The Origins of Rampant, Regular Haplology in the Marshallese Verbal System*

Mark Hale
Concordia University

SUMMARY

Like many Oceanic languages, the language of the Marshall Islands has a system of verbal morphology built around transitivity marking and object agreement. Bender (1984) presents a careful descriptive analysis of the Marshallese system (together with some argumentation about how the system may have evolved). Explicitly building on Bender's account, the present paper sketches out a somewhat more abstract conception of the relevant verbal morphology and explores the implications of the proposed analysis, if true, for our understanding of the coming into being, diachronically, of regular morphological haplology.

RÉSUMÉ

Comme beaucoup de langues océaniques, la langue des Îles Marshall a un système de morphologie verbale construit autour du marquage de transitivité et de l'accord d'objet. Bender (1984) présente une analyse descriptive minutieuse du système Marshallese (avec quelques arguments sur la façon dont le système a pu évoluer). Explicitement basé sur le compte de Bender, le présent document esquisse une conception un peu plus abstraite de la morphologie verbale pertinente et explore les implications de l'analyse proposée, si elle est vraie, pour notre compréhension de l'avènement, diachroniquement, de l'haplologie morphologique régulière.

1 DESCRIPTION OF MARSHALLESE VERBAL MORPHOLOGY

In honour of Lisa Travis' long-standing contributions to the grammar of Austronesian languages, particularly in the area of verb morphology, I present this little analysis of an especially interesting

* The author would like to thank the audience at the 12th Spring Workshop on Theory and Method in Linguistic Reconstruction for helpful discussion of the issues raised in this paper.

McGill Working Papers in Linguistics, Vol. 25, Issue 1, Year 2018

(and complex) piece of Oceanic transitivity marking. Bender (1984) presents a detailed analysis of the distribution of the various shapes in which transitive verbs may appear in Marshallese.[1] He establishes five 'forms' that the transitive verb may take. Not surprisingly, these 'forms' correlate with five (seemingly in part overlapping) syntactic contexts within which Marshallese transitive verbs may occur. The first context (which triggers a form which Bender labels F-1) is the most general, covering any use of a transitive verb before any specific[2] object except for some null third-persons. I will exemplify the various forms that transitive verbs take under Bender's scheme using the verb *deget* 'to slap; spank'.[3] Some examples of this verb in its F-1 form would be:

(1) *ye-har* *deget* *yẹq*
IIISGS-PFCT slap$_{\text{F-1}}$ you.SG
He slapped you (sg.).

(2) *ye-har* *deget* *kẹj*
IIISGS-PFCT slap$_{\text{F-1}}$ us.INCLPL
He slapped us.

(3) *ye-har* *deget* *qẹyẹt* *yew*
IIISGS-PFCT slap$_{\text{F-1}}$ octopus the.SG
He slapped the octopus.

(4) *ye-har* *deget* *qẹyẹt* *kew*
IIISGS-PFCT slap$_{\text{F-1}}$ octopus the.PL.−HUM
He slapped the octopuses.

Four examples have been cited so as to show that, unlike some of Bender's other forms that transitive verbs may take, the F-1 form does not agree with its direct object in number, whether that object is pronominal (1)–(2) or nominal (3)–(4).

The other important thing to note about the quite general form designated F-1, as mentioned in passing above, is that there are two contexts in which it may not appear: namely, before IIISG null pronominal objects, and before IIIPL,−HUMAN null pronominal objects (the only null objects Bender posits).

(5) **ye-har* *deget* $\emptyset_{IIISg}$
IIISGS-PFCT slap$_{\text{F-1}}$ null singular object
He slapped it.

[1] Marshallese orthography is a complex matter, some aspects of which will be discussed in detail in the diachronic section of this paper. For the time being, it is worth bearing in mind that the vowel symbols are intended to convey a contrast *only* along the height dimension: i.e., orthographic *i* represents a high vowel (but *not* one which is specified as non-back and non-round, unlike the traditional IPA character with identical shape), *ẹ* an 'upper mid' vowel, *e* a mid vowel, and *a* a low vowel. None of the vowels are specified along the back and round dimensions. See Hale (2007) for a discussion of the diachrony of the vowels, and Hale & Riess (2008) for some synchronic issues which arise for phonological theory from this inventory. The original insights into the structure of the vowel system are owed to Bender (1968). It may be of value to the reader to know that *g* is used for the voiced velar nasal, and that a raised ° after a consonant indicates that that consonant is round. For a detailed recent discussion, see Bender et al. (2016), Chapter 2.

[2] Only specific objects trigger any form of transitive morphology in Marshallese: non-specific objects appear only after what are traditionally called 'intransitive' verbs. See Bender et al. (2016:152-3).

[3] This verb falls into Bender's 'Class I.' We will consider the verb classes in considerable detail below.

(6) **ye-har deget $Ø_{IIIPl,-Human}$*
IIISGS-PFCT $slap_{F-1}$ null plural non-human object
He slapped them (non-human entities).

Bender's F-2 is a label for an alternate transitive form which may occur (optionally) in precisely the same syntactic contexts as those which otherwise trigger the F-1 form. The F-2 form of *deget* is *degetey*, and it can be seen in the following examples (which parallel (1)–(4) above).

(7) *ye-har degetey yẹq*
IIISGS-PFCT $slap_{F-2}$ you.SG
He slapped you (sg.).

(8) *ye-har degetey kẹj*
IIISGS-PFCT $slap_{F-2}$ us.INCLPL
He slapped us.

(9) *ye-har degetey qẹyẹt yew*
IIISGS-PFCT $slap_{F-2}$ octopus the.SG
He slapped the octopus.

(10) *ye-har degetey qẹyẹt kew*
IIISGS-PFCT $slap_{F-2}$ octopus the.PL.−HUM
He slapped the octopuses.

It is apparent from this table that forms labelled F-1 and F-2 by Bender (1984) are always seemingly free variants of one another—that is, there is no context in which one of the forms may occur which precludes the appearance of the other.[4] Since the suffixal *-ey* is not required for the form to be transitive, and since it does not show agreement with the number of the object (as an affix about to be discussed does), Bender calls the element seen in F-2 forms a 'transitive extension.'

Bender assigns the designation F-3 to transitive verb forms whose direct object is a null, third person singular argument (we have seen above that F-1 forms may not appear in this context). F-4 is the form that a verb takes before null, third person plural non-human objects.[5] For the verb *deget*, the F-3 form is *degetey*, the F-4 form *degetiy*.[6]

(11) *ye-har degetey $Ø_{IIISg}$*
IIISGS-PFCT $slap_{F-3}$ null singular object
He slapped it.

(12) *ye-har degetiy $Ø_{IIIPl,-Human}$*
IIISGS-PFCT $slap_{F-4}$ null plural non-human object
He slapped them non-humans.

[4] Bender is careful to point out that it is entirely possible that the functional contrast between the two forms has simply not yet been discovered.

[5] Marshallese normally requires resumptive pronouns in cases of syntactic extraction (such as topicalization or focussing), but these resumptive pronouns are null for IIISG and IIIPL,−HUMAN arguments. Thus F-3 and F-4 verb forms are found in these contexts as well.

[6] The reader will have noticed that the F-3 form is identical, for this Class I verb, to the F-2 form.

Bender sensibly enough sees in the F-3 and F-4 forms of transitive verbs an 'Object Marker' suffix which agrees in number with the (null) pronominal object of the verb.

Finally, F-5 is Bender's label for an additional form that a verb may take before plural non-pronominal (and non-null) non-human objects. I say 'additional' because, as the reader will recall, forms of the category F-1 and F-2 may freely occur in this context (see examples (4) and (10), repeated below for your convenience). The F-5 form of *deget* is *degetiy*.[7] An example of the appearance of this form can be seen in (13) – contrast (4) and (10) above.

(13) *ye-har degetiy qẹyẹt kew*
IIISGS-PFCT $\text{slap}_{\text{F-5}}$ octopus the.PL.−HUM
He slapped the octopuses.

The F-5 form does not occur before singular or human arguments.

Thus, the distribution of the form categories which Bender has established can be seen in the table below.

(14) Bender's Form Categories

Forms	before NP and non-null pronominal objects	before IIISg null objects	before IIIPl,−Human null objects	before IIIPl,−Human NP objects
F-1 (*deget*)	√	—	—	√
F-2 (*degetey*)	√	—	—	√
F-3 (*degetey*)	—	√	—	—
F-4 (*degetiy*)	—	—	√	—
F-5 (*degetiy*)	—	—	—	√

As this table reveals, only three distinct forms appear to satisfy the five transitive form categories for a verb of Class I such as *deget*. No verb class requires five distinct forms, though the particular types of overlapping seen in the table varies with the class membership of the verb.

2 THE VERB CLASSES

Bender (1984) divides Marshallese transitive verbs into 7 classes: four 'strong' (i.e., non-productive) and three 'weak'.[8] These classes are defined by how they realize the form categories established by Bender and summarized in the last section, as well as by the nature of the morphological relationship between the intransitive and transitive forms of the verb. Leaving aside for the present Bender's somewhat miscellaneous Class IV, the remaining six classes can be broken up into two major 'types', which I will label 'Type A' and 'Type B'. Class I, which has *deget* as a member, is of Type A. It is to the characterization of this type that we now turn.

[7] This form is identical to the F-4 form, a matter to which will return shortly.

[8] One of the 'strong' classes (Class IV) is diverse of make-up, very small (six verbs total), and combines archaic and innovative features. For reasons of space I will not consider it in what follows.

2.1 TYPE A TRANSITIVES

2.1.1 CLASS I & II STRONG VERBS

Bender's 'Class I Strong' category (henceforth just 'Class I') contains 3 somewhat distinct subclasses. The largest subclass, and the one usually taken as characterizing the class as a whole, shows unpredictable final -C material in the transitive stem which is missing in the intransitive stem.[9] Some examples include:

(15) Strong Class I

intransitive stem	transitive stem	gloss
dege	*deget*	spank, slap
yipe	*yiper*	drag; haul
gẹyẹ	*gẹyẹj*	measure (in fathoms)
yare	*yarek*	haul (boat) on shore

Verbs in this class are sometimes called 'thematic transitives', for which the unpredictable -C "augmentation" of the intransitive stem is called the "thematic -C suffix."[10] An alternative, and probably preferential analysis, is that the intransitive results from truncation of the transitive. The evolution of this class is well-understood.[11] Since *deget* is a Class I verb, we have seen above how the various forms that this verb may take match up with the five form categories established by Bender.

Class II is a minor variant of Class I. The verbs in this class differ from Class I verbs only in that the vowel preceding the final consonant of the transitive stem is [+hi], whereas none of the pre-final-C vowels of Class I verbs is high. This difference triggers phonological effects on material suffixed to the stem; hence the distinct (descriptively) class membership. Some members of this class would be:

[9] I use the term 'intransitive stem' to designate a form from which the intransitive verb could, in principle, be derived. Many Marshallese intransitives show the effects of further derivational processes—e.g., full or partial reduplication. The non-stem (i.e., derivational) morphology of specific intransitives is irrelevant for our considerations here. In addition, all final vowels not protected in some way via affixation will be deleted by phonological rule. Other phonological rules (e.g., a syncope rule) may also be required to derive attested intransitive forms.

[10] In fact, it is not unusual to speak of a thematic -VC suffix in these cases. The reasons for this will be clear to those who actually read footnote 9. Since the final vowel of the intransitive stem will normally be deleted, an intransitive stem such as *yare* above will surface as *yar*. Since its transitive form is *yarek*, it appears that the transitive form has an additional unpredictable *VC* relative to the intransitive, rather than simply a *C*. However, the form of the intransitive in a very large number of cases requires the phonological information contained in this deleted vowel to be available for the derivation of the intransitive—since it is also required for the transitive, obviously, it seems clear that that vowel should be considered part of the underlying morpheme. By contrast, the final 'transitive' -C does not play any role in the derivation of intransitive forms—supporting a 'truncation' analysis.

[11] For reasons which need not detain us now, Bender also includes in his 'Class I' a set of verbs which he says could be analyzed as having '-Ø thematic' material. These verbs have identical intransitive and transitive stems. Their synchronic analysis is irrelevant to our concerns here.

(16) Strong Class II

intransitive stem	transitive stem	gloss
hapi	*hapij*	pinch
kataki	*katakin*	study; learn
har°i	*har°ij*	extricate (as meat from a clam)

The phonological forms taken by a verb such as *hapij* in Bender's form categories can be contrasted with those seen above for *deget*:

(17) Class I vs. Class II

intrans. stem	class	F-1	F-2	F-3	F-4	F-5
dege	Class I	*deget*	*degetey*	*degetey*	*degetiy*	*degetiy*
hapi	Class II	*hapij*	*hapijiy*	*hapijiy*	*hapijiy*	*hapijiy*

While verbs of this class agree with Class I verbs in showing no morphology beyond their "thematic" -C element in F-1, and in showing suffixal /-iy/ in F-4 and F-5, they differ in that they appear to show /-iy/ in categories F-2 (the optional 'transitive extension') and F-3 as well. Since Class II is characterized phonologically, and all of its members have a high vowel in their final (and thus immediately pre-suffixal) syllable, it seems straightforward to account for the differences between Class I and Class II not morphologically, but by the simple positing of a phonological rule such as the one in (18):

(18) *e*-Raising: $e \rightarrow i$ / *i*C+_

We will see support for this rule elsewhere in the verbal morphology of Marshallese.

2.1.2 CLASS VII WEAK VERBS

It makes sense to consider Bender's Class VII verbs at this juncture as well. Class VII verbs are, like most members of Bender's Class I and Class II, characterized by a transitive form which has an "augmentation" relative to their intransitive forms. However, this "augmentation" is of the form *(y)ik*, and it is attached to all glide-final verbs which do not have 'strong' transitives—i.e., it is the productive mechanism for the creation of transitive verbs from intransitives which end in a glide.[12] Some members of this class, with a number of loanwords to help convince you of the productivity of the category, would include:

(19) Weak Class VII

intransitive stem	transitive stem	gloss
nebbah	*nebbahyik*	green veggies (< Jap. *nappa*)
haɱah	*haɱahyik*	hammer (< Eng. *hammer*)
haɱbidilay	*haɱbidilayik*	umbrella (< Eng. *umbrella*)
kalliw	*kalliwik*	make angry (causative of *lliw*)

[12]The glides of Marshallese are *y*, *w*, and *h*.

This is a fully productive category.

When we expand the table above to include a Class VII Weak verb, the reasons for including these verbs in our 'Type A' category should be apparent.

(20) Type A

intrans. stem	class	F-1	F-2	F-3	F-4	F-5
dege	I	*deget*	*degetey*	*degetey*	*degetiy*	*degetiy*
hapi	II	*hapij*	*hapijiy*	*hapijiy*	*hapijiy*	*hapijiy*
kalliw	VII	*kalliwik*	*kalliwikiy*	*kalliwikiy*	*kalliwikiy*	*kalliwikiy*

The *inflection* of the transitive stems of Class VII Weak verbs is identical to that of Class II Strong verbs—the difference between the two categories is to be found in the derivational relationship between the transitive and intransitive stems for these verbs, which is not our primary concern here. In Class VII Weak verbs the transitive has a -VC suffix (*ik*), while in Class II Strong verbs the final -VC is part of the lexical entry for the verb. Thus, given our vowel assimilation rule in (34), Bender's Class I, II Strong and Class VII weak verbs can be collapsed in a single category – Type A.

2.1.3 THE 'TRANSITIVE EXTENSION'

Type A verbs freely occur with Bender's 'optional transitive extension' (i.e., in form F-2) before *in situ* NP objects (of course, the F-1 form may always be used in this context as well). Regarding the form of transitive verbs before null pronominal objects, two approaches might be contrasted. The first approach invokes maximally simple morphological statements, while tolerating some complication of the phonology; the second approach invokes maximally simple phonology, while tolerating some complication of the morphology. There are numerous possible analyses under each approach, but I'll state one of each which might be plausible, given data yet to come in this paper. I'll refer to these approaches roughly as 'Simplest Morphology' vs. 'Simplest Phonology'.

- Simplest Morphology Approach

  1. Since the transitive extension is optionally added to transitive verb stems in some contexts, allow it to be freely added in any context which allows transitive verbs to appear.
  2. Add a regular phonological haplology rule to the grammar:

$$ey \rightarrow \emptyset \,/\, \_\_ \left\{ \begin{array}{c} +ey \\ +iy \end{array} \right\}$$

Under this approach, we would find derivations such as:

(21) $deget_{\text{tr}}$+ -$ey_{\text{tr.ext}}$+ -$ey_{\text{SgObjAgr}} \rightarrow$ *degetey*

(22) $deget_{\text{tr}}$+ -$ey_{\text{tr.ext}}$+ -$iy_{\text{Pl,-HumanObjAgr}} \rightarrow$ *degetiy*

- Simplest Phonology Approach

    1. The transitive extension is optionally added only before NP objects, and cannot be added before null pronominal objects. We will need to explicitly block its addition in these contexts through some morphological statement or principle.
    2. No phonological rule of haplology is required.

The derivation of forms is then trivial: they contain only the affixal material that actually surfaces (taking into consideration, of course, the phonological adjustment triggered by *e*-Raising).

The ultimate adoption of a particular solution will be a function of many factors, including one's theory of how morphology (and/or phonology) works, but it would certainly be impacted by the broader applicability of the phonological rule required by the Simplest Morphology approach. If that rule is independently motivated, simplifying the morphological statement will be cost-free.

2.2 TYPE B TRANSITIVES

The verbs which I will call 'Type B' are made up of the remaining two 'weak' verb classes of Bender (1984): his classes V and VI. You will recall that glide-final weak verbs make up Bender's Class VII Weak class, taking a transitive formative *-ik* and inflecting like Type A verbs. Non-glide final weak verbs, which provide the membership for Class V Weak and Class VI Weak, take a transitive formative *-ey*, added to the intransitive stem. This *-ey*, not surprisingly, undergoes the process of *e*-Raising when added to an intransitive stem which ends in the sequence *i*C. Bender calls the verbs which take *-ey* (which do not have a high vowel before their stem-final consonant) 'Class V' verbs, and those with the phonologically conditioned *-iy* (which do) 'Class VI' verbs. Some examples, including a number of loans to show the productivity of the classes, can be seen in the table below.

(23) Weak Classes V & VI

intransitive stem	transitive stem	class	gloss
gat	*gatey*	V	be unable to stomach
jer°bag	*jer°bagey*	V	compute (< Jap. *soroban*)
bawak	*bawakey*	V	put in a box (< Engl. *box*)
tir°iɱ	*tir°iɱiy*	VI	play trump (< Engl. *trump*)
habeṇtawin	*habeṇtawiniy*	VI	teeter-totter (< Engl. *up-and-down*)
keɱakit	*keɱakitiy*	VI	make unstable; shake

Whereas Type A verbs show *-ey* (or its raised equivalent) only optionally before *in situ* NP objects—the so-called 'transitive extension'—, verbs of Classes V and VI always end in this sequence. This is of course a function of the fact that in Type A verbs the *-ey* is merely a 'transitive extension', whereas in Classes V & VI *-ey* is the morpheme which allows for the derivation of a transitive stem. Contrast the ungrammaticality of (24) with the grammaticality of our earlier example (4):[13]

[13]Note that the object is plural, non-human, but there is no agreement on either verb.

(24) **ye-har bawak qęyęt kew*
IIISGS-PFCT put in box octopus the.PL.−HUM
He boxed up the octopuses.

While the 'transitive extension' is an optional affix for Type A verbs, the Object Agreement markers which appear before null pronominal objects are obligatory. We would therefore expect transitive verbs of Classes V and VI to take the object agreement markers when they occur before null pronominal objects. The attested forms for the Class V verb *bawak* are:

(25) *ye-har bawakey* $\emptyset_{IIISg}$
IIISGS-PFCT put in box$_{\text{SgObjAgr}}$ 'resumptive' pronoun
He boxed it up.

(26) *ye-har bawakiy* $\emptyset_{IIIPl,\text{-}Human}$
IIISGS-PFCT put in box$_{\text{Pl,-HumObjAgr}}$ 'resumptive' pronoun
He boxed them non-humans up.

Not surprisingly, Class VI verbs have *-iy* in both contexts. In the singular null pronominal object context this *-iy* is derived phonologically from *-ey*, in the plural non-human null pronominal object context the *-iy* arises from underlying *-iy*. In Bender's form category F-5—an optional form taken before plural, non-human NP objects—we find, as we would doubtless expect, *-iy* for both Class V Weak and Class VI Weak.

The forms taken by all of the verb classes we have considered thus far can be summarized as in the table below.

(27) Classes I, II, V, VI and VII: Summary of Forms

intrans. stem	class	F-1	F-2	F-3	F-4	F-5
dege	Class I	*deget*	*degetey*	*degetey*	*degetiy*	*degetiy*
hapi	Class II	*hapij*	*hapijiy*	*hapijiy*	*hapijiy*	*hapijiy*
kalliw	Class VII	*kalliwik*	*kalliwikiy*	*kalliwikiy*	*kalliwikiy*	*kalliwikiy*
gat	Class V	*gatey*	*gatey*	*gatey*	*gatiy*	*gatiy*
keŋakit	Class VI	*keŋakitiy*	*keŋakitiy*	*keŋakitiy*	*keŋakitiy*	*keŋakitiy*

It is worth being explicit at this point about precisely how these classes differ from one another and in what ways they are the same, descriptively speaking. First, you will recall that the forms given in the F-1 column have precisely the same syntactic distribution as those given in the F-2 column. This follows from the optionality of the 'transitive extension' (i.e., the form given as F-2). We could thus collapse these forms into a single column (which I will designate F-1/2), noting optionality with parentheses (thus *deget(ey)* would be interpreted as *deget* with an optional *ey* extension).

It is also worth noting that the forms given by Bender as F-5 are *always* identical to those given as F-4. The reader will recall that Bender's F-4 form category is used before phonologically null plural non-human objects, while F-5 is *optionally* used before non-null, plural, non-human NP objects. That is, form category F-5 appears to reflect the fact that Marshallese allows optional agreement with plural, non-human NP objects. It seems to me that it might be possible to collapse F-4 and F-5 through the following chain of reasoning. Marshallese appears to allow the rightward

extraposition of elements, as can be seen in the contrast between (28) and (29):

(28) ***Balwin yew*** *yej jeqḷaq Kiwajleyen gayat?*
airplane the IIISG-PROG land on Kwajalein when
When is the plane landing on Kwajalein?

(29) *Yej jeqḷaq Kiwajleyen gayat* ***balwin yew****?*
IIISG-PROG land on Kwajalein when airplane the
When is the plane landing on Kwajalein?

Here the subject, which we would expect to be preverbal,[14] is instead sentence-final. It still triggers agreement (thus *yej* IIISG-PROG), arguably because it has a null resumptive pronoun in subject position.[15] Imagine that one were to rightward-extrapose a plural non-human object NP. Under such an assumption, it would seem possible that the sentences with F-5 verbs, such as (13) above, involve not the structure (30) which one might by default assume them to have, but the somewhat rarer extraposition (with null cataphoric pronoun) structure seen in (31).

(30) *[deget-iy qẹyẹt kew* $]_{VP}$
[slap-OBJAGR octopus the.PL.−HUMAN]
slap the (plural, non-human) octopus

(31) *[deget-iy* $Ø_i$ $]_{VP}$ *[qẹyẹt kew]*$_i$
[slap-OBJAGR ResumptivePronoun] octopus the.PL.−HUMAN
slap the (plural, non-human) octpus

Such an analysis would explain both the seeming optionality of the F-5 form (only *some* plural non-human NP objects are extraposed) and the formal identity between F-5 and F-4, since they would be the same form (i.e., the form used before null plural non-human objects). Adopting this analysis, which I recognize may be in need of further investigation, I will henceforth refer to a single F-4/5 category.

These two revisions leave us with just three columns: a form used before NP and non-null pronominal objects (F-1/2, with optionality indicated by parentheses), a form used before null singular pronominal objects (F-3), and a form used before null plural non-human pronominal objects (F-4/5, including use before rightward extraposed plural non-human NP objects). The revised form summary would thus be:

[14]Note that this is *not* a case of a postverbal intransitive subject, discussed for Marshallese in some detail in Hale (1998). Such subjects *precede* other VP-internal elements, whereas *balwin yew* in (29) follows them.

[15]Subject pronominals are null unless focussed in Marshallese, as in other pro-drop languages.

(32) Observed Forms (revised)

	intransitive stem	Bender class	__NP F-1/2	— $Ø_{pro.IIISg}$ F-3	— $Ø_{pro.IIIPl.-Human}$ F-4/5
Type A	*dege*	Class I	*deget(ey)*	*degetey*	*degetiy*
	hapi	Class II	*hapij(iy)*	*hapijiy*	*hapijiy*
	kalliw	Class VII	*kalliwik(iy)*	*kalliwikiy*	*kalliwikiy*
Type B	*gat*	Class V	*gatey*	*gatey*	*gatiy*
	keɱakit	Class VI	*keɱakitiy*	*keɱakitiy*	*keɱakitiy*

We can also consider a reduction in the number of *rows* in the summary table. For example, if we are correct in assuming that the Class II and Class VI forms show an assimilation process, whereby suffixal *e* assimilates to the high vowel of the final syllable of the stem (as has been assumed as early as Bender 1963), then their final *-iy* in the F-1/2 and F3 columns actually represent morphological *-ey*. That is, Classes II & VII are in fact identical in all relevant inflectional respects to Class I (and ditto respecting Class VI's relationship to Class V), it just involves forms which happen to undergo the vowel assimilation rule. The revised table would thus have the following form:

(33) Observed Forms (Revision II)

	intransitive stem	Bender class	__NP F-1/2	— $Ø_{pro.IIISg}$ F-3	— $Ø_{pro.IIIPl.-Human}$ F-4/5
Type A	*dege*	Classes I & II	*deget(ey)*	*degetey*	*degetiy*
Type B	*gat*	Classes V & VI	*gatey*	*gatey*	*gatiy*

We can now revisit the 'Simplest Phonology' vs. 'Simplest Morphology' approaches in light of this data. Under the 'Simplest Phonology' approach, we would need to stipulate that the suffixal *-ey* which derives transitive stems from non-glide-final intransitives in Class V & VI Weak verbs has a -Ø allomorph before the seemingly obligatory object agreement affixes (but not before *in situ* NP objects). Note that we could not say that it is the Object Agreement markers which have a -Ø allomorph, because before plural non-human null objects we get an apparent 'replacement' of the transitive derivational morphology *-ey* by the plural object agreement marker *-iy*. We would, of course, also need to continue to say that the 'transitive extension' is optionally added *only* to Type A verbs before *in situ* NP objects, and could not be added in other contexts.

By contrast, the 'Simplest Morphology' approach would advocate a unified morphological analysis: all stems would take the Object Agreement markers *-ey* and *-iy* in the F-3 and F-4/5 contexts, respectively. Again, to keep the morphology *maximally* simple, we would also assume that the optional 'transitive extension' /ey/ is permitted across the board.[16]

To generate the observed forms from their underlying representations we then need make only three minor tweaks to our existing rules. First, we must order them, such that our vowel assimilation rule, repeated as (34), precedes our haplology rule. Second, the vowel assimilation rule must apply iteratively, left-to-right. Finally, our haplology rule, repeated below as (35), must be made to apply to either *ey* or *iy*, and must also be iterative (left-to-right).

[16]Outside of Classes I, II and VII the 'transitive extension' rows may be controversial, but assuming their existence adds no complexity to the grammar, since, as we shall see, the phonology which we must assume in any event (if we are to keep our morphology simple) will generate these forms without cost.

(34) *e*-Raising: $e \rightarrow i$ / iC+_ [iterative, L→R]

(35) $\left\{ \begin{array}{c} ey \\ iy \end{array} \right\} \rightarrow \emptyset$ / __ $\left\{ \begin{array}{c} + ey \\ + iy \end{array} \right\}$ [iterative, L→R]

The derivation for the data we have discussed above would thus look like this:

Class	__NP	__ $\emptyset_{\text{pro.IIISg}}$	__ $\emptyset_{\text{pro.IIIPl.-Human}}$
I	*deget*	*deget* + *ey*	*deget* + *iy*
I after (34)	*deget*	*deget* + *ey*	*deget* + *iy*
I after (35)	*deget*	*degetey*	*degetiy*
I + tr. ext.	*deget* + *ey*	*deget* + *ey* + *ey*	*deget* + *ey* + *iy*
I + tr. ext. after (34)	*deget* + *ey*	*deget* + *ey* + *ey*	*deget* + *ey* + *iy*
I + tr. ext. after (35)	*degetey*	*degetey*	*degetiy*
VII	*kalliwik*	*kalliwik* + *ey*	*kalliwik* + *iy*
VII after (34)	*kalliwik*	*kalliwik* + *iy*	*kalliwik* + *iy*
VII after (35)	*kalliwik*	*kalliwikiy*	*kalliwikiy*
VII + tr. ext. (underlying)	*kalliwik* + *ey*	*kalliwik* + *ey* + *ey*	*kalliwik* + *ey* + *iy*
VII + tr. ext. after (34)	*kalliwik* + *iy*	*kalliwik* + *iy* + *iy*	*kalliwik* + *iy* + *iy*
VII + tr. ext. after (35)	*kalliwikiy*	*kalliwikiy*	*kalliwikiy*
V	*gatey*	*gatey* + *ey*	*gatey* + *iy*
V after (34)	*gatey*	*gatey* + *ey*	*gatey* + *iy*
V after (35)	*gatey*	*gatey*	*gatiy*
V + tr. ext.	*gatey* + *ey*	*gatey* + *ey* + *ey*	*gatey* + *ey* + *iy*
V + tr. ext. after (34)	*gatey* + *ey*	*gatey* + *ey* + *ey*	*gatey* + *ey* + *iy*
V + tr. ext. after (35)	*gatey*	*gatey*	*gatiy*

The reader will be able to see that the upshot of this analysis is that for Class I we get in the first column *deget(ey)*, in the second *degetey* and in the third *degetiy*. For Class VII we get *kalliwik(iy)*, *kalliwikiy*, and *kalliwikiy*, respectively. And so on, as desired. In addition, it will be easy for the reader to confirm that the attested forms will also follow from the relevant underlying representations for Class II and Class VI verbs, given this rule system.[17]

The obvious conclusion of this survey of forms is that the *inflection* of Marshallese transitive stems is uniform for all classes: i.e., the classes of Bender (1984) result from the specific forms taken by the rules of mid-vowel raising (34) and haplology (35), both regular phonological processes, applied to stems with different final sequences. The distinction between 'Type A' and 'Type B' transitives concerns how the relevant transitive stems relate to their intransitive, not to their inflection as such.

[17]Space does not permit here a full consideration of Bender's Class III Strong verbs, which, however, can easily be collapsed with the forms already analyzed. The key to their analysis resides in the fact that the *roots* of these verbs end in the phonological sequence *ey*, which is thus *not* preceded by a morpheme boundary, with clear implications for the application of rules (34) and (35).

3 DIACHRONY

Synchronic, regular morphological haplology is quite common cross-linguistically. Diachronic lexical ('sporadic') haplology is also common. Aside from making wildly divergent (from traditional views) morphological theories to account for the synchronic facts (à la Stemberger 1981, de Lacy 1999, and Menn & MacWhinney 1984), the most common explanation for haplology is a kind of performance error one: speakers lose count, thinking (apparently) that they said a sequence twice already when they in fact said it only once. Math is hard, after all. Apparently even for really low numbers.

Proto-Oceanic roots originally had a general *CVCVC root structure. In transitive contexts, these roots took a transitive suffix (either *i or *a, or perhaps at times one, at times the other, under difficult to recover conditions). Before third person pronominals, agreement markers were added to these transitive stems, *-a in the singular, and *-i in the plural (I am following for the most part Harrison (1978) here). This would give us:

	intransitives	before NPs	before −PL Ø pronouns	before +PL Ø pronouns
POC	*arek	*arek-i	*arek-i-a	*arek-i-i
PMC	*are	*areki	*arekia	*arekii
PREMRS	*ar	*arek	*areke (?)	*areki

The phonological development of final *ia to *e* is a little unexpected, but can probably be dealt with.[18] This does get the Class I (and of course II and VII) behavior well, though the 'transitive extension' is still not in the picture.

We must also consider, however, the variant transitive forms with *-a instead of (or side-by-side with) *-i of the table above. This would give the forms:

	intransitives	before NPs	before −PL Ø pronouns	before +PL Ø pronouns
POC	*arek	*arek-a	*arek-a-a	*arek-a-i
PMC	*are	*areka	*arekaa	*arekai
PREMRS	*ar	*arek	*areke	*areke

Here, although the data is not unambiguous, the development of final *aa to *e has parallels (via low V dissimilation of the first *a, and simple final V deletion on the second). My guess, though much more work is required, is that examples of *areke before plural pronominal objects (it is unclear when the Marshallese restriction to non-humans entered the picture) which were resumptive to rightward-extraposed NPs may have been felt to lack the *i which otherwise so clearly characterized plural object contexts. This property may have licensed a reanalysis, along the following lines:

(36) *arek-e $\emptyset_i$ $]_{VP}$ $\text{NP}_{extraposed}$ → *arek-e NP $]_{VP}$

[18] Most plausibly, in my current view, the form developed to *ja and underwent metathesis to *aj (which would then regularly develop to *e). Support for the metathesis would come from the treatment of other CV elements 'captured' by the verb. For example, it seems likely that the 'weak' Class VII transitive suffix arose from a captured 'middle object' (as the term has been used in Polynesia, where the element survives as a case marker) indicator *ki (> *ik). Bender (1984) speculates on some additional possible instances of this metathesis.

The post-reanalysis *-e would have had no function (transitivity already clearly marked by the *-ek, and it lacking number agreement with the object). This would then be the ancestor of the 'transitive extension'.

Regarding Classes V and VI (and undiscussed III), it appears that they are the outcomes of verbs whose final C was lost before the addition of the transitive morphology. There are a couple of different types of cases which should be distinguished: (1) lautgesetzlich segment loss (of *q, e.g., or for pre-MRS *p, *f, etc.) at a time when other final consonants were still present, vs. (2) neo-transitives built to stems which lost their final consonants by the across-the-board final consonant deletion of Proto-Micronesian because they did not have a transitive form at that time whose suffix could have preserved the original final consonant (or whose transitive forms were, in any event, not transmitted). The former cases would have formed the kernel of Classes III, V and VI (the latter two classes are so productive that we will not be able to discover their core members). Unfortunately, since each of the five POc vowels could have occurred before the lost final consonants, and since the development of sequences like *a-i-a and *a-i-i vs. *e-i-a and *e-i-i & etc. are completely unclear for these languages (at least to me), I can say nothing intelligent about these classes at this time, beyond pointing out that the 'transitive suffix' /-ey/ which characterizes these classes was surely originally part of the root, the glide probably reflecting the addition of the *i/a transitive morphology to these surviving vowels. The 'anaphoric' object agreement markers for null pronouns are also the descendants of this transitive morphology in contexts where the relevant material avoided capture by the verb.

All of the suffixal material which undergoes haplology appears to be etymologically composed of largely the same elements. I think it is very unlikely that anyone ever said forms with 3 /ey/'s in them: instead, these forms were constructed (if my morphological analysis is right) in the mind of the speaker with largely no change in the surface facts. There was always only one [ey] on the end of a given verb, but as Marshallese developed several distinct /ey/-morphemes, that single [ey] could be assigned as the haplologized realization of ever longer underlying morpheme strings.

If this is correct, what we have here is synchronic, productive, iterative haplology in a diachronic scenario under which no one ever 'lost track' of how many [ey] or [iy] sequences they were saying (contrary to the standard diachronic story). Instead, the process of constructing maximally simple morphological analyses (a demand on the acquirer in any event), together with the *availability* of haplology as a phonological process, licensed the rise of this phenomenon. This has interesting implications for our understanding of the relationship between synchrony and diachrony which, alas, space precludes further consideration of in this venue.

References

Abo, Takaji, Byron W. Bender, Alfred Capelle, and Tony DeBrum. 1976. *Marshallese-English Dictionary*. Honolulu, HI: University of Hawai'i Press.

Bender, Byron W. 1963. *A Linguistic Analysis of the Place-Names of the Marshall Islands*. Ph.D. dissertation, Linguistics, Indiana University.

_____. 1968. Marshallese phonology. *Oceanic Linguistics* 7: 16-35.

_____. 1969a. Vowel dissimilation in Marshallese. *University of Hawaii Working Papers in Linguistics*. 1:88-95.

_____. 1969b. *Spoken Marshallese: an Intensive Course with Grammatical Notes and Glossary*. Honolulu: University of Hawai'i Press.

_____. 1984. Object marking in Marshallese. In Byron W. Bender (ed.), *Studies in Micronesian Linguistics*. Canberra: Pacific Linguistics.

Bender, Byron W., Alfred Capelle and Louise Pagotto. 2016. *Marshallese Reference Grammar*. Honolulu: University of Hawaii Press.

Bender, Byron W., Ward H. Goodenough, Frederick H. Jackson, Jeffrey C. Marck, Kenneth L. Rehg, Ho-Min Sohn, Stephen Trussel, and Judith W. Wang. 2003. Proto-Micronesian reconstructions. *Oceanic Linguistics* 42:1-110, 271-370.

Cardon, George. 1968. *On Haplology in Indo-European*. Philadelphia: University of Philadelphia Press.

de Lacy, Paul. 1999. Morphological haplology and Correspondence. In Paul de Lacy and Anita Nowak (eds.), *University of Massachusetts Occasional Papers 24: Papers from the 25th Reunion*. Amherst, MA: GLSA.

Hale, Mark. 2007. *Historical Linguistics: Theory and Method*. Oxford: Blackwell.

Harrison, Sheldon. 1978. Transitive marking in Micronesian languages. In S. A. Wurm and Lois Carrington (eds.), *Second International Conference on Austronesian Linguistics: Proceedings, Vol. 2: Eastern Austronesian,* pp. 1067-1127. Canberra: Pacific Linguistics.

Jespersen, Otto. 1954. *A Modern English Grammar on Historical Principles*, Volume VI. Copenhagen: Muksgaard.

Menn, Lise and Brian MacWhinney. 1984. The Repeated Morph Constraint, *Language* 60: 519-541.

Stemberger, Joseph. 1981. Morphological haplology, *Language* 57: 791-817.