Deriving *Mizenkei* in Old Japanese Verbal Morphology*

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1 Introduction

In (Western) Old Japanese (henceforth OJ), when particular verbal suffixes (those in (1)) attach to a traditional 四段動詞 quadrigrade verb (henceforth a 4G verb; a verb whose root/stem ends in a consonant, e.g. CVC-; holding approximately 75% of attested OJ verbs), an /a/ vowel regularly occurs between the root/stem and the suffix (2a). This /a/ vowel is absent when those suffixes attach to a traditional 二段動詞 bigrade verb (henceforth a 2G verb;

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a regular verb whose root/stem ends in a vowel (either /e/ or /wi/), e.g. CV-, CVCV-; around 20% of the OJ verbs are 2G), as in (2b):

(1) Group I, traditional *mizen*-selecting suffixes:[1]
NEG *-(a)zu/-(a)n-*; TENT *-(a)m-*; NEG.TENT *-(a)zi*; COND *-(a)ba*; DES *-(a)na*; SUBJ *-(a)masi*; CAUS *-(a)sime-*

(2) a. 4G verb + /a/ + suffix:[2]
伊岐良受曾久流
i-kir-**a**-zu=so k-uru
there-cut-**A**-NEG.INF=FOC come-ADN
'[I] return without cutting [them] there' (Kojiki Kayō 51)

b. 2G verb + suffix:
伊頭礼乃時加吾孤悲射良牟
idure=no toki=ka wa-ga kwopwi-z-ar-a-m-u
which=GEN time=Q I-GEN love-NEG.INF-exist-A-TENT-ADN
'which time will I not love [her]?' (Man'yōshū 17.3891)

This /a/ vowel has been considered part of the verb stem, known as 未然形 *mizenkei* in traditional terminology. The suffixes in (1) are regarded as formally selecting this stem. Thus, the *mizenkei* of a 2G verb is formally identical to the root (e.g. *kwopwi-* > *kwopwi-* 'to love'), while for 4G verbs, it consists of the root *plus* the /a/ vowel (e.g. *kir-* > *kir**a**-* 'to cut'). It remains unclear whether the suffixes in (1) form a natural class, which may necessitate viewing *mizenkei* as a purely morphological object. Frellesvig 2010 simply calls it the '*a*-stem', but for him, only 4G verbs derive an *a*-stem equivalent to the traditional *mizenkei*, while those suffixes are said to directly attach to the root of a 2G verb.

Interestingly, there exists another group of suffixes (3) in OJ that exhibits similar, but not exactly the same pattern:

(3) Group II suffixes (adapted from Vovin 2020):
PASS *-(a)ye-*, *-(a)re-*; CAUS *-(a)s-/-(a)se-*; ITER *-(a)p-/-(a)pe-*; HON *-(a)s-*

[1] Abbreviations: ADN = adnominal; CAUS = causative; CONCL = conclusive; COND = conditional; DES = desirative; EMPH = emphatic; FOC = focus; GEN = genitive; HON = honorific; INCH = inchoative; INF = infinitive; INTR = intransitive; ITER = iterative; NEG = negative; PASS = passive; PERF = perfective; Q = interrogative; SUBJ = subjunctive; TENT = tentative; TR = transitive.

[2] Most examples in this paper are adapted from Vovin 2020, though the transcription system follows Frellesvig and Whitman 2008.

Most of these suffixes can be safely regarded as voice markers as they often alternate or affect the transitivity of a verb.[3] Like Group I suffixes, when they attach to a 4G verb root, an /a/ vowel automatically occurs in between (4a). But unlike Group I suffixes, (i) these voice makers do not typically occur after a 2G verb, a point which will become important later, and (ii) in the few cases where they do, the /a/ vowel seems to be kept, as exemplified by *nas* < *ne+as* in (4b):

(4) a. 安我古登婆之都
a-ga kwo tob-**as**-i-t[e]-u
I-GEN child fly-**CAUS**-INF-PERF-CONCL
'[I] have let my child fly away' (Man'yōshū 5.904)

b. 遠登賣能那須夜伊多斗
wotomye=no n[e]-**as**-u ya ita two
maiden=GEN sleep-**HON**-ADN house board door
'board doors of the house, where the maiden sleeps'
(Kojiki Kayō 2)

Another notable difference between the two groups of suffixes is that for Group I suffixes, the vowel between the suffix and the root is invariably /a/, but for Group II suffixes, the preceding vowel varies: after some roots another vowel, in most cases an /o/, is found:

(5) *toyom-**os***- 'to cause to sound', *op-**os***- 'to cause to carry', *omop-**os***- 'to cause to think/love', *pokor-**op***- 'to boast repeatedly', *motopor-**op***- 'to go around constantly', *omop-**oye***- 'to be thought/loved', *kik-**oye***- 'to be heard', etc.

Traditionally, however, the distinction between the two groups of suffixes is not always clearly made: many Group II suffixes are also analyzed as *mizen*-selecting. For example, Omodaka 1967: 629 describes *-pu* (i.e. the iterative *-(a)p-*) as 'normally' attaching to the *mizenkei* of a 4G verb, though exceptions are immediately mentioned. Also, Frellesvig 2010: 112 includes the honorific *-(a)s-*, the passive *-(a)ye-*, and the passive *-(a)re-* as selecting the so-called *a*-stem.

This study provides a novel generative account of the different behaviors of the two groups of suffixes in OJ. It is not immediately evident how the traditional account can be translated into modern morphological theory. The essence of *mizenkei*, or the *a*-stem, is unclear in this respect since the stem has lost its theoretical status in most studies within a Distributed Morphology

[3] The honorific *-(a)s-* seems to be an exception, which unfortunately will not be particularly dealt with in this paper. I will simply assume that it is derived from the causative *-(a)s-*.

(DM) framework (Halle and Marantz 1993) and it should be desirable to dispense with it (see Embick and Halle 2005, Embick 2016). In particular, I will demonstrate that for both groups, /a/ (and the other possible vowels for group II suffixes, as mentioned above) is neither part of the root/stem nor the suffix, nor can its distribution be described in terms of phonological conditions. I will instead argue that /a/ serves as the regular realizations of two functional heads in the verbal domain: an Asp° head *-a_1-* for Group I suffixes, and a *v*° head *-a_2-* for Group II suffixes. (6) outlines the structure of the verbal domain of OJ that will be proposed by this paper:

(6) The verbal template of OJ

{TR *-s-*; INTR *-r-*; ITER *-p-*; INCH *-y-*; ∅}

⇓

[[[Root *-v*°] -Voice°] -Asp°]$_{\text{the verbal domain}}$ (*-mizen-*selecting suffixes)

⇑ ⇑

{*-a_2-*} {*-a_1-*; GET *-e-*}

We first examine the status of the /a/ vowel found in traditional *mizenkei*/*a*-stem in Section 2. It will become clear that its distribution is not conditioned by phonology, and without the notion of the stem, it is better to analyze this /a/ as an independent functional head, labeled as *-a_1-* in this paper. Arguments will be given to show that it is located in Asp°. Another Asp° head *-e-* will then be identified in Section 3, by revisiting the history and the structure of the traditional 2G verbs. The interaction of 2G verbs and Group II suffixes implies that those voice markers can actually be decomposed, an idea that will be pursued further in Section 4, where the independent status of another head *-a_2-* preceding Group II suffixes is also established. A formal explanation will then be given to account for the morphological differences between *-a_1-*, which is invariably realized as /a/, and *-a_2-*, which carries great morphological irregularity. Section 5 concludes.

2 The Status of Traditional *Mizenkei*: Identifying *-a_1-*

At first glance, the distribution of /a/ before Group I suffixes seems to be phonologically conditioned (2). Since OJ in general prohibits VV sequences, one could argue that /a/ is inherently part of the suffixes but gets deleted due to a hiatus-breaking rule when a vowel-beginning suffix attaches to a vowel-ending root. However, while this approach does reflect some historical facts, e.g., reconstructed forms like **-an-* (> OJ *-(a)n-*), **-am-* (> OJ *-(a)m-*) are generally accepted for proto-Japanese based on independent reasons (see Frellesvig 2008 and also Frellesvig 2019 for a recent discussion), synchronically, as explicitly pointed out by Frellesvig 2010: 112, regular and productive hiatus-breaking rules in OJ do not match the observed pattern (see Unger

1993[1977]; Russel 2003; Vovin 2020: 55–56); applying the regular (7) to Group I suffixes would lead to incorrect forms (8):

(7) a. polysyllabic element + anything: V1 + V2 > V2
b. monosyllabic + polysyllabic element: V1 + V2 > V1

(8) a. *okwi-* 'to rise' + *-aba* > **okaba* (correct form: *okwiba*)
b. *ake-* 'to open' + *-aba* > **akaba* (correct form: *akeba*)

Another potential analysis is to consider /a/ an epenthetic vowel inserted to avoid possible consonant clusters or codas, both disallowed in OJ. However, there is no good evidence that /a/ is a well-established epenthetic vowel in OJ, where epenthesis is found in loan word from Middle Korean (MK) or Old/Early Middle Chinese (OC/EMC) in which more complex syllable structures are allowed. As shown in (9) (all from Frellesvig 2010: 144–150), only epenthetic /i/ or /u/ is consistently attested in those words and, in a few cases where /a/ appears to be inserted for phonological reasons, it is essentially an echo vowel that follows another /a/ in the preceding syllable (10):

(9) a. *kin**u*** 'silk' < OC **kwyans* (EMC **kjwianh*)
b. *kun**i*** 'country' < OC **guns* (EMC **gunh*)
c. *zen**i*** 'money' (attested in Early Middle Japanese) < EMC **dzian*
d. *s**i**tog**i*** 'rice cake for ceremonial purposes' (EMJ)
< MK *stek* 'rice cake'

(10) a. *k**a**m**a*** 'pot' < OC **khaam*
b. *k**a**m**a*** 'sickle' < OC **gryam*
c. *p**a**k**a**se* 'expert, authority' < EMC **pak-dzi*
d. *p**a**r**a*** 'field, plain' < MK *pel*
e. *k**a**s**a*** 'bamboo hat, umbrella' < MK *kas*

It can then be confidently concluded that the distribution of the *mizen* /a/ is not predictable by phonology. By recognizing this, while still treating /a/ as part of the Group I suffixes, Vovin 2020 in his grammar provides comprehensive lists of all the possible forms of those suffixes, with statements specifying which allomorph occurs in what environments. For example, the description of the tentative *-(a)m-* is presented as follows (2020: 713–714):[4]

> The tentative suffix has two allomorphs: *-am-* and *-m-*. The allomorph *-am-* is used after consonant verbs, *r*-irregular verbs, *n*-irregular verbs, and consonant final auxiliaries and suffixes, and the allomorph *-m-* after vowel verbs, other irregular verbs, and vowel-final auxiliaries and suffixes.

[4] Vovin's 2020 'consonant verbs' correspond to the traditional 4G verbs, and his '(regular) vowel verbs' correspond to the traditional 2G verbs. Irregular conjugations will not be dealt with in the current study.

While it is certainly a possibility to allow some sort of allomorphy in the grammar (cf. Section 4), by doing this for Group I suffixes one has to spell out all the possible forms for each of them, without capturing the evident morphological parallelism among those suffixes, i.e., the generalization seems to be missed. Instead, I would like to propose that this /a/ vowel has its independent status: it is the realization of a functional head, which I will refer to as *-a$_I$-*. Because well attested sequences like *-ap-**a**$_I$-m-* '-ITER-A-TENT', *-as-**a**$_I$-m-* '-CAUS-A-TENT', *-as-**a**$_I$-ba* '-CAUS-A-COND' indicate that this *-a$_I$-* is merged higher than voice markers, I suggest that the OJ verbal domain has the structure as in (11), the highest projection being AspP, where (i) *-a$_I$-* is an Asp° head, (ii) those voice markers (i.e. Group II suffixes) are arguably located in Voice° (but see Section 3 & 4), and (iii) *v*° is a category-defining functional morpheme immediately merged above the root, as usually assumed in the DM literature (Harley 2014, Bobaljik 2017):

(11) [[[root *v*°] Voice°] Asp°]
-a$_I$-

According to this new account, the concept of *mizenkei* or *mizen*-selecting is no longer needed: instead of viewing Group I suffixes as 'selecting' a specific stem form of the verbs, they can be seen as selecting an AspP as their complements. It is even not necessary to formally view these suffixes as 'AspP-selecting' as a type of c-selection relation, since cases are found where the complement of a Group I suffix is not an AspP:

(12) [$_{CP}$ [$_{YP}$ [$_{XP}$ [$_{AspP}$ *komor-a$_I$-*] *-na-*] ***-m-***] *-u*] (hide-A$_1$-DES-TENT-CONCL)

In (12) *-na-* and *-m-* are both traditional *mizen*-selecting suffixes, the latter attaches to the former, not directly to an AspP. I suggest that the selection relation is purely semantic in nature:

(13) Traditional *mizen*-selecting suffixes select a proposition.

One potential issue with this approach is that *-a$_I$-* does not appear to have an independent semantic interpretation. To address this, I propose that *-a$_I$-* functions an 'elsewhere' morpheme which does not by itself license any marked aspectual meanings, as stated by the Vocabulary Insertion (VI) rule (14). In Section 3 another Asp° head with marked semantics, namely *-e-*, will be identified.

(14) [ ]$_{Asp°}$ ⇔ *-a$_I$-*

We have seen in this section that phonology alone fails to account for the absence of /a/ with 2G verbs before Group I suffixes. By identifying the vowel as the instantiation of *-a$_I$-*, and shifting the question into a morphological one, a rather direct answer emerges: in most cases the final vowel of a

2G verb is also an Asp° head, namely *-e-* as mentioned immediately above, thus in complementary distribution with *-a$_I$-*. Details of this analysis are discussed in the following section, after which we will also be ready to develop a better understanding of the Group II suffixes.

3 The Bigrade Puzzle and the Group II Suffixes

Most 2G verbs end with an /e/ vowel, around 30 with /wi/. In OJ, one finds a lot of 4G/2G pairs of verbs with closely related meanings (15a–e), a phenomenon which has its reflexes throughout the documented history of the Japonic languages (see Kageyama and Jacobsen 2016). (15f) and (15g) are examples where a 2G verb patterns with an adjective (cf. Section 4):

(15) a. *wasur-* 'to forget intentionally' vs. *wasur**e**-*
'to forget unintentionally'
b. *tuk-* 'to attach (intr.)' vs. *tuk**e**-* 'to attach (tr.)'
c. *ap-* 'to meet' vs. *ap**e**-* 'to join'
d. *sak-* 'to split (tr.)' vs. *sak**e**-* 'to split (intr.)'
e. *war-* 'to break' vs. *war**e**-* 'to be broken'
f. *aka-* 'red (adj.)' vs. *ak**e**-* 'to redden; to lighten'
g. *sabu-* 'lonely (adj.)' vs. *sab**wi**-* 'to get desolate; to fade'

It seems natural to propose that the final vowels /e/ or /wi/ in 2G verbs have a functional origin. Indeed, this suggestion has been widely accepted at least since Unger 1993[1977] (Frellesvig 2008). Following Whitman 2008 (see also Frellesvig and Whitman 2016), I assume that the final *-e-* of 2G verbs is derived from the verb *e-* 'to get', with *-wi-* possibly being an allomorph to it, a point that I will go back to later. It is important to note here that the phonological status of the /e/ vowel in OJ is secondary: it comes from proto-Japanese **ai*, or **əi* after coronals (Whitman 2016), as a result of monophthongization:

(16) a. **ai* > *e*
b. **əi* > *e* / [+coronal] __ (cf. **əi* > *wi* / [–coronal] __)

Note also that the semantics of the pairs in (15) are not that predictable. Sometimes *-e-* derives a transitive 4G verb form into an intransitive one, sometimes the other way around. In cases like (15a), the nuance of meaning seems to be very subtle. This irregularity in interpretation is somehow expected as far as the historical origin of *-e-* is taken into consideration, as one can observe a similar multifunctionality of the *get*-construction in English. Synchronically, assuming that *-e-* is a functional head at the stage of OJ, I suggest its 'ambivalent' meaning can be understood as a case of contextual allosemy in the sense of Marantz 2013, as the LF counterpart of contextual allomorphy: the

meaning of *-e-* is root-sensitive in that to get it, one needs to access information of the root. Without going into details, some interpretation rules can be formulated as follows:

(17) a. [GET] ⇔ ⟦TR⟧ / √*TUK* ___ (i.e. *tuk-e-* 'to attach (tr.)' in (15b))
b. [GET] ⇔ ⟦INTR⟧ / √*SAK* ___ (i.e. *sak-e-* 'to split (intr.)' in (15d))

The question is, then, the syntactic position of this element. To answer this, we need to examine the Group II suffixes, i.e. the voice markers. Notice that some voice markers themselves show the 4G/2G alternation. For instance, the so-called causative marker has two allomorphs: *-(a)s-*, which has a 4G conjugation, and *-(a)se-*. which is by itself 2G. The same goes for the iterative *-(a)p-* and *-(a)pe-*. As for the so-called passive *-(a)re-*, it is clearly related to the intransitive marker *-(a)r-*, which in turn might come from the verb *ar-* 'to exist'. The intransitive *-(a)r-* is sometimes not considered a canonical suffix in OJ grammars such as Vovin 2020, but there is actually no good reason to treat it differently from the other suffixes listed in (3). Of course, pairs like *-(a)p-/-(a)pe-* and *-(a)s-/-(a)se-* are apparent cases of allomorphy, but *-(a)r-* and *-(a)re-* cannot be, because they clearly have distinct semantics, but this does not really matter in the current context, if the final /e/ vowels in those 2G forms point to the same *-e-* suffix identified in lexical 2G verbs as just discussed, which may have semantics of its own. That is, a form like *-(a)se-* is in fact not a single element, but can be segmented as *-(a)s-e-*, with *-e-* being the GET morpheme. Now the inventory of OJ voice markers can be summarized as in (18). Note that the labels are used only conventionally here and cannot be taken seriously; they do not imply any essence of those elements. For example, the so-called passive *-(a)ye-* has three functions in OJ: (i) spontaneous action, (ii) passive, and (iii) potential (Vovin 2020: 747), with the 'real' passive meaning (ii) probably being innovative. The different labels used for them can be viewed as an informal way to indicate the fact that the 2G forms of those suffixes do not necessarily have the same meanings as their 4G counterparts. Importantly, the 2G forms are (at least) bimorphemic, because the final /e/ vowels are exactly the realizations of the functional head *-e-*.

(18) a. Transitive/causative(/honorific) *-(a)s-*; causative *-(a)s-e-*
b. Intransitive *-(a)r-*; passive *-(a)r-e-*
c. Passive *-(a)y-e-*
d. Iterative *-(a)p-*; iterative *-(a)p-e-*

It is now obvious that *-e-* can be structurally higher than the voice markers *-(a)s-*, *-(a)r-*, *-(a)p-*. Given that *-e-* and *-a_I-* are in complementary distribution, as illustrated by Group I suffixes in (2), it is reasonable to hypothesize that *-e-* in such cases is also an Asp° head, conditioned by the VI rule (19), but

unlike -*a*$_{I}$-, it is a semantically marked one, with its interpretation being context-sensitive as outlined above.

(19) [GET]$_{\text{Asp°}}$ ⇔ -*e*-

As shown in (18), a direct 4G counterpart of -*(a)ye*-, namely *-*(a)y*-, apparently is not attested, but this gap is immediately explainable if we consider the phonological history of /e/. As noted in (16), a pre-OJ form **ay* would result in /e/ in OJ. Thus, a voice marker *-*(a)y*- can be reconstructed for proto-Japanese, which has been further grammaticalized into an Asp° head at the stage of OJ, phonologically realized as /e/. Additionally, the passive form -*(a)y-e*- indicates that the pre-grammaticalized voice marker *-*(a)y*- might still be present in OJ; it only undergoes monophthongization as a derivational process and results in /e/ when the higher aspectual -*e*- is not present. Thus synchronically, I would like to suggest that the ending vowel /e/ of 2G verbs is structurally ambiguous: it is either (i) an Asp° head -*e*-, or (ii) a voice maker, underlyingly -*(a)y*-, merged lower than Asp°. In the form -*(a)y-e*- we get both; in other cases where an /e/ occurs immediately above the root, its position is admittedly more difficult to tell (see Section 4 for more comments).

Frellesvig 2008 argues that the 2G conjugation belongs to a younger morphological layer in the language than the 4G. One crucial argument he made is that, without a clear semantic reason, 2G verbs do not normally combine with the Group II suffixes, i.e., forms that can be analyzed as 'root-*e-as*-' are sparse. Treating 2G verbs as fully lexicalized, what he claims is that the 2G conjugation arises later than the morphologization of the Group II suffixes. Putting the chronology issue aside, it should be clear that the observation that 2G verbs are morphologically more restricted is nicely captured by the current proposal, where the /e/-ending is identified as two diachronically related functional heads. The voice marker -*(a)y*- (>/e/) competes the same syntactic position with the Group II suffixes and they are thus in complementary distribution. On the other hand, the GET -*e*- is crucially an Asp° head merged higher than -*(a)s*-, -*(a)r*-, -*(a)y*-, and -*(a)p*-; they do cooccur, but will result in forms like -*(a)s-e*-, -*(a)r-e*-, -*(a)y-e*-, and -*(a)p-e*-, not the reversed order.[5]

[5] Note that apparent exceptions to Frellesvig's 2008 observation are not that difficult to find. For example, in Vovin 2020: 738, 776 we find forms like *nagar-ap*- 'flow-ITER' and *nur-as*- 'wet-CAUS', where the underlying forms of the roots are claimed to be 2G, namely *nagare*- and *nure*-, which are well attested elsewhere. However, although the 4G forms *nagar*- and *nur*- are assumed to be non-existent in OJ (*nur*- 'to paint' in fact occurs three times without a following /e/ according to the Oxford-NINJAL Corpus of OJ (Frellesvig and Horn *et al*. 2023)), one can still say that the root forms are just *nagar*- and *nur*-, which can be attached to immediately by either -*e*- (< -*(a)y*-) or a Group II suffix, but not both.

4 Identifying *-a₂-*: Why It Varies While *-a₁-* Does Not

Notice that all the forms in (18) begin with an /a/, and we have already seen that it behaves quite differently from the /a/ in traditional *mizenkei*. The former /a/ is certainly not *-a₁-* as identified in Section 2. In (20), the root of 'to sleep' is traditionally considered *ne-*, so the underlying form *n-as-* could be *ne-as-*, where /e/ is deleted by the regular vowel-deletion rules (7):[6]

(20) 夜周伊斯奈佐農
yasu i si **n-as**-a-n-u
easy sleep EMPH sleep-CAUS-A$_1$-NEG-ADN
'[you] do not let [me] sleep an easy sleep' (Man'yōshū 5.802)

One would suppose that this /a/ vowel is part of the Group II suffixes. However, this solution will give us a number of suffixes that share highly parallel phonological shapes, all accidentally beginning with /a/. Such a rather unbalanced picture is of course in principle possible, but one naturally wants to ask if the initial /a/ is a morphological object by itself, and if those voice markers can be further decomposed. At this point it is worthwhile to note that historically, the origin of this /a/ appears to be heterogeneous. On the one hand, as already mentioned, *-(a)r-* is assumed to be derived from *ar-* 'to be'. In this case the /a/ is indeed originally part of the suffixal forms. But on the other hand, the causative/transitive *-(a)s-* points to the prototypical transitive verb *se-* 'to do', where an original initial /a/ is not found. Thus the /a/ in *-(a)s-* might have been a root vowel at first, or be added at some point by analogy.

More importantly, it has been mentioned in the beginning of this paper that after certain roots the initial vowel of those suffixes is not /a/. See (5). (21) provides some more examples where an alternative vowel is found between different Group II suffixes and a same root:[7]

(21) a. *kik-**o**-s-* 'hear-HON'; *kik-**o**-y-e-* 'to be heard'
b. *omop-**o**-s-* 'think-HON'; *omop-**o**-y-e-* 'to be thought'

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[6] *Ne-* 'to sleep' has a 2G conjugation, but it appears that the final /e/ etymologically has nothing to do with the functional *-e-*. Recall that Group II suffixes do not normally attach to 2G verbs. It is synchronically possible to analyze this verb as having a root form *n-*, which can be extended by either *-e-* or *-as-*, without the phonological rules being involved. See also note 5.

[7] The distribution of *-o-p-* and *-o-p-e-* is somehow less paralleled (i.e., they are normally attested after roots different from those in (21)). This probably implies that the iterative *-(a)p-* should be treated in a way different from other Group II suffixes. Although I will not pursue this idea further, one should be aware that *-(a)p-* sometimes co-occurs with another Group II suffix as in forms like *motop-o-r-op-* 'to crawl around' (cf. 21c), while other Group II suffixes do not co-occur with each other. A more striking fact is that, in Eastern Old Japanese, the iterative marker unexpectedly occurs *after* the negative *-(a)z-*/*-(a)n-*, a Group I suffix, as in *ap-a₁-n-ap-* 'meet-A-NEG-ITER'. The peculiarity of *-(a)p-* is left for further research.

c. *motop-**o**-r-* ‘to go back’; *motop-**o**-s-* ‘to make go back’
d. *kak-**u**-r-* ‘to hide (intr.)’; *kak-**u**-r-e-* ‘to be hidden’;
*kak-**u**-s-* ‘to hide (tr.)’

Diachronically, (21a–c) may reflect a pre-OJ Tongue Root harmony system, which is no longer productive at the stage of OJ (see Whitman 2016, this volume). For (21d), the /u/ is normally considered a root vowel, but with this assumption synchronically, we lose the possibility to account for the absence of a regular suffix-initial /a/. Since all the Group II suffixes seem to show a similar behavior with this respect, if one treats the /a/ as a suffix-initial vowel, the parallel distribution of those alternative forms is left unexplained. I thus suggest that the /a/ vowel also has its independent status: all the alternative forms of it are a result of the allomorphy of an independent functional head -a_2- merged at *v*°, i.e., a verbalizer, with the OJ Voice° heads being those in (22). Their labels, again, are used only informally and do not necessarily reflect the essence of those markers, an important issue which I will not discuss any further (see Oseki 2017 for a quite relevant formal discussion on the voice markers in Modern Japanese).

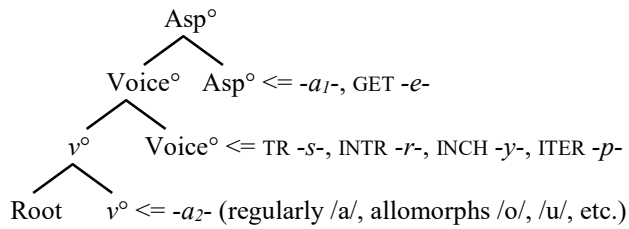
(22) Intransitive -*r*-; transitive -*s*-; inchoative -*y*-; iterative -*p*-

An advantage of positing a *v*° head -a_2- is that cases like (15f) and (15g) are now easy to explain, where an /e/ (with the alternative form /wi/) seems to derive an adjective into a verb with an invariable inchoative reading. This /e/ is not the Asp° head -*e*-, but is the phonological realization of -a_2-*y*-, in which -a_2- is a verbalizer, which does the category-shifting or category-assigning job, and -*y*- is a Voice° head which licenses the inchoative meaning.

Recall that a number of 2G verbs end with /wi/, rather than the regular /e/. This pattern in fact fits nicely with the current analysis, because /wi/ historically comes from **əi* or **ui* (cf. 16).[8] Noting that proto-Japanese **ə* gives /o/ in OJ, /wi/ can be viewed as underlyingly -*o*-*y*- or -*u*-*y*-, where -*o*- and -*u*- are two allomorphs of -a_2-, -*y*- the inchoative marker identified above. Now the OJ verbal domain can be analyzed as having the following structure:

[8] Or in some cases **oi* as reconstructed by Vovin 2011 and Pellard 2013. Note however that the **oi* sequence violates the Tongue Root harmony system proposed by Whitman this volume.

(23)



It is then predicted that the distribution of the 2G ending /wi/ should be parallel to the alternative forms in (22). The word forms in (24) seem to confirm this. The realization of *-a₂-* is essentially root-sensitive as stated by the VI rules in (25).

(24) a. *ot-i-* (< *ot-o-y-*) 'to fall';[9] *ot-o-r-* 'to be inferior'; *ot-o-s-* 'to drop'
b. *sug-wi-* (< *sug-u-y-*) 'to pass time'; *sug-u-r-* 'to pass';
sug-u-s- 'to let pass'

(25) a. $[\ ]_{v^\circ} \Leftrightarrow$ u / Root__ where Root ∈ {√*SUG*, √*KAK*, etc.}
b. $[\ ]_{v^\circ} \Leftrightarrow$ o / Root__ where Root ∈ {√*OT*, √*KIK*, √*OMOP*, etc.}
c. $[\ ]_{v^\circ} \Leftrightarrow$ a / Root__ elsewhere

We are finally ready to solve the issue raised in the beginning of this paper, which at the moment can be paraphrased as: why *-a₁-* is invariably realized as /a/, whereas *-a₂-* shows rich allomorphy? The answer seems to be quite direct: *-a₁-*, as an Asp° head, is too 'far away' from the root, so that any interaction between *-a₁-* and the root is impossible because no local relations can be established, as it is exactly *-a₂-* that intervenes between *-a₁-* and the root. Since both *-a₁-* and *-a₂-* are 'elsewhere' morphemes, they should always be merged in unmarked cases; as for Voice°, I assume that the unmarked value is realized as *zero*:

(26) $[\ ]_{\text{Voice}^\circ} \Leftrightarrow \emptyset$

Therefore, a surface form like *kik-a₁-m-* 'hear-A-TENT-' must be underlyingly more complex. This is illustrated in (27) where *v*° is occupied by *-a₂-* and Voice° by ∅:

(27) [XP [AspP [VoiceP [*v*P [Root *kik-*] *-a₂-*] *-∅-*] *-a₁-*] *-m-*]

Putting the issue of the zero morpheme aside (cf. note 10), it is crucial for us that *-a₂-* will block any possible local relations between the root and Asp°, i.e. *-a₁-*. Recall that OJ does not allow vowel clusters, which are

[9] /wi/ is neutralized to /i/ after coronals.

systematically avoided by the vowel-deletion rules (7). I assume here that (7) applies derivationally and cyclically; that is, (7) only becomes active at the point -a_1- is inserted, which happens after the application of the VI rules (25) that insert -a_2-. As a result, whenever an underlying a_2-a_1 sequence emerges, it is invariably the realization of -a_2- that is deleted, in which case a certain VI rule might still apply to it, thus resulting in an irregular vowel, but no surface effect will be observed since it is deleted later in the derivation, and only -a_1- is kept in the surface form.

The same logic would also apply to the Voice° heads (22) and the aspectual GET -*e*-, in that they both are predicted not to show root-conditioned allomorphy, due to the blocking effect of -a_2-.[10] The former prediction seems to be borne out by the data,[11] but the latter is rather difficult to confirm, since at the moment we do not have a principled way to distinguish -*e*- from the *v*°-Voice° cluster -a_2-*y*-, which would also result in /e/. In any case, it is deduced that whenever an /wi/ is attested, it is the alternative form of -a_2-*y*-, not the invariable Asp° head -*e*-.

5 Conclusion

In this paper I have analyzed in a DM framework the status of the traditional *mizenkei* in OJ, which in traditional grammar works as a stem being formally selected by specific suffixes (i.e. Group I suffixes), which do not clearly form a natural class. In addition, a number of voice markers (i.e. Group II suffixes) are sometimes also identified as *mizen*-selecting. This study shows that *mizenkei* is both theoretically undesirable and empirically unnecessary, in that the so-called stem-final /a/ should be analyzed as two functional heads: an Asp° head -a_1- for the /a/ preceding Group I suffixes, and a *v*° head -a_2- for the /a/ between a Group II suffix and the root. Thus strictly speaking, *mizenkei* in fact is not derived, but is discarded as a notion, by this study.

First, efforts have been put to provide a reason why traditional 2G verbs (i.e. verbs identified as having a vowel-ending) do not extend an /a/ vowel in their *mizenkei*. I have argued and put forth the idea that the final vowel of 2G verbs is itself a functional head -*e*-, which is in complementary distribution

[10] Note that contextual allosemy on the other hand is not predicted to be blocked by-a_2-; (17) can still be kept. The principle used here is that only morphemes with a phonological realization can block contextually allomorphy, and likewise, only morphemes that have semantics can block contextual allosemy; -a_2- seems to have the former but lack the latter. See Marantz 2013 for discussion.

[11] The only potential counterexample I am aware of is from the word form *panat*- 'to separate', which seems to be related to *pan-a-r*- 'to be expelled' and *pan-a-r-e* 'to be separated'. It might be segmented as *pan-a-t*-, treating -*t*- as an allomorph of the transitive -*s*-. Unfortunately, we do not have enough data to reach a decisive conclusion.

with -a_1-. Second, a clear distinction is made between the two groups of suffixes. The Group II suffixes are not monomorphemic but are Voice°-v° clusters to which -*e*- can further attach. A number of Voice° heads are identified within this proposal. It has been explained in terms of locality conditions why -a_1- and -a_2- are morphologically so different in that only the latter shows root-controlled allomorphy. We have thus developed a rather fine-grained structure of the verbal domain of OJ.

Future research will try to extend the current framework out of the verbal domain and eventually develop a better understanding of the full paradigm of OJ verbal morphology. It is noteworthy that 2G and 4G verbs show significant paradigmatic differences also in the clausal domain; more assumptions need to be made to account for all of them. Note finally that the notion of *mizenkei* is used in grammar of different stages and varieties of the Japonic languages, and the approach presented by this paper does not necessarily apply to other varieties in the language family.

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