs had not yet been completely integrated into the verbal morphology of the language, so as a result, they do not combine with all verbal suffixes.

I will not comment on this diachronic perspective further in this paper as that would take us too far afield. What is important for us is that the non-formation issue arises only if bigrade verbs and the voice markers are treated as non-segmentable elements (i.e., the traditional view). On the current analysis, the issue does not occur in the first place, as the forms in (25b) would be segmented as in (26), which are clearly not derivable from the structure in (24). One would not even ask why the forms in (25b) are ungrammatical if both bigrade verbs and the voice markers are decomposed into smaller pieces. I take the elimination of the non-formation issue to be an advantage of the current analysis.

- (26) **ak(a)-y/e-s-e-*, **ak(a)-y/e-r-e-*, **ak(a)-y/e-y-e-*

We now turn to the functions of *-y-* and *-e-*, directly addressing the transitivity alternation issue raised

in Section 1.

3 Functions of -y- and -e-

Section 2 has established that there are two possible structural sources for the bigrade endings in OJ. First, a bigrade verb may be underlyingly $\sqrt{-y-\emptyset-}$ (22a), where the verbalizer -y- undergoes vowel contraction with the final vowel of the root, via regular phonology (9). Second, an LB ending /e/ may involve an Asp head in $\sqrt{-\emptyset-e-}$, where the verbalizer has a zero exponent (see Subsection 2.1). This section discusses the exact functions of -y- and -e-, and demonstrates how the dual-status account of the bigrade endings in OJ sheds new light on the long-standing puzzle that the endings behave like a ‘transitivity flipper’ in Japanese. The functions of -y- and -e- are discussed in Subsection 3.1 and Subsection 3.2, respectively. It will be argued that while -y- and -e- are functionally distinct, their semantics in fact partially overlaps. The same feature [BECOME] is argued to be underlyingly present for both elements. The advantage of this treatment is discussed in Subsection 3.2 and then at length in Subsection 3.3, from the perspective of how Inner Aspect and Outer Aspect interact in OJ.

3.1 Functions of the verbalizer -y-

I start with cases where the ending unambiguously involves the verbalizer -y- but not the Asp head -e-. As discussed in Section 2, -y- may show up as either /e/ or /wi/, depending on the value of the root-final vowel preceding it, whereas the form of the aspect marker -e- never alternates (it is always /e/). In other words, UB verbs always involve the v head -y-, not the Asp head -e-, as they end with /wi/.

Crucially, it is a well-established observation that *all* attested UB verbs in OJ (there are around thirty, as mentioned above; see Frellesvig 2010:98–99 for a full list) are intransitive verbs (Kida 1988, Whitman 2008). More specifically, as pointed out by Whitman (2008), the UB verbs are all inchoative/change-of-state intransitive verbs. Some examples are given in (27):

- (27) a. *pwi-* (< *po-y-*) ‘to dry up’ (cf. *po-s-* ‘to dry_{TR}’)
 b. *opwi-* (< *opo-y-*) ‘to grow_{INTR} (lit. to become big)’ (cf. *opo* ‘big’, *opo-s-* ‘to cultivate’)
 c. *sabwi-* (< *sabu-y-*) ‘to get desolate’ (cf. *sabu* ‘lonely’)

In (27a), *pwi-* and *po-s-* form a transitivity pair and they share the root *po-*; the former UB form *pwi-*, which involves -y-, is an inchoative intransitive. Regarding (27b) and (27c), the traditional wisdom is that these UB inchoative/change-of-state verbs are derived from an adjective, which is stative (see Whitman 2008:165). This idea can be integrated into the present formal system by stating that -y- may be merged above an adjectival head (a phonetically zero categorizer, labeled as *a* in (28)), the latter merging directly with an acategorical root:

- (28) [_v [_a [_√ *opo-*] - $\emptyset$] -y-] (> *opwi-* ‘to grow_{INTR}’)

Alternatively, it is also possible that *-y-* in *opwi-* in fact directly attaches to the acategorical root, as in (29a) (the same applies to *-s-* in *opo-s-* ‘to cultivate’). In other words, the verb *opwi-* is not built on the adjective *opo*, whose structure is in (29b); the two simply share the same category-neutral root:

- (29) a. $[_v [_\sqrt{\text{opo-}}] \text{-y-}]$ ($> \text{opwi-}$ ‘to grow_{INTR}’)
 b. $[_a [_\sqrt{\text{opo-}}] \text{-}\emptyset\text{-}]$ ($> \text{opo}$ ‘big’)

I will not take a stance between (28) and (29a) since nothing in this paper hinges on the choice (note that the second option is possible only if roots can be category-neutral). What is important for us is the observation that *-y-* turns out to be associated at least with the following functions: (i) It categorizes the root as a verb; (ii) it ensures that the verb form is intransitive; and (iii) it forces an inchoative/change-of-state meaning. Recall from Subsection 2.1 that the VI rules in (13) (repeated below as (30)) were introduced for the verbalizers in OJ:

- (30) a. $[\text{TR}]_v \Rightarrow \text{-s- or -}\emptyset\text{-}$
 b. $[\text{INTR}]_v \Rightarrow \text{-r- or -}\emptyset\text{-}$
 c. $[\text{INTR, BECOME}]_v \Rightarrow \text{-y-}$

The first function above is shared by all of the *v* morphemes (it is the defining property of *v*). The second function is shared by *-y-* and *-r-* (as well as its allomorph *-}\emptyset\text{-}*), the two intransitivizers in the language (the $[\text{INTR}]$ feature is posited for this function in (30)). The third function (licensing the inchoative/change-of-state meaning) is what makes *-y-* different from the other verbalizers. I suggest that the inchoative/change-of-state meaning of *-y-* is associated with the formal feature $[\text{BECOME}]$. While *-r-* and *-s-* derive ‘plain’ intransitive and transitive verbs, respectively, *-y-* derives intransitive verbs that are inchoative.

The two (overt) intransitivizers *-r-* and *-y-* are distinguished by the presence/absence of $[\text{BECOME}]$. This idea is further supported by an interesting semantic difference between the two verbs in (31), discussed by Kinsui (2006) (see also Whitman 2008):

- (31) *wi-* ($< \text{wo-y-}$) ‘to sit down’ vs. *wor[a]-* ‘to be sitting’²²

Both *wi-* and *wor[a]-* came to function as existential verbs in later stages of the language. For OJ, Kinsui (2006) points out that *wor[a]-* is stative while *wi-* is the non-stative counterpart of it. This contrast can be confirmed by the following examples (see Kinsui 2006:139):²³

²²The *r*-ending in *wor[a]-* is not exactly the verbalizer *-r-* identified in this paper, as *wor[a]-* is not a QD verb: It belongs to the *rahen/r*-irregular class, whose difference from QD verbs is however minimal (the only difference is that the *r*-irregular verb uses the infinitive as the conclusive form). Note that only the existential verb *ar[a]-* ‘to be, to exist’ and forms that are grammaticalized from it belong to the *r*-irregular class, and the verbalizer *-r-*, though showing regular QD morphology, is traditionally assumed to be cognate to the verb *ar[a]-*. Thus, the *r*-ending in *wor[a]-* and the verbalizer *-r-* are likely etymologically related. I will not explore this issue further in the paper; what is important for the discussion in the main text is that *-y-* (and thus $[\text{BECOME}]$) is absent in *wor[a]-*.

²³In transcribing OJ texts, phonographically written text is given in italics, and logographically written text is transcribed in plain type; this follows the ONCOJ (= Oxford NINJAL Corpus of Old Japanese) convention (Frellesvig, Horn, et al. 2026). Phonologically unrealized/deleted elements are transcribed in brackets except for the final vowels of QD verb roots (argued

(32) 立毛居毛我念流吉美

tati-te=*mo* wi-te=*mo* wa=ga [o]mop-*yer-u* *kimi*
 stand.up.INF-GER=also sit.down.INF-GER=also 1=GEN think-IMP-ADN lord
 ‘[my] lord, who I long for whether [I] stand up or sit down’ (MYS 4.568)

(33) 立礼杼毛居礼杼毛登母尔戲礼

tat-[y]er-*edo=mo* wor-*edo=mo* *tomo* *ni* tapabur-*e*
 stand-IMP-CONC=also sit-CONC=also together COP.INF play-IMP
 ‘whether sitting or standing, [we’d] play together’ (MYS 5.904)

Kinsui (2006) shows that the UB verb *wi*- ‘to sit down’ is used as the antonym of *tat*[*a*]- ‘to stand up’, as exemplified in (32), while *wor*[*a*]- ‘to be sitting’, which shares the same root *wo*- with *wi*- and has an *r*-ending (see fn.22), is used as the antonym of *tat*-[*y*]er- ‘to be standing’ as in (33), where *-yer-* is an imperfective marker to be discussed in Subsection 3.3 (see also K. Watanabe 2021), inducing a stative meaning in the present case. Therefore, while both *wi*- (< *wo-y-*) and *wor*[*a*]- are intransitive, the former is additionally associated with an inchoative/change-of-state meaning, which in our analysis is structurally licensed by the [BECOME] feature, carried by the verbalizer *-y-*.

3.2 Functions of *-e-* and related endings

We now discuss cases with a bigrade ending that can be unambiguously analyzed as the Asp head *-e-*, not *-y-*. There are two cases. First, as shown in Subsection 2.2, an LB ending that occurs after *-r-*, *-s-*, or *-y-* must involve a head higher than *v*, namely the Asp head *-e-*. Second, since we have seen above that *-y-* is an intransitivizer, an LB ending that occurs in a transitive verb form must be *-e-*. The correspondence between the surface endings and the underlying markers is summarized as follows:

- (34) a. UB /wi/ → following root → intransitive → *-y-*
 b. LB /e/ → following root → intransitive → *-y-* or *-e-* (ambiguous)
 c. → transitive → *-e-*
 d. → following *-r/s/y-* → *-e-*

As in (34), the correspondence is conditioned by three factors: (i) the form of the ending (UB vs. LB), (ii) the distribution of the ending (whether right after the root or not), and (iii) transitivity of the verb form. Notice that an intransitive LB verb may involve either *-y-* or *-e-* (34b), as both structures in (35) are allowed in our system (*v* is [INTR] in (35b) and is realized as *-∅-* according to (13b)):

- (35) a. [Asp [v [√ ...] *-y-*] -∅-]
 b. [Asp [v [√ ...] ([INTR] ⇒) -∅-] -e-]

for in this paper)—they are in most cases unrealized in surface phonology, and when unrealized, they are ignored in the transcription.

I put aside these indeterminate cases for now and will argue in Section 5 that they do not cause a problem for our analysis: Some structural ambiguity is actually conceptually desirable, as it helps to understand the historical development of the bigrade endings in Japanese. This subsection focuses on (34d). While cases that involve (34c) are also important, they will be discussed in more detail in Section 4. For now, it is worthwhile to point out that the LB endings found in the following verb pairs all involve the Asp -e-, as the corresponding verb forms are transitive ((36a) and (36b) were mentioned in fn.9; (36c) was mentioned in Subsection 2.2):

- (36) a. *komo-r-* ‘to hide_{INTR}’ vs. *kom-e-* ‘to enclose’
 b. *yoso-r-* ‘to be drawn near’ vs. *yos-e-* ‘to bring close’
 c. *tat(a)-Ø-* ‘to rise’ vs. *tat-e-* ‘to raise’

In other words, the second transitive members of the pairs in (36) do not involve the verbalizer -y-. Note that (36a) and (36b) would be taken as evidence for oi > e in OJ, if one assumes that *kom-e-* is underlyingly *komo-y-* and *yose-* is *yoso-y-*. This is not the case in the present analysis, in which *kome-* and *yose-* are instead analyzed as *komo-e-* and *yoso-e-*, respectively, where the root-final vowels get deleted via the elision rule (23). Thus, the apparent /o/~/e/ alternation in (36a) and (36b) does not support the presence of oi > e in pre-OJ and OJ (the rule may still exist, but must be established based on other evidence), in contrast to previous beliefs (see, e.g., Frellesvig & Whitman 2008).

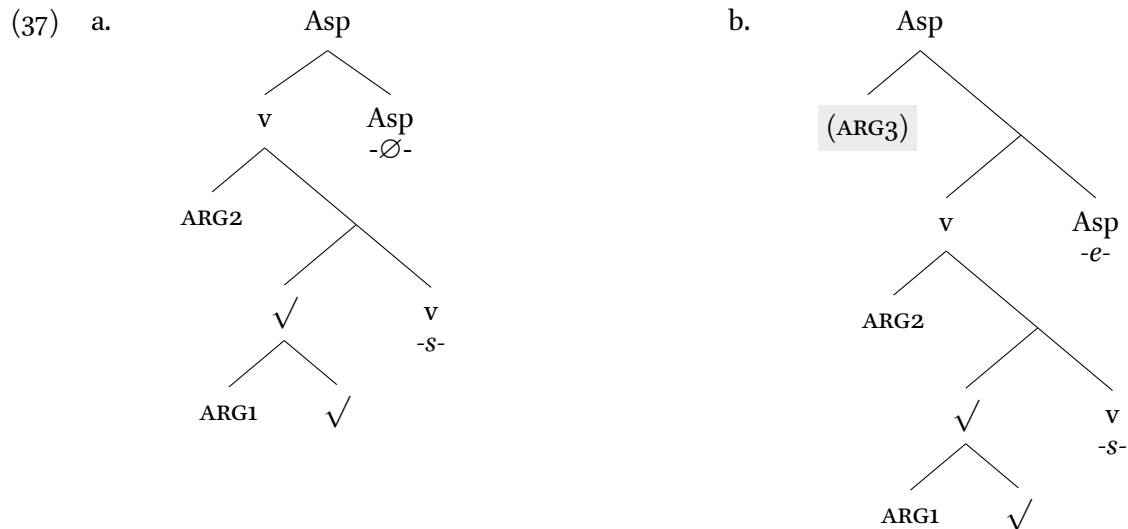
Below we examine the functions of the three traditional voice markers -re-, -se-, and -ye-, and examine what they reveal about the function of -e-. As discussed in Subsection 2.2, these markers must be decomposed: -s- in -se- is a transitivizer while -r- and -y- in the two traditional passive markers are both intransitivizers with different aspectual flavors; all of them are followed by the aspect marker -e-. First, while it has been sometimes claimed that -s- and -se- are synonymous (e.g., Vovin (2020:776) suggests that they are allomorphs of the same causative morpheme), the two forms do not actually show the same properties regarding transitivity: As shown clearly by Narrog (2004), an -s-suffixed verb form in OJ is invariably monotransitive,²⁴ whereas a -se-suffixed verb form may be either monotransitive or ditransitive. I argue that this scenario is easily captured by the present analysis. As in (37), I assume that the root √ may take an argument as its complement (following Harley 2014) and the v head -s- as a transitivizer obli-

²⁴Narrog (2004) notes that *amus-* ‘to pour on’ in (i) may be an exception:

(i) 狐爾安牟佐武
 kitune=ni *amus-am-u*
 fox=DAT pour.on-CONJ-CONCL
 ‘[we] shall pour [the water] on the foxes’ (MYS 16.3824)

Narrog (2004) suggests that the direct object of *amus-* in (i) (i.e., the water) is elided and that *kitune=ni* ‘to the foxes’, which is dative, is the indirect object, so the verb is ditransitive. However, note that *amus-* is attested only once in the corpus and the hypothetical root *amu-* is not found elsewhere, so it is logically possible that /s/ in *amus-* is simply part of the root, not the transitivizer -s-. It is not even clear if *amus-* is indeed ditransitive since *kitune=ni* is the only overt object of the verb in (i); it may involve a case of differential object marking, where the monotransitive verb assigns dative case to its sole internal argument.

gatorily introduces another argument to its specifier position. At the Asp level, $-\emptyset-$ is associated with the obligatory absence of an argument in its specifier position, as represented in (37a),²⁵ whereas $-e-$ is importantly underspecified regarding the presence/absence of a new argument introduced to its specifier position (37b) that is, the position that hosts ARG3 is optional if the Asp head is $-e-$:²⁶



Specifically, I suggest that the argument introduced by the transitive $-s-$ (ARG2 in (37)) is an Agent (it is the ‘typical’ external argument in a transitive construction), while ARG3 in SpecAsp is not—in the case of $-s-e-$ it is interpreted as a Causer. This distinction conforms with Narrog’s (2004) observation that $-s-$ without $-e-$ involves a transitivization pattern; only $-s-e-$ is really causativizing.

It is also important to note that we need two layers to account for the transitivity properties of $-s-$ and $-se-$ in any case, and in the current analysis they are implemented as v and Asp. Hence, the analysis captures the fact that $-e-$ may or may not increase the valency of a verb form (as it may or may not introduce a new argument to its specifier position), but it never reduces it, since the projection of Asp does not directly affect the transitivity properties at the v level (arguments already introduced at this level cannot be removed by Asp).

A similar pattern is also observed with $-re-$ and $-ye-$, the two traditional passive markers in OJ. It needs to be pointed out that the original usage of both $-re-$ and $-ye-$ is probably not ‘passive’, but is what is traditionally called ‘*zihatu* (lit. self-occurring)’, usually translated as ‘spontaneous’ in the literature (see Shibatani 1985 and Narrog 2012:142 for relevant discussion). That is, a traditional passive verb in OJ

²⁵ Using Schäfer’s (2008) terminology (see also Wood 2015, Oseki 2017), one may state that the Asp head $-\emptyset-$ in OJ carries a $[-D]$ feature, which requires that SpecAsp be absent (Schäfer (2008) discusses the D-feature for Voice, which I suggest can be extended to Asp in the proposed system of OJ). An alternative to (37a) is to suggest that Asp is not projected when there is no overt marker for it (in which case $-\emptyset-$ need not be posited for Asp, as it is the entire Asp layer that is missing). I will not explore this possibility further; for ease of exposition, I will simply assume that Asp is always projected in the OJ verbal domain throughout the paper.

²⁶ See also Section 4, where I suggest that the specifier of $-e-$ may be filled by movement (i.e., an argument that is already merged within the v layer may move to SpecAsp), in which case no new argument is introduced at this layer.

prototypically expresses the ‘spontaneous happening’ of an event without volitive action (see Shibatani 1985). Examples of verbs suffixed with *-re-* or *-ye-* that receive a spontaneous reading are given in (38) and (39) (the translation of the two examples is from Vovin 2020):

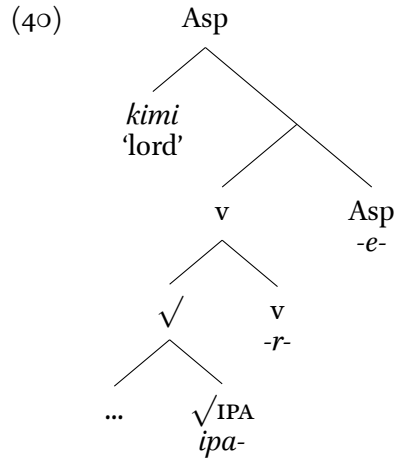
(38) 言礼師君者与孰可宿良牟

ipa-r-e-si kimi=pa tare=to=ka n[a]-[e]-u=*ramu*
 say-INTR-E.INF-PST.ADN lord=TOP who=with=Q sleep-E-CONCL=PRS.CONJ
 ‘[my] lord, who suddenly declared [that we are involved], with whom do [you] sleep?’ (MYS 4.564)

(39) 宇利波米婆胡藤母意母保由

uri *pam-eba* *kwo-domo* *omopo-y-[e]-u*
 melon eat-PROV child-PL think-INTR.INCH-E-CONCL
 ‘when [I] eat melon, [I] cannot help thinking of [my] children’ (MYS 5.802)

In (38), the spontaneous *-re-* occurs with the transitive verb *ipa-* ‘to say’ in a relative clause. Importantly, the relativized element *kimi* ‘[my] lord’ is the external argument of the verb. This means that the *-re-* suffixed verb form *ipa-r-e-* in (38) is transitive, in contrast to *-r-* suffixed verbs without *-e-*, which are unexceptionally intransitive (as *-r-* is an intransitivizer). Because *-r-* per se does not introduce an argument (it is an intransitivizer), I suggest that the external argument in *ipa-r-e-* is merged in the specifier position of Asp, headed by *-e-*, as illustrated in (40) (the complement of $\sqrt{\text{IPA}}$ is the content of the utterance, which is elided in (38)):



To capture the intuition that *-e-* introduces a spontaneous reading, I suggest that the argument licensed by *-e-* (*kimi* ‘lord’ in (40)) is not an Agent, but a Causer. In other words, the expression in (40) *kimi ipa-r-e-* does not linguistically correspond to ‘the lord says ...’, where the lord is literally the agent/sayer, but it corresponds to ‘the lord causes the saying event to happen, that ...’, where the relation between the lord and the saying event is more indirect. The lord is still the de facto sayer, but such a meaning is realized semantico-pragmatically—the one who ‘causes a saying event to take place’ is most naturally (though

not necessarily) the one who speaks. Thus, the verb describes a spontaneous event (without an Agent), with the presence of an optional external argument introduced by the *-e-* suffix.²⁷

Regarding (39), I assume, following the traditional wisdom, that *-re-* and *-ye-* are functionally equivalent in OJ (see further below). Thus, while *-r/y-* suffixed verbs are intransitive, *-re/ye-* suffixed verbs are either intransitive or transitive (they are never ditransitive). This parallels the discussion of *-se-* above: The Asp head *-e-* may optionally introduce a new argument to the structure (cf. Section 4).

Additionally, I assume that the traditional term ‘*zihatu*/spontaneous’ is actually equivalent to inchoative/change of state, their difference being entirely terminological. I also suggest that such a change-of-state reading is always associated with the [BECOME] feature, the one that was introduced above for *-y-*. Recall the VI rules proposed in (21), repeated below as (41):

- (41) a. []_{Asp} ⇒ -∅-
 b. [BECOME]_{Asp} ⇒ -e-

In OJ, *-e-* is inserted for [BECOME] (41b), and the zero exponent in (41a) is inserted for any Asp that does not bear the [BECOME] feature, in accordance with the standard elsewhere principle (cf. fn.25). I label this projection above *v* as Asp, because the spontaneous/change-of-state meaning, which is associated with the [BECOME] feature, is an aspectual one. More specifically, it is a sort of Inner Aspect, also called situation aspect or Aktionsart in the literature (see Smith 1997, Travis 2010). The Asp level proposed for OJ is thus not to be confused with viewpoint aspect, or Outer Aspect (e.g., progressive, perfective; see Subsection 3.3 on how the two types of aspect interact in OJ).²⁸

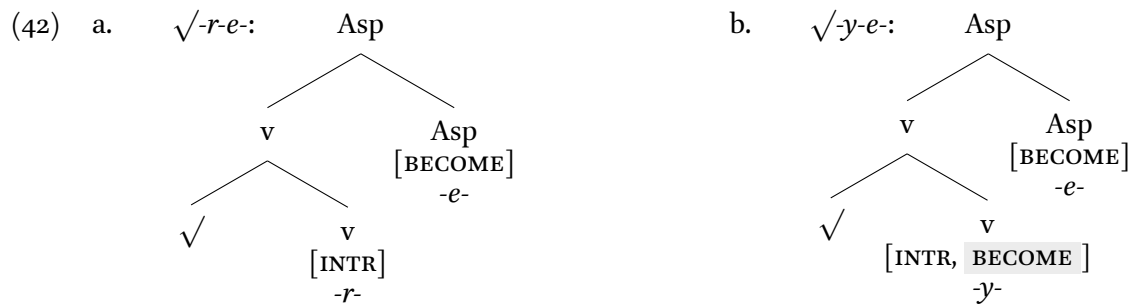
Notice that in the current analysis, the functions of *-y-* and *-e-* partially overlap, as they are both associated with the same [BECOME] feature. They differ, however, in the following ways. First, the Asp head *-e-* is structurally higher than the *v* head *-y-*. Second, *-e-* itself does not categorize; it can only be suffixed to a form that has already been assigned the categorial status verb by *v* (this is the defining property of *v*). Third, crucially, while *-y-* invariably intransitivizes (i.e., it requires its specifier be absent), the specifier of *-e-* may or may not be occupied by an externally merged element.

While we have seen in this paper that *-y-* and *-e-* are two different suffixes in OJ, functionally, the

²⁷ See Martin et al. 2025 for a recent study on how a transitive structure may exhibit inchoative semantics (≈ spontaneous semantics; see immediately below in the text). Note also that Pelc (2021:56) suggests that *ipa-r-e-* in (38) is honorific, rather than spontaneous, in contrast to what Vovin (2020) claims (and to what the current paper assumes). (Vovin (2020) also claims that the OJ passive markers do not have an honorific meaning; this function developed only later in the history of Japanese.) In any case, the current analysis easily accounts for the development of the honorific function of the passive markers (whether this took place in OJ or at a later stage). Notice that ‘the lord causes the saying event to happen, that ...’ is simply a weaker statement than ‘the lord says ...’; the latter entails the former but not vice versa. It is well known that using a weaker statement is a common linguistic strategy to convey honorific meanings (see Wang 2023 for general discussion).

²⁸ In this sense, the Asp head in OJ is comparable to the vP-internal functional projections argued for by Ramchand (2008). Travis (2010) also posits an AspP within the verbal domain. (These studies on event structure often propose much more articulated vP structures in order to account for a wide range of crosslinguistic phenomena related to Inner Aspect, so the projection corresponding to our Asp constitutes only one part of the overall system. A more detailed discussion of the fine structure of the verbal domain lies outside the scope of this paper.)

bigrade endings can still be viewed as a natural class, namely the natural class of morphemes with the [BECOME] feature. Thus, the traditional assumption that the bigrade endings are a uniform phenomenon is kept under the present account, though at a more abstract level. There are in fact several advantages to this, of which I discuss one here and another one in the next subsection. Particularly, while the two intransitive *v* heads *-r-* and *-y-* in OJ seem to be associated with different semantics (*-y-* is inchoative/change-of-state while *-r-* is not), which is captured by the current analysis by positing that *-y-* has an extra [BECOME] feature that *-r-* lacks, it has been an old observation that the two traditional passive markers *-r-e-* and *-y-e-* seem to be semantically equivalent (Vovin (2020:756) suggests that their difference is probably dialectal; Frellesvig (2010:63) suggests that *-y-e-* is older than *-r-e-*). Under the present decompositional analysis, the relevant structures of *-r-e-* and *-y-e-* can be represented as follows:

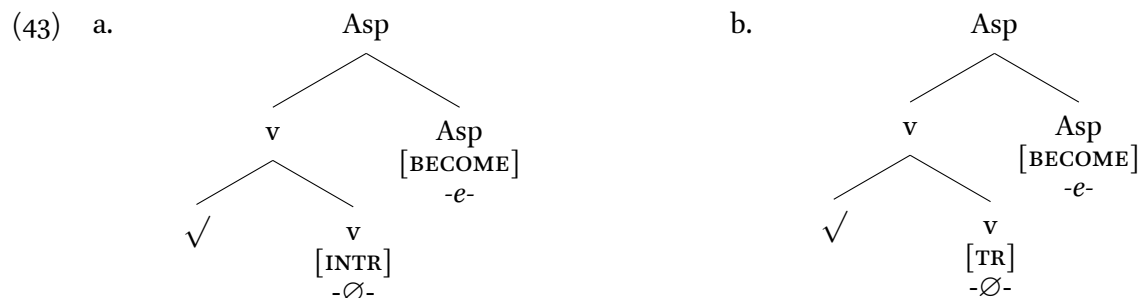


The structures in (42a) and (42b) are different only in that *v* in (42b) has an extra [BECOME], so it is realized as *-y-*, not the ‘plain’ intransitive *-r-*. However, I suggest that this difference does not actually lead to a semantic difference between (42a) and (42b), crucially because the two structures both have [BECOME] also on Asp. Two [BECOME] features occur in (42b), one on *v* and one on Asp, and I argue that this case is simply semantically equivalent to a case where [BECOME] occurs only once (that is, (42a)). Note that multiple exponence of the same feature is typologically not an uncommon phenomenon (see, e.g., Harris 2017, for general discussion), and in many cases the feature that is present multiple times in the structure seems to be indeed interpreted only once.²⁹ For (42b), I will simply assume that it carries no more information than (42a) (it is not even clear what it would mean to interpret [BECOME] twice in the same verbal domain). Thus, the current account captures the intuition that while *-r-* and *-y-* are two different morphemes in OJ, there is no observable semantic difference between *-r-e-* and *-y-e-* (see Section 5 for further discussion).

The above discussion may also provide a potential explanation for why the form *-y-e-* went out of use in Early Middle Japanese (EMJ), although it is much more frequently attested than *-r-e-* in OJ, the latter of which then gave rise to the new passive marker *-(r)are-* in EMJ, which is still used today. The suggestion is that the structure in (42a) is more economical than the one in (42b) since there is no featural redundancy in the former, so it may be diachronically more stable.

²⁹Though note that multiple exponence can arise in a number of different ways. I will not go into this issue in this paper.

Consider again the long-standing question raised in Section 1, i.e., why the LB ending in OJ appears to be both transitivizing and intransitivizing (1). Since the LB ending in fact involves two distinct suffixes, *-y-* and *-e-*, the question of how they impact transitivity must be answered separately. First, as seen above, *-y-* is an intransitivizer, which by itself does not show any ambivalent behavior regarding transitivity. Second, *-e-* is an Asp head, which is underspecified regarding whether a new argument is introduced to its specifier position. Consider now the following structures; suppose that SpecAsp is empty for both (43a) and (43b):



While (43a) and (43b) have different features on *v*, their surface representations are the same, because both [INTR] and [TR] on *v* can be realized as *-Ø-* (30). Consequently, the surface ambiguity between (43a) and (43b) gives rise to the incorrect impression that it is *-e-* (which is the only overt suffix) that is responsible for the transitivity alternation we observe in the language. However, the real (in)transitivizers in ((43)) are *-Ø-* on *v*, not *-e-* on Asp. In Section 4, I will briefly examine three cases where the aspectual *-e-* clearly does not alternate transitivity, providing additional evidence that its real function is licensing change of state. Before that, the next subsection presents another advantage of linking the two sources of the bigrade endings to the [BECOME] feature.

3.3 More on [BECOME]

I have claimed that the inchoative/change-of-state/spontaneous meaning of bigrade verbs is associated with the presence of the [BECOME] feature, which may occur on either *v* or Asp. In this sense, both *-y-* and *-e-* in OJ are *aspectual*—the latter, occupying Asp, is a dedicated aspectual element while the former also has other functions (recall that it is typologically common for *v* heads to be multifunctional). Recall that the aspectual meaning carried by *v* or Asp is a type of Inner Aspect, in contrast to viewpoint/Outer Aspect such as imperfective, progressive, etc. In the syntax, Inner Aspect is structurally represented within the verbal domain (which in our system contains both *v* and Asp), while elements associated with Outer Aspect are generated above it. In what follows, I examine a specific point concerning the interaction between Inner and Outer Aspect in OJ, and argue that the facts further support our analysis of the OJ bigrade endings.

In OJ, Outer Aspect (henceforth ASP, in contrast to Asp which we have used for Inner Aspect) is in

general expressed by different auxiliary-like elements that follow the infinitive form (*ren'yōkei* in traditional terms; as in (44), the infinitive ending for QD roots is *-i*) of the main verb (see immediately below for one apparent exception). I will consider only *-yer-* and *-te ar--tar-*, two major ASP markers in OJ (see below for a brief discussion of their functions).³⁰ First, as exemplified in (44a), *-te ar-* consists of the gerund ending *-te*, which follows the infinitive form of a verb, and the existential verb *ar(a)-* (vowel elision (23), which applies optionally in this context, may then give *-tar-*). Second, it has often been claimed that *-yer-* directly follows the verb root (rather than the infinitive). However, it has been uncontroversial since Yamada 1912 that *-yer-* historically represents the existential verb *ar(a)-* following infinitives. As in (44a), the infinitive ending *-i* and the initial /a/ vowel of *ar(a)-* undergo vowel contraction, resulting in /ye/ (see Table 3):

- (44) a. *sak-i-tar- < sak-i-te ar-* (base: QD *sak(a)-* ‘to bloom’)
 b. *sak-yer- < (sak-i ar-)* (base: QD *sak(a)-* ‘to bloom’)

I suggest that the ASP marker *-yer-* is *synchronically* the existential verb *ar(a)-*, which serves as a general auxiliary in OJ, following the infinitive of the lexical verb in the current case (I will continue to refer to it as *-yer-*). Recall that vowel contraction is an active part of OJ phonology, so the surface representation of *-yer-* is entirely regular. Further, *-yer-* shows *rahen/r-*irregular conjugation, and *ar(a)-* is *the r-*irregular verb in OJ (see also fn.22); this implies that OJ speakers know that *-yer-* is underlyingly *ar(a)-* in their mental grammar. Notice also that the auxiliary *ar(a)-* may also follow (the infinitive of) inflected adjectives (45) and negatives (46):

- (45) 倭柯俱阿利岐騰
waka-ku ar-i-ki=to
 young-INF BE-INF-PST.CONCL=COMP
 ‘that he was young’ (NSK 117)
- (46) 山河多延受安良婆
yamagapa tay[wo]-e-z[u] ar-aba
 mountain.river cease-E-NEG-INF BE-COND
 ‘if the mountain river does not dry up’ (MYS 15.3619)

In traditional grammar, *ar(a)-* following *-ku* (45) or *-zu* (46) (both are infinitive endings) is treated differently from *-yer-* which occurs following the verb (the former is an existential verb while the latter is a specific grammaticalized form of it). However, once *-yer-* is synchronically understood as the infinitive ending (for QD verbs) *-i* plus *ar(a)-*, such a separation is unnecessary. What exists in the language is simply the auxiliary *ar(a)-*, which in general may be used with the infinitive of different categories; *-yer-* is

³⁰See Frellesvig 2010:64–69 for an overview of the TAM system of OJ. Other TAM auxiliaries include the two perfective forms *-te-* and *-n-*, and the two past tense forms *-ki-* and *-kyer-*. A full discussion of the OJ TAM system is beyond the scope of this paper.

an allomorph of it, used when the marker follows (the infinitive of) a QD verb (see immediately below).

Interestingly, while both *-yer-* and *-te ar~~tar-* are frequently used in the corpus, it is not entirely clear what they exactly mean. Their functions have been debated in the OJ literature, and there is also no consensus on whether they are synonymous. For example, Vovin (2020) calls the former ‘progressive’ (792) and the latter a ‘perfective-progressive’ marker (866); Frellesvig (2010:68) labels both as ‘stative’ (confusingly, many other labels are used in the literature; they include resultative, durative, perfect, and imperfect). See K. Watanabe 2021 for a recent overview.

What is important for us, however, is the observation that *-yer-* and *-te ar~~tar-* do not share the same distribution: As shown in (47b), the occurrence of *-yer-* is highly restricted in OJ, in that it is never used with bigrade verbs (unless the verb is negated as in (46), where *tay-e-* ‘to cease’ is LB). (Note that the infinitive form of the bigrade verb is formally identical to its base.) By contrast, *-te ar~~tar-* is used with all regular classes of verbs (47a). How to understand this fact?

- (47) a. *pyedate-tar-* (base: LB *pyedat(a)-e-* ‘to separate’)
 b. **pyedat(e) ar-/yer-* (base: LB *pyedat(a)-e-* ‘to separate’)

Frellesvig (2008) attempts to account for this distributional restriction of *-yer-* from a diachronic perspective. He assumes that *-yer-* and *-te ar~~tar-* are synonymous and calls the former ‘morphological’ stative and the latter ‘periphrastic’ stative, because while *-te ar~~tar-* is more obviously auxiliary-like (it transparently follows the infinitive), *-yer-* is assumed to be a verbal suffix that directly attaches to the verb root (though see the discussion above which argues against this view). Frellesvig (2008) further suggests that the bigrade verbs belong to an innovative conjugation class that had not been fully integrated into the morphological system of OJ, so consequently, not all verbal suffixes are able to combine with bigrade verbs, which are essentially defective (see also Subsection 2.3 for the discussion of Frellesvig 2008 regarding the traditional voice markers, from the same diachronic point of view).

However, as mentioned above, it is unclear whether *-yer-* and *-te ar~~tar-* are functionally the same; the issue in fact remains controversial in the literature. K. Watanabe (2021) argues that *-yer-* is an imperfective auxiliary, while *-te ar~~tar-* is a resultative marker (both can be understood as Outer Aspect markers with different ‘flavors’; see Sandness 1999 for a precursor to this view). While a full evaluation of this controversy lies outside the scope of this paper, what is of particular interest to us is that the ban on bigrade verbs followed by *-yer-* may be derived in a natural way if (i) all bigrade endings are in fact inner-aspectual (they express change of state), and (ii) *-yer-* is indeed an imperfective marker, as K. Watanabe (2021) argues.

That is, the ban on *-yer-* used with a bigrade verb is in fact the ban on an imperfective marker used with a change-of-state verb/event. Crucially, this kind of ban is typologically well attested and is semantically natural. The following three examples (48–50) are from English, Chinese, and *Skw̓xwú7mesh* (Squamish), respectively, all being semantically infelicitous (the glosses are slightly adjusted for ease of

exposition and consistency):

(48) #*Mary is spotting her friend at the party.* (Rothstein 2004:36)

(49) #老王在死 [Chinese]

#*Lǎo Wáng zài sǐ*

Old Wang PROG die

intended: 'Old Wang is dying.'

(Smith 1997:272)

(50) #*chen xe-xewtl'-an ta xel'ten* [Skwxwú7mesh]

1SG PROG-break-TR DET pencil

intended: 'I am breaking the pencil.'

(Bar-El 2005:269)

In all the examples above, the verbs denote a change of state and cannot appear in the progressive—a subtype of the imperfective. Briefly speaking, this is because the events that these verbs denote lack an internal temporal structure and thus they cannot easily receive an in-progress interpretation.³¹ Hence, it is unsurprising that the imperfective *-yer-* cannot attach to OJ bigrade verbs (in the affirmative), which, according to the current analysis, are change-of-state verbs. (Note that the negative of bigrade verbs can be followed by *ar(a)-* (see (46)), in which case the state remains unchanged.) The resultative marker *-te ar~~tar-*, by contrast, does not have this restriction (cf. fn.31). Restrictions of this sort in different languages are extensively discussed in the formal-semantic literature (see Dowty 1979, Smith 1997, Rothstein 2004, Bar-El 2005, Dunham 2007, among many others), and I will not go further into this issue in this paper. For the current purposes, it is important to point out that the distribution of *-yer-* in OJ strongly supports the proposal made in this paper that bigrade verbs *semantically* form a natural class. In our analysis, this conclusion is made by positing [BECOME] for both *-y-* and *-e-*, a formal feature that consistently yields change-of-state verbs. If the bigrade verbs were otherwise simply understood as a formal conjugation class (defined solely based on morphophonological factors), the ban on *-yer-* occurring after them would be mysterious, or at best be an arbitrary formal constraint of the verb morphology of OJ. Therefore, the semantic explanation of the ban offered in this subsection is conceptually desirable, as it naturally ties the ban in OJ with familiar semantic constraints found in many other languages.

³¹ The issue is in fact more complex than it is put in the main text. For example, in English, unlike (48), progressive + change-of-state is often *not* ruled out, as in *The old man is dying* (see Rothstein 2004 for discussion). I put this aside, since what matters here is the fact that such a ban cross-linguistically exists. Note that in many languages, the constraint is instantiated in a different way, namely the progressive may co-occur with change-of-state verbs, but when that happens, it receives a different interpretation, such as resultative or habitual. This is actually the case for the modern Japanese progressive/resultative marker *-tei-*, which may be either progressive or resultative depending on the semantic type of the verb (see, e.g., Kindaichi 1976). The so-called resultative marker *-te ar~~tar-* in OJ may also be like this, but I leave a more detailed discussion to future research.

4 Additional case studies

The core analysis of the bigrade endings in OJ has now been established. Section 2 argued that the endings involve two distinct elements in the verbal domain, one being the verbalizer γ - and the other the Asp head $-e$ -. The functions of the two markers were then discussed in Section 3, where it was shown that once the dual status of the bigrade endings is revealed and the functions of the two markers are examined separately (while γ - and $-e$ - are still connected by the [BECOME] feature), our understanding of OJ bigrade verbs and of the verb morphology of OJ in general is significantly enriched. Also, the transitivity-alternation puzzle addressed in Section 1 is no longer mysterious, as the viewpoint from which we consider the problem has been radically changed.

In this section I briefly discuss three cases of verb pairs which clearly involve the aspectual $-e$ -. These cases exhibit no alternation of transitivity, not even superficially, so they can be viewed as additional evidence that the real function of $-e$ - is not flipping transitivity, but rather licensing change of state. Additionally, these cases have largely escaped attention in the relevant literature, as they seem to be outliers to the traditional transitivity alternation phenomenon. However, the discussion below shows that the otherwise mysterious cases in fact fit naturally with the dual-status account of OJ bigrade endings, which accounts for them straightforwardly. It should be noted that the goal of this section is not to provide a thorough analysis of each of the cases below. Rather, the goal is to illustrate that our analysis of the bigrade endings provides a principled way of understanding these phenomena, which the prior literature would inevitably leave unaccounted for. The presence of these cases thus strongly supports the validity of the theory proposed in this paper.

The first case I address is the verb pair *kapa-s*- ‘to change_{TR}’ and *kap-e*- ‘to change_{TR}’, both forms being transitive.³² As stated in (34), the e -ending of a transitive LB verb form logically cannot involve the intransitive γ - and must be the Asp head $-e$ - (34c). Hence, the relevant structures for the two verb forms may be analyzed as the following:

- (51) a. *kapas*:- [Asp [v [√ *kapa*-] -s-] -Ø-]
 b. *kape*:- [Asp [v [√ *kapa*-] -Ø-] -e-] (root-final /a/ deleted by (23))

In (51a) the transitivizer is the overt $-s$ -, while the transitivizing v head is covert in (51b)—I take this to be a difference that is entirely superficial (30a). Thus, the only real structural difference between the two in (51) is the presence/absence of $-e$ -, and more precisely the presence/absence of the [BECOME] feature on Asp. It is interesting to point out that the two verb forms in (51) are also different in meaning. As commented by Whitman (2008:172), ‘*Kapas*- implies no change of state on the part of the patient (if any), except a change of location. *Kape*- entails that the patient is changed.’ Relevant examples are given in (52) and (53). Whitman’s observation seems to accord perfectly with our analysis: The ‘extra’ meaning of *kape*- (that the patient is changed) is exactly what its [BECOME] feature on $-e$ - licenses.

³² All the four following forms are independently found in the OJ corpus: *kapa-r*- ‘to change_{INTR}’, *kapa-s*- ‘to change_{TR}’, *kap-e*- ‘to change_{TR}’, and *kap(a)*- ‘to change’ (the last is phonographically attested only in Eastern OJ, once in MYS 14.3482).

(52) 等伎毛可波佐受

toki=mo kapa-s-azu

time=also change-TR-NEG.NEGINF

‘[my lord,] without delay (*lit.* changing the time) ...’ (MYS 17.4008)

(53) 波祢左之可倍弓

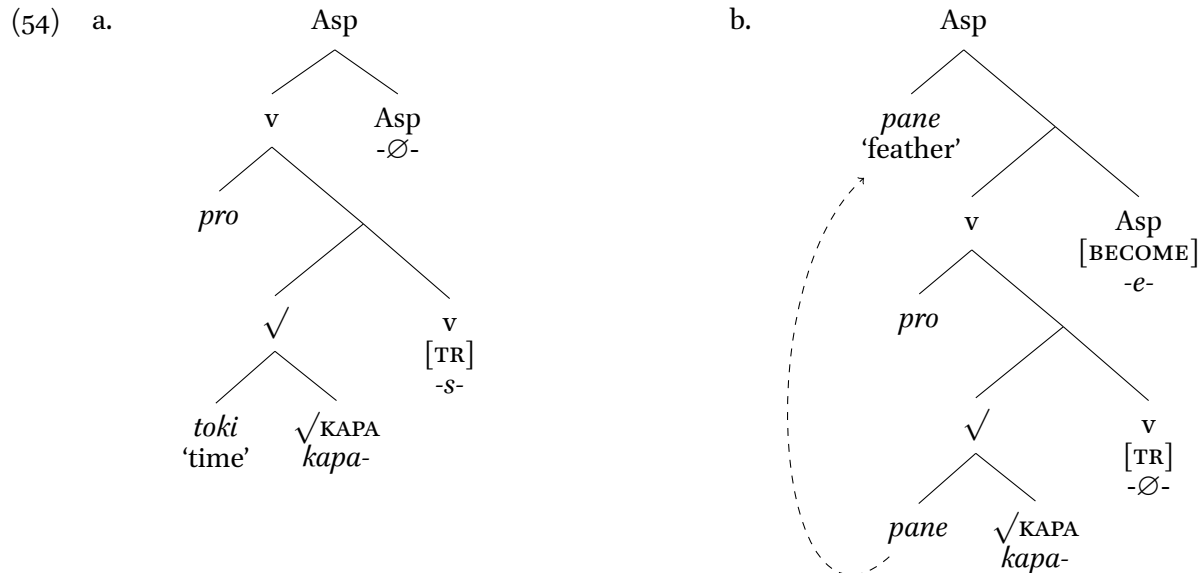
pane sas-i kap-Ø-e-te

feather insert-INF change-TR-PFV.INF-GER

‘having mingled the feathers...’ (MYS 15.3625)

In other words, the analysis advanced in this paper directly captures the semantic difference between *kapa-s-* and *kap-e-*. The relevant structures of the verb pair in (52) and (53) are given in (54). (54a) represents the structure of *kapa-s-* in (52), where the specifier of the transitive *v* (realized as *-s-*) is occupied by the agent, which for convenience I simply mark as *pro* in the diagram (the same goes for Spec*v* in (54b)). An unmarked Asp is then merged above *v*, realized as *-Ø-* (41a), with no element in its specifier position (cf. fn.25). The structure of *kap-e-* represented in (54b) differs only minimally from that in (54a), in that its Asp is featurally specified as [BECOME] (recall that *-s-* vs. *-Ø-* on *v* is only a distinction of the exponence). I suggest that Asp with [BECOME] not only may introduce a new argument to its specifier position as argued in Subsection 3.2, it may also attract an argument that is already licensed within *vP*, SpecAsp being filled by movement.³³ In the current case, the complement of $\sqrt{\text{ }}$ (i.e., the patient) moves to SpecAsp, where it is interpreted as the argument affected by the change of state, via a traditional Spec-head relation with Asp bearing the [BECOME] feature (the movement in question may well be covert). The intuition that the patient of *kap-e-* is changed via the event is thus correctly captured.

³³ Descriptively, one may state that Asp carrying [BECOME] has a traditional EPP requirement, which can be satisfied by either internal or external merge.



The second case to discuss involves *tamap(a)*- ‘to give_{HON}’ and *tamap-e*- ‘to receive_{HUM}’:

- (55) 阿我農斯能美多麻々々比弓
a=ga nusi=no mi-tama tamap-i-te [tamap(a)- ‘to give_{HON}’]
 1=GEN master=GEN HON-soul give.HON-INF-GER
 ‘giving [me] my master’s grace ...’ (MYS 5.882)
- (56) 多麻之比波安之多由步徹尔多麻布礼杼
tamasipi=pa asita yupubye=ni tamap-[e]-uredo [tamap-e- ‘to receive_{HUM}’]
 soul=TOP morning evening=DAT receive.HUM-E-CONC
 ‘although [I] feel (*lit.* receive) [your] soul from morning to evening ...’ (MYS 15.3767)

As *tamap-e*- in (56) is transitive, its LB ending /e/ must be the Asp head *-e*-, according to (34c). Considering the meanings of the two verbs, it is clear that *tamap(a)*- ‘to give_{HON}’ and *tamap-e*- ‘to receive_{HUM}’ do not form a transitivity alternation pair, but rather reflect two viewpoints of the same giving event, *tamap(a)*- from the perspective of the giver and *tamap-e*- from that of the receiver. Notice further that *tamap(a)*- is honorific while *tamap-e*- is a humble verb, consistently aligning with a scenario where the giver ranks higher than the receiver in terms of a social hierarchy.

While the presence of such a pair would seem entirely unexpected under the traditional transitivity-flipper view of the bigrade endings, the current account offers a new way of understanding it. What *-e*- in *tamap-e*- ‘to receive_{HUM}’ does is (re-)interpret the recipient as the affectee of the giving event. Thus, for (56), a more precise translation would be ‘I, the recipient and the affectee, am given your soul, and I am consequently in a state, from morning to evening, such that I am affected by the giving event’. Note also

the occurrence of the temporal adverbial *asita yupubye=ni* ‘from morning to evening’, which appears to be durational. Intuitively, the phrase does not seem to denote the duration of the giving event per se, which would result in a nonsensical meaning in which there is a single giving event that lasts from morning to evening. Instead, I suggest that the durational phrase denotes the duration of the result state of the event; that is, it is the result of the event (in this example, a specific ‘feeling’ of the speaker) that lasts from morning to evening.

The third case to consider is about the interpretation of two forms of ‘to forget’ in OJ:

(57) 和遠和須良須奈

wa=wo wasur-as-u=na

[*wasur(a)*- ‘to forget’]

1=ACC forget-HON-ADN=NEG.IMP

‘Do not forget me!’ (FK 13)

(58) 和禮波和須禮士

ware=pa wasur-e-zi

[*wasur-e*- ‘to forget’]

1=TOP forget-E-NEG.CONJ

‘I will not forget’ (KK 12)

Wasur(a)- is less frequent in OJ and went out of use after the OJ stage. Omodaka (1967:818) notes that *wasur(a)*- means ‘to forget *intentionally*’ and *wasur-e*- ‘to forget *unintentionally*’ (see also Vovin 2020:449). We thus encounter another case where the LB ending appears to be entirely independent of transitivity properties. Again, the /e/ ending in *wasur-e*- must be the Asp head -e- because the verb is transitive. I suggest that the reported semantic difference between *wasur(a)*- and *wasur-e*- with respect to intentionality is also expected under the current proposal that -e- realizes [BECOME]. The suggestion is that *wasur(a)*- ‘to forget’ is in fact an activity/semelfactive verb without a result state, whereas *wasur-e*- is an achievement verb, denoting the result state of the event. Structurally, I suggest that it is exactly the [BECOME] feature that is responsible for the denotation of the result state. A general tendency about activity verbs and achievement verbs is that the former often imply volition, whereas the latter often do not (see, e.g., Dowty 1979). Thus, it seems natural to view the alleged intentionality difference between *wasur(a)*- and *wasur-e*- as actually a byproduct of the aspectual difference between the two forms. Technically, -e- may introduce a resultee into the structure; it never introduces an Agent. While *wasur(a)*- highlights the process of the forgetting event, *wasur-e*- focuses on the result state of forgetting.

To summarize, if the bigrade endings in OJ are indeed aspectual, as argued in this paper, rather than a marker that is dedicated to transitivity alternation, one would expect to find cases where the core function of the ending (in this section specifically, the Asp head -e-) is observable even when the associated valency change is missing. The three cases addressed in this section are exactly of this sort: They are not irregular cases where the function of the LB ending happens to be opaque, but rather regular cases in which the Asp head bearing [BECOME] licenses change of state, crucially not transitivity.

5 Notes on diachrony

The focus of the paper is primarily a synchronic one: We discussed the underlying structures of the bigrade verbs specifically for OJ, which are commonly understood as two largely lexicalized conjugation classes (the UB and LB classes) in previous descriptions and studies. However, if the analysis presented in this paper is indeed on the right track, one expects that it would also shed new light on our current understanding of the diachrony of the Japanese language, especially on how the bigrade classes historically developed.

Note that most of the previous studies of the OJ bigrade endings are essentially diachronic, and it is by no means a new idea that the endings have a functional origin. Particularly, I will examine Frellesvig & Whitman's (2016) exploration of the so-called GET hypothesis on the origin of the bigrade verbs.³⁴ The GET hypothesis states that the bigrade endings (especially the LB ending /e/; see below) are grammaticalized from the verb *e-* 'to get' in pre-OJ (the idea may trace back to Takeda 1957 and Yoshida 1973, and it is articulated in Whitman 2008 and Frellesvig & Whitman 2016). For example, as illustrated in (59), the LB verb is formed via the verb *e-* 'to get' directly attaching to the root of a QD verb (Frellesvig & Whitman 2016:297):

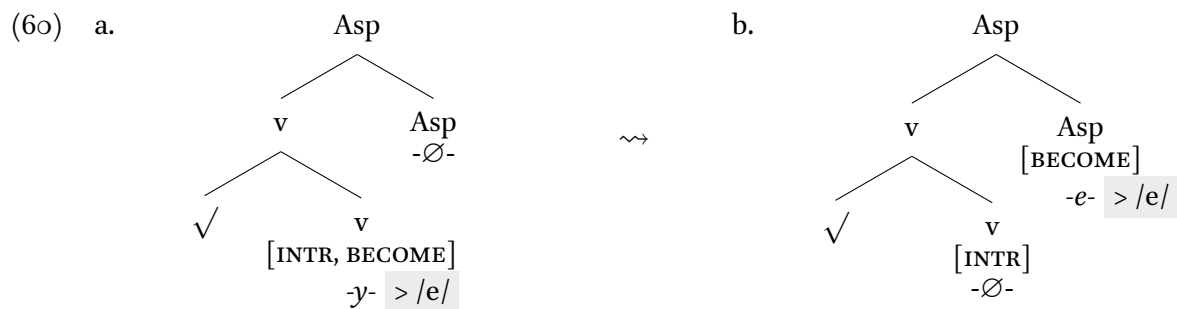
- (59) a. *tat(a)-* 'to rise' + *e-* 'to get' > *tate-* 'to raise (*lit.* to get risen)'
 b. *yak(a)-* 'to burn_{TR}' + *e-* 'to get' > *yake-* 'to burn_{INTR} (*lit.* to get burned)'

The bigrade transitivity alternation phenomenon is then understood as the historical manifestation of different *get*-constructions, as it is typologically extremely common for 'get' to obtain both transitivity and detransitivizing functions. One can in fact easily observe this in English: The verb *get* is transitivity in *John got the door opened*, while it is detransitivizing in *get*-passives (e.g., *He got fired*).

The GET hypothesis shares a number of similarities with the current account of the bigrade endings. For instance, Frellesvig & Whitman (2016) explicitly suggest that the different functions of GET all involve the light verb BECOME (this follows Richards 2001 and Harley 2004), which is similar to the [BECOME] feature proposed in the present study (there is in fact no substantial difference). However, one important difference between the two approaches is how the UB verbs are treated. The UB ending /wi/ is largely set aside in Frellesvig & Whitman 2016, while Whitman (2008) in fact proposes that the UB ending /wi/ is also derived from *e-* 'to get' (it is the historical origin of *all* bigrade verbs). Yet, as pointed out by Frellesvig 2008 (2008:190), the phonological shape of the UB ending is difficult to explain on this view: One then has to posit sound change rules like *u/o + e > wi* (in addition to the independently needed contraction rules *u/o + i > wi* (9b)), which lacks good support. Frellesvig (2008) thus proposes to revise the GET hypothesis, suggesting that the bigrade endings may involve more than one direct historical origin (191): Some are from an inchoative suffix *-i-*, others from the transitivity flipper *-e-* (which may then trace back to *e-* 'to get').

³⁴ On Unger 1993, another influential study, see Whitman 2008 and Frellesvig & Whitman 2016 for discussion.

Second, I argue that the Asp head *-e-* is a further development of *-y-*. Recall from (34) that for LB verb forms that are intransitive, it is not always clear what the underlying structure is. In particular, (60a) and (60b), both allowed in the system, involve exactly the same features but organize them differently: They only differ in where the [BECOME] feature is located. In surface phonology, both structures may give rise to the LB ending /e/:



I further suggest that the (60a)-to-(60b) reanalysis happened after the sound change ai > e (which also led to the synchronic contraction rule in (9a)) took place in the language, because the change essentially reduced the phonological transparency in (60a), where the underlying and the surface representa-

tions differ. The structure then got reanalyzed as in (6ob), which involves more transparent phonology and probably also more transparent syntax, as [INTR] and [BECOME], two distinct features, are now taken care of by two distinct heads. Note finally that structural ambiguity of the sort in (6o) is well-attested in the diachronic literature in general, and is often argued to be a prerequisite to reanalysis (see Harris & Campbell 1995:70–72 for discussion).

The current proposal differs from the GET hypothesis in that the former does not posit any direct developmental relation between the bigrade endings and the verb *e-* ‘to get’. Recall, however, that *all* /e/ vowels in OJ are historically a result of vowel contraction. This means that the phonological representation of *e-* ‘to get’ must be /ai/ at an earlier stage. It is yet not entirely clear whether *e-* ‘to get’ can also be morphologically decomposed into *a-y-*, where *a-* is the lexical root and *-y-* is a *v* head as proposed in this paper—similar ideas are in fact suggested by Martin (1987:681), where the same *a-* root is argued to be shared with the existential verb *ar-*, which is suffixed with *-r-* (677).³⁵ If this hypothesis is correct, it implies that the relation between the bigrade endings and the verb *e-* ‘to get’ is reversed compared to the GET hypothesis, i.e., *-y-* existed in the proto-language, and *e-* ‘to get’ is derived based on it, parallel to other bigrade verbs that also involve *-y-* (so there is nothing special regarding *e-* compared to other bigrade verbs). Whether this idea is on the right track remains to be seen in future studies, although one caveat is that *e-* ‘to get’ is a transitive verb in OJ, unlike other verbs that clearly involve the suffix *-y-*, which are always intransitive.

6 Conclusions

This paper examined the synchronic status of the bigrade endings in Old Japanese. I argued that the endings in fact exhibit a dual status. In some cases, the endings involve an intransitive inchoative marker *-y-* in *v*, which may further undergo vowel contraction with a root-final vowel, resulting in /e/ (the lower bigrade ending) or /wi/ (the upper bigrade ending) in different contexts. In other cases, the lower bigrade ending /e/ is the transparent realization of a higher element *-e-*, which is dedicated to expressing a change-of-state meaning. The two may cooccur in the same verb form, as in the traditional ‘passive’ suffix *-ye-*. Consequently, the traditional ‘transitivity flipping’ property of the bigrade endings is epiphenomenal—they appear to have the function of reversing the transitivity of a verb only if they are viewed as the realization of a single morpheme, but I argued that they are not. On the one hand, a verb form with *-y-* is invariably intransitive. On the other hand, the Asp head *-e-* may be suffixed to both transitive and intransitive verb forms, itself being underspecified regarding transitivity properties, in which case the ‘real’ (in)transitivizer can be a lower null morpheme merged in *v*, whose presence is independently needed in the language. Finally, the paper considered the diachronic implications of analyzing the bigrade endings as having dual status and compared the new account with previous studies.

³⁵ Though note that the verb *ar-* is *r*-irregular while the suffix *-r-* invariably derives QD verb forms, a fact that needs to be considered in any attempt to relate the suffix *-r-* to the verb *ar-*.

The discussion throughout the paper was conducted under the framework of Distributed Morphology. While part of the account employed theory-internal analytical tools (acategorial roots etc.), I have attempted to show that the novel dual-status account of the OJ bigrade conjugation is also in many respects empirically superior to previous studies, because the account not only provided new insights into old questions from a fresh perspective, but also raised previously unaddressed questions and managed to provide principled answers to them, connecting apparently unrelated facts of the language in a systematic way. The study thus can also be viewed as a justification for the great explanatory power of modern formal linguistic theory.

Abbreviations

1 = first person, ACC = accusative, ADN = adnominal, ARG = argument, BE = existential, COMP = complementizer, CONC = concessive, CONCL = conclusive, COND = conditional, CONJ = conjectural, COP = copula, DAT = dative, DET = determiner, FK = Fudoki kayō (風土記歌謡), GEN = genitive, GER = gerund, HON = honorific, HUM = humble, IMP = imperative, IMPF = imperfective, INCH = inchoative, INF = infinitive, INTR = intransitive, KK = Kojiki kayō (古事記歌謡), MYS = Man'yōshū (万葉集), NEG = negative, NSK = Nihon shoki kayō (日本書紀歌謡), PFV = perfective, PL = plural, PROG = progressive, PROV = provisional, PRS = present, PST = past, Q = question particle, SG = singular, TOP = topic, TR = transitive.

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