THIRD PERSON PLURAL AS A MORPHOLOGICAL ZERO
OBJECT MARKING IN MAROVO

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1. *Introduction*[1]

Asymmetries of grammatical coding, particularly within morphological paradigms, are often considered to be motivated by the principles of iconicity and economy, such that semantically unmarked values and/or frequently occurring values of a grammatical category tend to be coded linguistically in a less complex way, often lacking overt coding altogether (Greenberg 1966, Bybee 1985, Givón 1995, Croft 2003, Haspelmath 2008). Such cross-linguistic tendencies are both synchronic and diachronic. Thus the synchronic tendency for particular values of grammatical categories to lack overt coding cross-linguistically reflects processes of language change that result in such systems (Bybee 1985, Koch 1995).

In Marovo, an Oceanic language of the Solomon Islands, it is the combination of 3rd person and plural number which lacks overt coding within the object marking paradigm. This 3PL zero morpheme in Marovo presents something of a diachronic puzzle, raising the question of what motivated its development. It is argued here that economy is a relevant factor, but that the exact motivation for the 3PL zero morpheme can only be determined when the system of object marking is considered within the broader context of discourse patterns of transitive constructions.

2. *Object marking in Oceanic languages*

Oceanic languages commonly have a set of post-verbal markers which index the person and number of the object argument. For example, in (1) the verbal enclitic *=eu* denotes that the object argument is 1SG, and in (2) the verbal suffix *-di* indexes the 3PL object argument, which is also expressed by the clause-initial noun phrase.

(1) *Tama-ku   mo ware=eu.*   (North-East Ambae, Vanuatu)
     father-1SGP   RL   call=**1SGO**

     "My father is calling me."   (Hyslop 2001:337) [2]

(2) **Tamóata**   *ú-te-di.*   (Manam, Papua New Guinea)
     man   1SGS.RL-see-**3PLO**

     "I saw the men."   (Lichtenberk 1983:134)

Within the paradigm of similar object markers in Marovo there is variation, including a zero allomorph, in the form of the 3PL object marker (Table 1).[3]

		1	2	3
SINGULAR		*-o*	*-ho*	*-a*
PLURAL	INCL	*-da*	*-mi*	*-di, -i, -Ø*
	EXCL	*-ami*		

Table 1: *Object markers in Marovo*

In (3) the object argument, expressed by the clause-final noun phrase, *ria ihana* 'the fish', is indexed within the verb complex by the object marker *-di*.[4]

(3) *Beto   ma-[ni   la   humahuma   vae-di*]_{VC}   [*ria   ihana*]_O.   (Marovo)
     finish   then-3SGS go   spear.fishing take-**3PLO**   ART:PL fish

     "Afterwards you can go spear fishing and get the fish."[5]

Example (4) has a similar structure, but here the 3PL object argument, denoted by the noun phrase *chore tahami kahike* 'our three canoes', is indexed within the verb complex by the marker *-i*. In (5) it is the lack of an object marker, or zero, which indicates that the object argument is 3PL, here also denoted by the noun phrase, *ria tege ta-gu ra* 'my mat bundles'.

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[2] Abbreviations - ART: article, CAUS: causative, EXCL: exclusive, INCL: inclusive, IRR: irrealis, LOC: locative, NEG: negative marker, NUM: numeral marker, O: object marker, object, OBJ: object marker, P: possessive pronominal, PASS: passive marker, PL: plural, POSS: possessive marker, PRN: independent pronoun, REL: relativiser, RECIP: reciprocal marker, RL: realis mood, S: subject marker, subject, SG: singular, s.o.: someone, sth.: something, TR: transitive marker, 1: first person, 2: second person, 3: third person.

[3] The plural object markers in Marovo index all non-singular object arguments. Thus an object argument that is denoted by a noun phrase coded as dual or trial will be indexed by the plural object markers.

[4] The syntactic constituent in Marovo that comprises the verb(s), verbal modifiers and markers of tense/aspect/mood, transitivity and participant reference is labelled the verb complex (VC). The object markers occur as the final element of the verb complex and so may be attached to a post-verbal modifier.

[5] For ease of interpretation of the examples, the verb complex is enclosed in square brackets and labelled VC. Subject and object noun phrases are also enclosed in square brackets and labelled S and O, respectively.

(4) ... *ma-[ni   la   seke-i]*_{VC} *[ia]*_S *[chore ta-hami   ka-hike]*_O ...   (Marovo)
     then-3SGS go   cut-**3PLO**   3SG   canoe POSS-1PLEXCL NUM-three
     "... and then he banged our three canoes..."

(5) ... *beto* [*va   surang-i-Ø*]_{VC} [*ria   tege   ta-gu   ra*]_O ...
     finish CAUS load-TR-**3PLO** ART:PL mat   POSS-1SGP 1SG
     "... after loading my mat bundles ..."

The use of a zero morpheme to index 3PL objects in Marovo is determined by the behaviour of the verb in transitive constructions with non-3PL object arguments. For example, in (6) the verb *vagara* 'to net' occurs transitively with the transitive suffix *-i* and the 3SG object marker *-a*, which alone expresses the object argument, and refers to the participant denoted by *ia vasina* 'the area', the head of the preceding relative clause. In (7), a clause with a 3PL object argument, this verb occurs with the transitive suffix and lacks an overt object marker.

(6) *Ia   vasina pu balabala-e ia   raka*   (Marovo)
     ART:SG   place   REL think-TR   3SG 1SG

     pata-[gu   la   vagar-i-a]_{VC}   *hua, ka-ni   gura   ta-vagara.*
     in.order-1SGS go **to.net-TR-3SGO** HUA NEG-3SGS be.able PASS-to.net
     "The area that I thought I'd net can't be netted."

(7) [*Vagar-i-Ø*]_{VC}   [*raka*]_S [*ria   ihana   pu malakihi,*
     to.net-TR-3PLO 1SG   ART:PL fish   REL parrotfish

     oro   katiga hokihokiti   ihana]_O.
     and   some   different   fish
     "I netted fish like parrotfish and some other fish."

Examples of verbs which occur with a zero ending to indicate a 3PL object argument are provided in Table 2. Comparison with forms of these verbs coded for a 3SG object provides evidence for the zero allomorph of the 3PL object marker.

Intransitive	Transitive with 3SG object	Transitive with 3PL object	Gloss
asa	*asa-i-a*	*asa-i-Ø*	to grate (sth.)
om~omi	*omi-a*	*omi-Ø*	to see (sth.)
pocho	*pocho-a*	*pocho-Ø*	to squeeze (sth.)
ruja	*ruja-i-a*	*ruja-i-Ø*	to pound (sth.)
vagara	*vagar-i-a*	*vagar-i-Ø*	to net (sth.)
—	*usi ni-a*	*usi ni-Ø*	to use (sth.)

Table 2: *Examples of verbs in Marovo which occur with a zero morpheme marking 3PL objects*

With other verbs, comparison of their forms in constructions with 3SG and 3PL object arguments indicate that a 3PL object is indexed by -*i*. For example, in (8) *veko* 'to leave' occurs with the 3SG object marker -*a*. When *veko* occurs in constructions with 3PL object arguments, as in (9), it takes the ending -*i*.

(8) [***Veko-a***]$_{VC}$ [*dekuru ia*]$_O$...   (Marovo)
      leave-3SGO   log   3SG
      "Leave that log..."

(9) [*La*   ***veko-i***]$_{VC}$ [*ria   labete*]$_O$.
      go   **leave-3PLO**   ART:PL   timber
      "Go and leave that timber."

The verbs in Table 3 show the same morphological pattern of object marking as *veko* 'to leave'. That is, they occur with -*i* as the 3PL object marker.

Intransitive	Transitive with 3SG object	Transitive with 3PL object	Gloss
holu	*holu-a*	*holu-i*	to buy (sth.)
(heru~)heru	*heru-a*	*heru-i*	to carry (sth.)
ole	*ole-a*	*ole-i*	to call (s.o.)
seke	*seke-a*	*seke-i*	to cut (sth.)
ta-tonu	*tonu-a*	*tonu-i*	to do (sth.)

Table 3: *Examples of verbs in Marovo with which -i indexes a 3PL object*

The data in Tables 2 and 3 demonstrate that in Marovo, as in many other Oceanic languages, verbs occur in one of two transitive structures: one, VERB + TRANSITIVE MARKER + OBJECT MARKER, in which the verb occurs with one of the two transitive markers -*i* or *ni* followed by an object marker, as in (6); the other, VERB + OBJECT MARKER, in which the verb occurs with only a following object marker, as in (8). Verbs which occur in the former structure tend to occur with -Ø to index a 3PL object argument, and verbs which occur in the latter structure tend to occur with -*i* to index a 3PL object.[6] The use of -*di* to index a 3PL object argument appears to be in free variation with the use of -Ø and -*i*. Thus, examples (10) and (11) show the verb *heru* 'to carry' used in very similar contexts, first with the 3PL object marker -*di* and second with -*i*.

(10) ...*pata*   [*la heru-**di***]$_{VC}$ [*ria   labete*]$_O$ (Marovo)
      in.order go   carry-**3PLO**   ART:PL   timber
      "... in order to carry the timber ..."

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[6] There are a few verbs, such as *pero* 'to scrape' and *pocho* 'to squeeze', which occur in the structure VERB + OBJECT MARKER and with which a 3PL object argument is indexed by -Ø. It is not clear at this stage exactly why such exceptions occur.

(11) [*Heru-i*]$_{VC}$ [*hami*]$_S$ [*ria*   *labete*]$_O$, ...
     carry-**3PLO** 1PLEXCL ART:PL timber
     "We carried the timber, ..."

While the distribution of the allomorphs of the 3PL object marker can be described in terms of morphosyntactic classes of verbs and free variation, the presence of such allomorphy raises the question of the origins and development of the system. In particular, a zero morpheme to indicate 3PL is not expected cross-linguistically and so what motivates its presence in Marovo represents a diachronic puzzle.

3. *Explanations of morphological zeroes*

Asymmetries within morphological paradigms are not necessarily random since similar kinds of asymmetries are found cross-linguistically. In terms of zero coding within paradigms, there is a tendency for the same values within particular grammatical categories to lack overt coding. For example, within a sample of 50 languages, Bybee (1985:52-53) found that of the 27 languages in which verbs are coded for number, 21 (78%) coded singular with zero. Of the 28 languages in which verbs are coded for person, 15 (54%) coded 3rd person with zero and 4 (14%) lacked overt coding for 1st person.[7] From a diachronic perspective, morphological zeroes can be viewed as reflecting either (i) a 'gap' within the paradigm that results from the failure of a marker to develop for a particular value, or (ii) the creation of a zero morpheme through the loss or reanalysis of a previously overt marker.

Ariel (2000) takes the first view as the explanation for the cross-linguistic tendency for person agreement systems to overtly code 1st and 2nd person, but to lack overt coding for 3rd person. She (2000:198) proposes that this pattern is best accounted for in terms of speakers' choice of referring expression based on an assessment of how accessible the participant is to the addressee. A referring expression which is more informative (i.e. giving a greater amount of lexical material), more rigid (i.e. identifying a participant relatively uniquely), and less attenuated (i.e. lengthier or accented) is likely to be chosen to denote participants of lower accessibility. This is because the addressee will better be able to retrieve from memory and identify a participant of low accessibility if given more formal cues to do so. In contrast, a referring expression which is less informative, less rigid and more attenuated is likely to be chosen to denote participants which are highly accessible (Ariel 2000:204). Ariel (2000:205) characterises the accessibility of participants in terms of entity salience and unity. Entity salience is defined by a number of different criteria where entities on the left under (a)–(e) in Figure 1 are considered more salient than those on

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[7] Bybee's (1985:25-26) data set comprises 50 languages chosen such that no two languages are from the same phylum or the same cultural or geographical area.

the right. Unity refers to the distance and degree of cohesion between expressions denoting the participant (cf. (f) and (g) in Figure 1).

(a)	speaker > addressee > non-participant (3rd person)
(b)	high physical salience > low physical salience
(c)	topic > non-topic
(d)	grammatical subject > non-subject
(e)	human > animate > inanimate
(f)	repeated references > few previous references > first mention
(g)	non intervening/competing references > many intervening/competing references

Figure 1: *Antecedent salience (Ariel 2000:206)*

The grammaticalisation of independent pronouns which leads to the less informative and less attenuated coding of participants by reduced/cliticised pronouns or agreement markers results from the speakers' intention to indicate that a referent is highly accessible (Ariel 2000:206). In this way person agreement markers will tend to be created to code 1st (speaker) and 2nd (addressee) person participants, referents that are the topic of discourse and human and animate participants. The lack of overt coding within an agreement paradigm for 3rd person is thus explained by the fact that 3rd person participants are not in themselves highly accessible, and so are unlikely to develop such coding strategies.

As Bybee (1985:55) states, there is also evidence that speakers restructure morphological paradigms in ways that create zero morphemes in positions where the lack of overt coding is expected from cross-linguistic patterns. The creation of zero morphemes through analogical change was first described in detail by Watkins (1962) in the context of Indo-European reconstruction. Watkins (1962) proposes that a typical kind of morphological change is the reanalysis of an inflected verb stem as constituting a zero exponent for a 3SG subject, and the construction of a new paradigm based around the reanalysed stem. For example, Watkins (1962:165-174) demonstrates that the *t*-preterite verb stems in Old Irish, such as *-bert* 'he bears', can be explained in terms of the reanalysis of a verb root coded for a 3SG subject with the ending *-t* as comprising a verb root coded for the aorist by *-t* and lacking overt coding for the 3SG subject. Evidence of the change comes from the Old Irish verb stems *-biurt* 'I bear' and *-birt* 'you bear', which include the original 3SG subject ending. Koch (1995) places Watkins' Law within a broader framework of morphological change, establishing the general diachronic principle:

> A word-form which expresses by means of a non-zero marker a property which is typologically expected to be coded by zero is liable to be reanalysed as containing a zero marker. (Koch 1995:64)

Thus Koch (1995:34-46) demonstrates that similar patterns of reanalysis leading to the creation of zero morphemes also occur for other categories that are

considered to be semantically unmarked and tend to be coded by zero synchronically, such as nominative and absolutive case and present tense. Koch (1995:46-57) also shows that there is a cross-linguistic tendency for the creation of zero morphemes for values of grammatical categories that are considered to be locally unmarked (Tiersma 1982). For example, there is a diachronic tendency for zero morphemes to be created for the locative case with nominals denoting places or times, for 1SG possessors with kin terms and for plural number with nouns denoting objects that are typically referred to in collections.

Koch (1995: 64) concludes that the creation of zero morphemes has at least two different motivations: iconicity and economy. Thus the creation of zero-coding for semantically unmarked values of a grammatical category is iconically motivated in that the semantically least complex value is reanalysed to comprise the least complex linguistic expression, that is, zero. However, the creation of zero morphemes for locally unmarked values of grammatical categories is economically motivated. That is, the most frequent form within the paradigm is reanalysed as having the least amount of linguistic expression. Bybee (1985:57-65) presents similar factors as explaining the basic form around which a paradigm is likely to be restructured, but from a cognitive perspective. She (1985:60) suggests there is a tendency for a paradigm to be organised such that the form that is semantically basic or unmarked and the most frequently occurring tends to become the one from which all other forms are derived. One reason for this is that semantically basic and frequent forms are most likely to be learned and stored independently.

Haspelmath (2006, 2008) argues against the use of a concept of 'markedness' in linguistics, proposing that many of the structural asymmetries for which markedness is argued to provide an explanation can actually be directly explained by asymmetries in frequency. Thus Haspelmath suggests that:

> All universal morphosyntactic asymmetries can be explained on the basis of frequency asymmetries, i.e. they all show economic motivation: More frequent patterns are coded with less material. (Haspelmath, 2008:185)

Haspelmath (2008) proposes that these economical patterns in language arise primarily through three processes of change, (i) differential phonological reduction, (ii) differential expansion of a new construction, and marginally (iii) morphological analogy. Differential phonological reduction refers to the tendency for frequent expressions to be less carefully articulated and so to undergo phonological change at a faster rate than less frequent, and less predictable, expressions (Haspelmath 2008:206). Most cases of economical coding, Haspelmath (2008:207) claims, result from the differential expansion of a new and more complex construction. New constructions typically arise within a specific context and may be used to highlight a particular meaning or add clarity in situations of potential ambiguity, and such novel constructions often comprise additional linguistic material. While the use of such constructions

tends to be extended to a wider range of contexts over time, they will be 'inhibited' from completely replacing the older construction in two ways. First, since frequently occurring combinations of meanings are deeply entrenched in speakers' mental grammars and tend to be resistant to change, an innovative construction is unlikely to replace the older construction in such contexts. Second, an innovative construction is unlikely to be extended to contexts in which the associated meanings are expected and so explicit linguistic expression is redundant. Thus, in contexts where meanings are predictable and expected, speakers will tend to economise and not use the new, and more explicit, construction (Haspelmath 2008:207-208). This latter factor inhibiting the extension of an innovative construction is also related to frequency since expected and predictable associations of meaning tend to be so as a result of frequent co-occurrence.

4.   *Zero coding of third person plural*

A first step towards explaining the occurrence of a zero 3PL object marker in Marovo is to determine whether it reflects a gap within the paradigm or the creation of a zero morpheme. Comparison of the Marovo paradigm of object markers with those in closely related languages of the New Georgia group shows that a zero morpheme for 3PL is also found in other languages. The object marker paradigms for four New Georgia languages are presented in Table 4: Kubokota in the west, and Roviana, Hoava and Marovo in the east.[8] That Roviana and Hoava also show zero 3PL object markers suggests that this form in Marovo needs to be considered within the broader context of the New Georgia group of languages.[9]

	1SG	2SG	3SG	1PLINCL	1PLEXCL	2PL	3PL
Kubokota	=ziu	=ɣo	=a, =Ø	=ɣita	=ɣami	=ɣamu	=ria, -Ø
Roviana	-u, -au	-ɣo	-a	-ɣita	-ɣami	-ɣamu	-Ø
Hoava	-rao	-ɣo	-a	-ɣita	-ɣami	-ɣamu	-Ø
Marovo	-o	-ho	-a	-da	-ami	-mi	-di, -i, -Ø

Data from Kettle 2000, M.Raymond p.c., Corston-Oliver 2003, Davis 2003

Table 4: *Object markers in New Georgia languages*

The typical origin of person agreement markers is the grammaticalisation of independent pronouns (Givón 1976), and the evident cognacy amongst object markers and independent pronouns in Oceanic languages indicates that this is indeed the origin of object markers within Oceanic. The independent pronouns

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[8] Data from Simbo (Palmer 1996), Nduke (Scales 1997) and Vangunu (Bourchier 2007) were also considered. The data on object markers in these languages are limited, but what is known does not appear to contradict the conclusions which are presented here.

[9] The zero morpheme for 3PL objects in Kubokota appears to occur only in applicative constructions which are marked by =ni with singular objects and =di with plural objects. An explanation of these data requires a detailed description of changes within the system of transitivity and object marking in Kubokota and is beyond the scope of this paper.

and object markers for four Oceanic languages are listed in Table 5: Bali-Vitu (Meso-Melanesian, Papua New Guinea), Hoava (Meso-Melanesian, Solomon Islands), Longgu (Southeast Solomonic, Solomon Islands) and North-East Ambae (Southern Oceanic, Vanuatu). In each of these languages, object markers are cognate with the independent pronouns for most person-number values.

	Bali-Vitu		Hoava		Longgu		North-East Ambae	
	PRN	OBJ	PRN	OBJ	PRN	OBJ	PRN	OBJ
1SG	ɣau	-a	rao	-rao	na(u)	-u	neu	=eu
2SG	oɣo	-ɣo	ɣoe	-ɣo	oe	-o	nigo	=ko
3SG	ia	-Ø	(i)sa	-a	ŋaia	-a	ŋie	=a, =e
1PLINCL	ɣita	—	ɣita	-ɣita	gia	—	kide	—
1PLEXCL	ɣami	—	ɣami	-ɣami	ami	—	kamai	—
2PL	ɣamu	—	ɣamu	-ɣamu	amu	—	kimiu	—
3PL	ɣizi	-nazi	ria	-Ø	gira	-ra, -i	ŋire	=ra, =re

Data from Ross 2002, Davis 2003, Hill 2002, Hyslop 2001

Table 5: *Independent pronouns and object markers in Oceanic languages*

Within this context, Corston-Oliver (2003) presents evidence from discourse patterns which suggests that the lack of an overt marker for 3PL object arguments in Roviana can be explained in terms of such a form never having developed. In Roviana, the occurrence of 3PL referents as object arguments is infrequent; only 36 (23.8%) of 151 object arguments have 3PL reference within the data set examined (Corston-Oliver 2003:286). Of these 3PL object arguments only 14 have human reference. In addition, independent pronouns in Roviana rarely occur with non-human referents; 16 (6.8%) of 234 occurrences of independent pronouns have non-human referents. Taken together, these facts indicate that in Roviana, and given a uniformitarian approach also in the language's history, the 3PL independent pronoun did not occur as an object argument "with sufficient text frequency to be grammaticized as a bound affix" (Corston-Oliver 2003:287). This discourse-based explanation for the lack of an overt 3PL object suffix in Roviana not only fits well with the Roviana data, but is also supported by Ariel's (2000) explanation of the development of agreement markers. However, the analysis is problematic when object markers in Roviana and other New Georgia languages are considered within the context of object marking and its history in Oceanic more broadly.

A set of object markers with very similar functions and distribution as those found in contemporary Oceanic languages can be reconstructed for Proto Oceanic, the forms of which are given in Table 6. For Proto Oceanic only a partial paradigm of object markers, comprising 1st, 2nd and 3rd person singular and 3rd person plural forms, are reconstructable. It is likely that non-3rd person plural object arguments in Proto Oceanic were denoted solely by independent pronouns (Evans 1995).

	Object marker	Independent pronoun
1SG	*=au	*[i]au
2SG	*=ko	*[i]ko[e]
3SG	*=a	*ia
1PLINCL	—	*kita
1PLEXCL	—	*ka[m]i, *kamami
2PL	—	*ka[m]u, *kamiu
3PL	*=ra	*[k]ira

Reconstructions from Evans 1995: 137, Lynch, Ross & Crowley 2002:67

Table 6: *Object markers and independent pronouns in Proto Oceanic*

The shared origin of the Proto Oceanic object markers and independent pronouns is evident from a comparison of the reconstructions in Table 6, suggesting that the grammaticalisation of pronouns as object markers for 1st, 2nd and 3rd person singular and 3rd person plural must have occurred at some stage prior to Proto Oceanic. Languages such as Longgu and North-East Ambae (Table 5), have conservative systems of object marking, reflecting the Proto Oceanic forms and retaining the same partial paradigm. The grammaticalisation of independent pronouns as object markers has continued throughout the history of Oceanic languages. For example, in Hoava the object markers -ɣita '1PLINCLO', -ɣami '1PLEXCLO' and -ɣamu '2PLO' reflect independent pronouns of the same forms (Table 5). Thus, in any discussion of the history and development of object markers in contemporary Oceanic languages, the relative chronology of the processes of grammaticalisation that have led to the occurrence of object markers for different person and number values needs to be considered.

The object markers and the morphological structure of transitive verb complexes in Marovo are to a large extent conservative. As described in §2, there are two transitive structures in Marovo, one in which the verb complex occurs with one of the two transitive markers -i or ni and with an object marker, as in (6), and the other in which there is no transitive marker, but only an object marker, as in (8). These same two transitive structures, namely VERB + TRANSITIVE MARKER + OBJECT MARKER and VERB + OBJECT MARKER, are reconstructable for Proto Oceanic.[10] In Proto Oceanic, the distribution of these two structures was apparently determined by the phonological shape of the verb. Consonant-final verb stems and verb stems ending in *-a occurred with the transitive suffix *-i followed by the object markers in transitive constructions, whereas other vowel-final verb stems occurred with only the object markers (Evans 2003:104-117). Thus verb stems like *inum 'to drink' and *Rubat 'to be loose' can be reconstructed as occurring with the transitive suffix *-i in Proto Oceanic, namely *inum-i- 'to drink sth.' and *Rubat-i- 'to loosen sth.' The same is true for verb stems that ended in *-a, so transitive forms with the transitive suffix, such as *soka-i- 'to pierce sth.' and *waRa-i- 'to speak to s.o.', are reconstructable for

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[10] Proto Oceanic also had two transitive markers, *-i and *akin[i] (see Pawley 1973, Evans 2003), the antecedents of Marovo -i and ni, respectively. For the purpose of the present paper, it is sufficient to discuss the transitive suffix *-i only.

Proto Oceanic. Verb stems ending in other vowels, however, occurred in the second transitive structure and are reconstructable for Proto Oceanic as occurring with only the object markers, as with *piro=a 'to twist it together' and *wase=a 'to divide, distribute it' (Evans 2003). This distribution of the two transitive structures in Proto Oceanic is schematised in Table 7, along with the corresponding transitive structures in Marovo.

		A CVCVC STEMS	B CVCA STEMS	C CVCV STEMS
Proto Oceanic	INTR.	CVCVC	CVCa	CVCV
	TR.	CVCVC-i=OBJ	CVCa-i=OBJ	CVCV=OBJ
Marovo	INTR.	**CVCV$_\alpha$CV$_\alpha$**	CVCa	CVCV
	TR.	CVCVC-i-OBJ	CVCa-i=OBJ	CVCV=OBJ

Table 7: *Transitive structures in Proto Oceanic and Marovo*

While there are some exceptions, the tendency in Marovo is for the transitive structure of a verb to be determined by its phonological shape. Disyllabic verb stems which end in -a, like *picha* 'to crack', occur with the transitive suffix -i followed by an object marker, *picha-i-a* 'to crack it'; this is a direct reflex of the same structure in Proto Oceanic (Table 7, column B). Disyllabic verb stems ending in vowels other than -a, such as *golu* 'to clean', occur with only the object suffixes, *golu-a* 'to clean it'; again this directly reflects the Proto Oceanic structure (Table 7, column C). Many polysyllabic verb stems in Marovo have the shape CVCV$_\alpha$CV$_\alpha$, for example, *vagara* 'to net'. When these verbs are used transitively the transitive suffix -i replaces the final vowel of the verb stem and is followed by the object suffixes, *vagar-i-a* 'to net it'. This type of transitive structure in Marovo reflects the Proto Oceanic structure of a consonant-final verb stem occurring with the transitive suffix *-i (Table 7, column A). Proto Oceanic consonant-final stems are reflected in Marovo, and indeed in all other Northwest Solomonic languages (Ross 1988:218), with an additional echo vowel. Thus, Proto Oceanic *onom 'six' is reflected in Marovo as *omono* and Proto Oceanic *lapuat 'to be big, important' (Ross 2003:191) as Marovo *lavata* 'to be big'. With verb stems this sound change affected the intransitive forms of verbs which were consonant-final, but not the transitive forms which occurred with the transitive suffix *-i and so were not consonant-final. It is this sound change which has resulted in the synchronic morphological pattern.[11]

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[11] It is difficult to demonstrate these changes with a specifc verb stem in Marovo because of the high degree of lexical replacement in New Georgia languages, and I currently lack a clear Marovo reflex of a Proto Oceanic consonant-final verb stem. The change can be shown in Roviana. Roviana *ɣarata* 'to bite' reflects Proto Oceanic *kaʀat 'to bite' with the addition of an echo vowel. The transitive form of this verb in Roviana is *ɣarat-i-* 'to bite sth.' (Waterhouse 1949:24), reflecting Proto Oceanic *kaʀat-i- 'to bite sth.' (see Evans 2003:320-321 for the data supporting these reconstructions).

In terms of the forms of the object markers, the Marovo 1SG, 2SG and 3SG morphemes are direct reflexes of the Proto Oceanic forms. The Marovo 3PL object marker -di is a not a direct reflex of Proto Oceanic *=ra, but rather reflects *-dri, an innovative 3PL object marker reconstructable for Proto Western Oceanic, which is regularly reflected in Proto Northwest Solomonic as *-di, and inherited as such into Marovo (Evans 1995:70-71, 85-86).[12]

While Marovo -di '3PLO' is an inherited form, the other two allomorphs appear to be more recent innovations and represent two stages of development. First, a zero marker for 3PL object arguments was created. Evidence for a zero morpheme in Marovo indexing 3PL object arguments was presented in §2. The second change is that the transitive suffix *-i appears to have been reanalysed as a 3PL object marker. Indirect evidence of this reanalysis comes from the verbs with which there is a paradigmatic relationship between VERB + -a with a 3SG object argument and VERB + -i with a 3PL object argument. This morphosyntactic pattern appears to reflect the extension of *-i, reanalysed as a 3PL object marker, to verbs with which it did not originally occur.

The presence of a zero 3PL object marker in Marovo, and I would argue in other New Georgia languages, represents the creation of a zero morpheme. Before investigating possible motivations for this zero morpheme, it is important to note that it does not reflect the loss of *-di through regular sound change. The clearest evidence of this comes from the Marovo nominal suffix for 3PL possessors -di, as in tina-di 'their mother (mother-3PLP)'. Marovo -di '3PLP' is a direct reflex of the Proto Oceanic 3PL possessive suffix *-dri[a] (Lichtenberk 1985, Ross 1988:353-354), demonstrating that *dr > *d > Ø in this environment is not a regular sound change in Marovo.

The loss of -di '3plO' in Marovo also seems unlikely to reflect differential phonological reduction motivated by economy. Cross-linguistic studies of frequency of different person-number values suggests that it is either 3SG or 1SG which occur most frequently (Bybee 1985, Ariel 2000). Within contemporary Marovo, 3PL is not the most frequently occurring person-number value amongst object arguments. Table 8 gives the number of the different person-number categories of object arguments within a total of 952 clauses. Although these data are from texts of different styles, all were one- or two-person narratives, and this is taken to explain the exceedingly low number of 1st and 2nd person object arguments. However, what is clear from these data is that 3SG object arguments are much more frequent than 3PL object arguments. Thus 69% of transitive clauses occur with 3SG object arguments, while only 30% of transitive clauses occur with 3PL object arguments.[13]

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[12] The form of the Proto Western Oceanic 3PL object marker is likely connected to the innovative 3PL independent pronoun *idri[a], which characterises Western Oceanic (Ross 1988:352-357).

[13] Similar results were found in Kubokota. Within two glossed texts in Kettle (2000), 54 (78%) of the 69 transitive clauses have 3SG object arguments and only 7 (10%) had 3PL object arguments.

1ST SG/PL	2ND SG/PL	3SG	3PL	NO. TRANSITIVE CLAUSES	TOTAL NO. OF CLAUSES
3	3	167	73	246	952

Table 8: *Frequencies of person-number categories of object arguments in Marovo*

On the basis of these data, it is difficult to explain the loss of the original 3PL object marker in terms of economy. Since 3SG object arguments occur far more frequently than 3PL ones, the creation of a zero morpheme would be expected for 3SG.[14]

It is equally difficult to explain the creation of a zero 3PL object marker in terms of iconicity. That is, that 3PL -Ø reflects the tendency for semantically unmarked values of a grammatical category to lack overt coding. Andersen (2001) argues for a conceptual analysis of semantic markedness which is independent of the linguistic characteristics that are often associated with it, such as frequency and formal coding. He proposes that it is the construal of essentially symmetrical oppositions as asymmetrical that underlies semantic markedness. Thus, while exclusive semantic relations are intrinsically symmetrical modes of opposition, it is a characteristic of many pairs of terms that are logically exclusive opposites that one of the terms also functions as the hypernym and is construed as both inclusive and included (Andersen 2001:43). For example, the terms *duck* and *drake* can behave as exclusive opposites, where if A is a *drake* (i.e. 'male duck'), then A is not a *duck* (i.e. 'female duck'), and vice versa. The term *duck* can also function as the hypernym that subsumes both meanings 'male duck' and 'female duck', in which case the relation between *duck* and *drake* is an inclusive one. In this way distribution is the defining characteristic of markedness, such that a term within an opposition will be defined as semantically marked or unmarked on the basis of whether it can function only specifically as part of the exclusive opposition or if it can be used inclusively, subsuming both meanings within the opposition. Andersen (2001:44) suggests that exclusive oppositions within grammatical categories (eg. singular versus plural number) are similarly construed as an inclusive relation with one term able to function as the hypernym.

Following this analysis of semantic markedness, it is the morpheme with the combined values of 3rd person and singular number in the Marovo object marking paradigm which can function as a hypernym and so be considered semantically unmarked. There are instances where the 3SG object marker -*a* and 3PL object marker -*di* ~ -*Ø* ~ -*i* represent an exclusive opposition in terms of number, as shown by (12) and (13). In (12) the 3SG object marker -*a* occurring with the verb *va-legu* 'to kill' indexes a single woman, denoted in the first clause by *meka* 'one'. In (13) the same verb occurs with the 3PL object marker -*di* which

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[14] Even if it is assumed that the creation of a zero morpheme for 3PL object arguments was a common innovation in the history of a number of New Georgia languages (eg. Roviana, Hoava and Marovo), I know of no evidence which could support a claim that at the time when the zero morpheme came into use 3PL object arguments did occur more frequently that 3SG ones, thus explaining 3PL -Ø as economically motivated.

indexes the object noun phrase *ria ihana* 'the (plural) fish'. The 3SG object marker
-a is also used to index object arguments with plural rather than singular
reference. In some Oceanic languages, and perhaps even in Proto Oceanic, object
arguments with plural reference are indexed by singular object markers if they
denote inanimate participants.[15] In Marovo, objects denoting both animate and
inanimate participants can be indexed with the 3PL object marker; see examples
(13) and (10). An object argument with plural reference can also be indexed by
the 3SG object marker *-a*; this occurs primarily when the participants denoted
are viewed as a group. In (14) the 3SG object marker with *seke* 'to cut' indexes the
head of the relative clause, *tongania ria tege* 'all the leaves cut for making mats';
in this context the leaves which have been cut are viewed as a single group
rather than many individual leaves.

(12) *Meka* [*di   la   kaduvu-a*]$_{VC}$ [*ria*]$_S$, *boru*   [*va-legu-a*]$_{VC}$ [*ria*]$_S$. (Marovo)
       one   3PLS go arrive-3SGO 3PL   and.so CAUS-die-**3SGO** 3PL
       "One, they reached her, and so they killed her."

(13) *... ma-*[*ma   va-legu-di*]$_{VC}$ [*ria   ihana*]$_O$ *...*
        then-1PLEXCLS CAUS-die-**3PLO** ART:PL   fish
       "... then we kill the fish ..."

(14) *Vari-paru   hami   tongania ria   tege*
       RECIP-put.together 1PLEXCL every   ART:PL mat
       pu [*seke-a*]$_{VC}$ [*heka   hike*]$_S$*...*
       REL   cut-**3SGO**   1EXCL   three
       "We gathered together all the mat leaves which we three had cut ..."

These data indicate that the *-a* object marker can be used both as an exclusive
term, indexing a 3SG object in opposition to a 3PL one, and as a hypernym,
indexing 3rd person objects regardless of number. Thus, in Marovo 3SG can be
considered semantically unmarked within the object marking paradigm, which
weakens any claim that the creation of the 3PL zero morpheme may have been
motivated by iconicity. Rather it seems likely, as Corston-Oliver (2003) suggests
for Roviana, that the explanation for the 3PL object marker in Marovo can be
found in patterns of discourse. Certain tendencies of discourse in Marovo
indicate that the differential loss of 3PL *-di*, and thus the creation of a zero
morpheme, may have been motivated by a reduction of redundancy in
transitive constructions.

    Object markers in Marovo have two functions; namely, they show either
grammatical or anaphoric agreement (Bresnan & Mchombo 1987, Siewierska
2004). That is, they can co-occur with a noun phrase that expresses the object

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[15] I would like to thank one of the anonymous referees for pointing this out.

argument of the clause (grammatical agreement), as in (13), or they may themselves be the only expression of the object argument within the clause (anaphoric agreement), as in (12). Typically, 1st and 2nd person object markers show anaphoric agreement; it is only in specific discourse contexts that a 1st or 2nd person object marker is used as a grammatical agreement marker. By contrast, 3rd person object markers in Marovo typically show grammatical agreement and co-occur with an inter-clausal object noun phrase. Within 78 clauses with 3PL object arguments, in only 15 (19%) is the object marker the sole indication of the object argument within the clause. For clauses with 3SG object arguments, the proportion in which the object marker is the only indication of the object argument is slightly higher, but still only 45% (49 of 146) of clauses.

In a transitive construction with a 3rd person object argument, the object is usually expressed by a lexical or pronominal noun phrase and is indexed within the verb complex. With 3SG object arguments the object marker provides grammatical coding of singular number, which tends not to be coded within the noun phrase. Thus, of the 3SG object arguments expressed by a noun phrase, only 20 out of 97 (21%) are grammatically coded for number within the noun phrase. Clauses such as (15), with no coding of singular number within the object noun phrase, are thus more frequent than clauses such as (16), in which the object noun phrase is coded for singular number.

(15) [*Tavete   ni-a*]$_{VC}$ [*ipacha*]$_O$ [*ra*]$_S$, ...   (Marovo)
     work   TR-**3SGO** bailer   1SG
     "I made a bailer, ..."

(16) [*Kave-a*]$_{VC}$ [*ia*]$_S$ [***meka   mara   lavata***]$_O$.
     pull-**3SGO**   3SG   **one**   trevally   big
     "He pulled in one big trevally."

With 3PL object arguments, in 76% (48 of 63) of the clauses in which a 3PL object is expressed by an inter-clausal noun phrase, that noun phrase exhibits grammatical coding of plurality. Examples such as (17) and (18), where the object noun phrase is coded for plural number by the plural article *ria* or a plural quantifier, are more frequent than clauses like (19), where the object noun phrase has plural reference but is not grammatically coded for number.

(17) *Ma-*[*ni   lae*]$_{VC}$ [*ia*]$_S$ [*asa-i-**Ø***]$_{VC}$ [***ria   uvikola***]$_O$.   (Marovo)
     then-3sgS go   3SG   grate-TR-**3PLO**   **ART:PL**   tapioca
     "Then she went and grated the tapioca roots."

(18) ...*ma*-[*gu   la   omi   pule-Ø*]_{VC}   [*raka*]_S [***katiga*** *baeni   ihana*]_{O,} ...
        then-1SGS go   see   go.back-**3PLO**   1SG   **some**   school.fish   fish
     "... then I saw some schools of fish, ..."

(19) ... *beto   asa   hami,* [*ngina pero-Ø*]_{VC}   [*hami*]_S [*ngochara*]_O.
        finish grate 1PLEXCL IRR   scrape-**3PLO** 1PLEXCL coconut
     "... after we've grated, we will scrape coconuts."

In this way the creation of a zero 3PL object marker in Marovo may have been motivated by the reduction of redundancy. Since both the person and number of a 3PL object argument are typically expressed by an object noun phrase in Marovo, indicating the same information within the verb complex is redundant. This redundancy would have occurred more frequently for 3PL object arguments than 3SG ones, thus explaining the creation of a zero morpheme for 3PL rather than 3SG.[16]

The 3PL object marker -*i* in Marovo is only found with verbs which occur transitively in the structure VERB + OBJECT MARKER, such as *seke* 'to cut' which occurs as *seke-a* 'to cut it' and *seke-i* 'to cut them'. It is possible that this use of -*i* reflects a reanalysis of the transitive suffix *-*i* as a marker of both transitivity and 3PL objects in constructions like that in (17) and its subsequent extension to verbs like *seke* 'to cut'. If this is an accurate analysis of the history of -*i* '3PLO', a possible motivation for the change would be that such verbs are otherwise indistinguishable in their intransitive and 3PL-object transitive forms. For example, in (19) the verb *pero* occurs in a transitive construction with an object noun phrase, the form of the verb could be either intransitive or transitive. It is likely that avoidance of such constructions in Marovo, a language in which transitivity is typically coded within the verb complex, has led to this use of -*i*. Perhaps it is simply as a marker of transitivity, but it does occur with 3PL object arguments in contrast to objects of other person-number values, which are coded simply with overt object markers.

The creation of a zero morpheme for 3PL object arguments has been described here for Marovo, but implicit in the analysis is that this innovation began in the common ancestor of Marovo and the closely related languages Hoava and Roviana. While the zero 3PL object marker completely replaced the original marker *-di in Roviana and Hoava, in Marovo -*di* '3PLO' is still marginally used.

5. Concluding remarks

Previous studies of morphological zeroes from a diachronic perspective demonstrate the need to consider the development of such morphemes within

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[16] It is likely that the frequent coding of plural number within noun phrases in Marovo is a post-Proto Oceanic innovation, but further research is needed to determine the exact chronology of this innovation relative to the changes within the object marking system.

the context of the overall formal and functional organisation of the paradigms of which they are a part (Watkins 1962, Bybee 1985, Koch 1995). This examination of the zero morpheme indexing 3PL object arguments in Marovo highlights the need to also consider their development within the context of discourse patterns. Thus, the development of -Ø '3PLO' in Marovo (and other eastern New Georgia languages) appears to have been motivated by changes in the structure of noun phrases. The increased grammatical coding of plurality within object noun phrases motivated the loss of overt coding of 3PL objects within the verb complex, thereby reducing redundancy of coding within transitive constructions with 3PL object arguments. The underlying motivation of this change is economy, the primary motivating factor of the development of such grammatical asymmetries (Haspelmath 2008). However, rather than frequency of occurrence and therefore predictability of a construction resulting in a lack of overt coding, I have argued that it is an increase in grammatical coding elsewhere in the system which has resulted in the lack of overt coding for a particular person-number value within the object marking paradigm.

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