

## 46 Number in Marori, a Papuan Language of Indonesia

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### 46.1 Introduction

This chapter describes the number system in Marori (also known as Morori/Moraori; ISO 639-3: mok; a subgroup-level isolate, TNG/Papuan, highly endangered, around 16 fluent speakers). Overall, the Marori number system encodes a three-way distinction: singular (SG), dual (DU) and plural (PL) (Arka 2011, 2012a, b, 2015). The distribution of number marking and agreement follows the animacy hierarchy (cf. Corbett 2000:90ff): the SG-DU-PL division is relevant only in the top segments of the hierarchy (first and second bound pronominals); the PL vs. NPL (non-plural) or SG vs. NSG (non-singular) distinction is relevant for the third person (bound/free) pronominals. Common nouns have no number marking, though certain nouns (typically human nouns), such as *parapur* ‘girl.SG’ /*moipur* ‘boy.SG’ and *meninggon* ‘children.NSG’, are lexically specified for SG or NSG number. Derived predicative adjectival nominals are inflected showing a SG and NSG distinction. Determiners also mark number within the noun phrase when they are present, distinguishing SG from NSG number. Verbs are inflected for number, gender and TAM (tense, aspect and modality), showing Actor (A) and Undergoer (U) (agreement) indexing. The salient property of number in Marori is its coding by means of distributed discontinuous exponence (a characteristic encountered in other Papuan languages of Southern New Guinea (SNG)). This allows number to be constructed without a specific number marker, either in morphology or in syntax.

Marori exhibits verbal number/pluractionality, which interacts with nominal number in a complex way, making use of overlapping resources. Verbal number marking often indicates



the verb in syntax, I will still call it argument as it is indexed on the verb by the argument affix. True adjuncts and obliques receive no such indexing. It should be noted that the pronominal affix on the verb is referential and is actually the real argument. The indexing mechanism, as we shall see in subsection 5, exploits person and number features, allowing incompatible values of number, to express an inclusory plural meaning.

Marori shows a clear verb-noun distinction. The general schema is [event noun + (aux.)verb], as seen in (1), which says that only verbs are inflected for TAM in Marori. The inflected verbs are primarily auxiliary/light verbs, e.g. *mo* ‘do’ and *yunggoru* in (3), and a set of lexical verbs typically denoting high frequency events such as *ife* ‘see’ and *kundo* ‘run’ (2). In contrast, nouns (including event nouns, such as *ter* ‘hit’ and *kamae* ‘anger’ in (3)) functioning as lexical predicates are bare. Event predicative nouns precede their inflected auxiliary verbs as seen in (3).

Event nouns can be syntactic dependents, and are flagged in the same way as entity nouns. Consider *abon* ‘steal’ in (4): it is part of the main predicate in (a), a dependent nominal predicate functioning as an adjunct marked by postposition *ku* in (b), and a complement clause marked by *mbe* (c).

- (4) a. Na bosik=i abon yu-nggo-ru.  
 1SG pig=U steal 1SG-DO-1SG.FUT  
 ‘I will steal pigs (for myself).’
- b. Na ife-ben abon=ku  
 1SG 3SG.M.U.see-1SG.A.NrPST steal=LOC  
 ‘I saw him when he/I was stealing (something).’
- c. Na John=i tirtfengge-ben (bosik=i) abon mbe  
 1SG John=U 3SGM.U.ask-1SG.A.NrPST pig=U steal NF.PART  
 ‘I asked John to steal (a pig/pigs).’

As seen, predicates like *abon* ‘steal’ (4) and *ter* ‘hit’ (3) are uninflected, grammatically nominal, in contrast to the inflected finite predicates like *ife* ‘see’ in (2)a. Thus, non-finite predicates in Marori are grammatically nouns.

Free pronouns in Marori show a SG-NSG distinction as shown in Table 1. Like nouns they can be associated with different grammatical roles, and are therefore flagged accordingly. Sentence (3)a shows the pronoun *na* ‘1SG’ is U, flagged with =*i*; it is goal and locative in (5)a and (5)a is flagged with =*n* and =*ku* respectively.

**Table 1: Free pronouns in Marori**

	1	2	3
SG	<i>na</i>	<i>ka</i>	<i>efi</i>
NSG	<i>nie</i>	<i>kie</i>	<i>emnde</i>

- (5) a. Ka=*na*=*n*                    manem nambana!  
 2SG=1SG=DAT story 3SG.U.tell.IMP  
 ‘Tell (your) story to me.’
- b. Efi nam-on            kera            na=*ku*            rapnenje-f  
 3SG POSS-PST disease 1SG=LOC jump-3NPL.A.NrPST  
 ‘His disease infected me (lit. his disease jumped onto me).’

The argument indexing prefix and suffix on the verb encode the U and A arguments respectively. The U prefix set is given in Table 2. As seen, the U prefixes are like free pronouns in that they show a two-way number distinction (SG vs. NSG).

**Table 2: U prefixes in Marori**

	1	2	3
SG	<i>i-</i>	<i>k-</i>	∅-
BSG	<i>iar-</i>	<i>kar-</i>	∅-

When the U is a third person SG, the root also carries gender (GEND) information: the high vowel (*e* or *i*) for ‘3SG.M’ and low vowels for ‘3SG.F (and others)’. The vowel quality indicating gender spreads across the lexical predicate through vowel harmony within the phonological word. This is exemplified in (6). For simplicity, unless it is necessary, the zero U prefix will not be represented in the other examples throughout the paper.

- (6) a. ter=∅-me-ben  
 hit.NPL=3.U-3SG.M.U.AUX-1SG.A.Nr.PST.PF  
 ‘I hit him (once or twice).’
- b. tor=∅-mo-bon  
 hit.NPL=3-3SG.F.AUX-1SG.A.Nr.PST.PF  
 ‘I hit her (once or twice).’

The A suffixes (Tables 3 and 4), however, show a two-way or three-way number distinction. Crosscutting number and person categories are two aspect features, completive/perfective (class 1) vs. imperfective (or durative) (class 2), and three tenses for each aspect (remote past, near past, and (macro)present/future). The choice of affix class depends on the aspectual property of the stem and/or event/participant number. These two are in a way related. For example, verbs expressing non-punctual durative events like ‘stay’ will take class 2 NrPST *-m* rather than *-f*, producing *kuye-m*, ‘stay-2/3.NPL.NrPST’; the form *\*kuye-f* does not exist. In contrast, verbs understood to express telic events such as ‘fall (onto X)’ will take the completive suffix *-f*, rather than the imperfective *-m* for the near past: *sorono-f*/*\*sorono-m* ‘fall-3NPL.NrPST’.

**Table 3: Class 1 Actor suffixes in Marori**

	(1a) IRR/FUT			(1b) NrPST (Perfective)			(1c) RmPST (Perfective)		
	1	2	3	1	2	3	1	2	3
SG	<i>-ru</i>	$\emptyset$ - $\emptyset$	$\emptyset$	<i>-ben</i>	<i>-f</i>	<i>-f</i>	<i>-fori</i>	<i>-fi</i>	<i>-fi</i>
DU	<i>-ren</i>	<i>n--<math>\emptyset</math></i>	$\emptyset$	<i>-ben</i>	<i>n- -f</i>	<i>-f</i>	<i>-fori</i>	<i>n- -fi</i>	<i>-fi</i>
PL	<i>-men</i>	<i>n-(ri)m</i>	<i>-(ri)m</i>	<i>-reben</i>	<i>n- -(re)f</i>	<i>(re)f</i>	<i>-rofori</i>	<i>n- -(re)fi</i>	<i>-(re)fi</i>

**Table 4: Class 2 Actor suffixes in Marori**

	(2a) REAL/MacroPRES			(2b) NrPST (Imperfective)			(2c) RmPST (Imperfective)		
	1	2	3	1	2	3	1	2	3
SG	<i>-du</i>	$\emptyset$	$\emptyset$	<i>-men</i>	<i>-m</i>	<i>-m</i>	<i>-maf</i>	<i>-maf</i>	<i>-maf</i>
DU	<i>-den</i>	<i>n- <math>\emptyset</math></i>	$\emptyset$	<i>-men</i>	<i>n- -m</i>	<i>-m</i>	<i>-maf</i>	<i>n- -maf</i>	<i>-maf</i>
PL	<i>-men</i>	<i>n--<math>\emptyset</math></i>	$\emptyset$	<i>-ben</i>	<i>n- -b/-m</i>	<i>-b/-m</i>	<i>-baf</i>	<i>n- -baf</i>	<i>-baf</i>

The following should be noted from the A suffix marking. First, the number distinction depends on the person category and also tense. A three-way distinction is observed only in the first person present/future tense and all second person categories, except the second person in the present tense. Second, unlike U prefixes, all A suffixes clearly differ formally from the U prefixes. Third, there are different patterns of syncretism, indicated by differences

in shading of the cells. Forth, a close look at the material of the affixes reveals that the three-way distinction is in fact constructed from two underspecified exponents of NSG/NPL. For example, the three suffixes for the first person FUT, *-ru*, *-ren*, *-men* consist of the formative *-r* ‘NPL’, *-u* ‘NSG’, and *-n* ‘NSG’. Likewise, the second person FUT affixes makes use of discontinuous *n-* ‘NSG’ and *-(ri)m* ‘PL’ (in contrast to *-∅* ‘NPL’). Finally, the plural suffix *-rV* with the allomorphs *-re~ri~ro~ra* (possibly with a labial fricative onset consonant, *f-*, e.g. *fre*)<sup>1</sup> is used to encode plurality of participants and/or plurality of states/inchoative events (typically inchoative states such as ‘be(come) dead’) and telic/punctual events such as ‘fall’, ‘leave (for)’, ‘kick’). Thus, the auxiliary for the sentence ‘they were dead’ is inflected with the plural A suffix *-rV* realized as *-fro* in *nggo(r)-fro-f* ‘AUX-PL-3NrPST’.

Marori shows a ditransitive construction (i.e. with double objects), in which *=i* typically marks the recipient (R) object NP, as in (7)a. Both objects can be marked with *=i* as in (7)b-c, however. Crucially, as seen in (7)c, it is the recipient Maria that is indexed by the U affix on the verb (i.e. the use of the vowel /o/).

- (7) a. Na Albert=**i** njime-ben bosik sokodu.  
 1SG Albert=U 3SG.M.O.give-1NPL.NRPST pig one  
 ‘I gave Albert a pig.’
- b. Pafe sorweri=**i** John njim-im poyo=**i** fis  
 DEF basket=U John 3SG.M.O.give-DUR.NRPST coconut=U yesterday  
 ‘John filled the basket (with) coconuts.’
- c. Na fis njomo-bon Maria=**i** bosik=**i** sokodu  
 1SG yesterday 3SG.O.F.give-1NPL.NRPST Maria=U pig=U one  
 ‘I already gave Maria a pig yesterday.’

A recipient/benefactive (R) can be datively marked by postpositional clitic *=n(a)*.

Arguably, the datively marked R is grammatically oblique, as it is not indexed on the verb; further discussed in subsection 46.4. Other peripheral roles are flagged by postpositions in

<sup>1</sup> The allomorph *fre-* appears in the morphophonological context with the past suffix *-f(i)*, which follows a heavy syllable. For example, in *ngge+rV+f* ‘AUX-PLvb-NrPST’, *-rV* becomes *-fre* (i.e., *nggefref*) because the stress falls on the first syllable, making it a heavy syllable needing a coda which is filled in by the available consonant material *-f*.

Marori, e.g. instrument by *ngge*, (inseparable-)comitative by *=fa*, and locative with *=ku* as seen in (8). These postpositions carry no number feature, and receive no indexing on the verb.

- (8) a. *sepeda=fa suo-f sekola=ku*  
 bike=COM go-3.NrPST school=to  
 ‘s/he went to school by bike.’
- b. *desa yoropur samagau ngge ter=me-f*  
 village grand.father club with hit=3SG.M.AUX-3NPL.NrPST  
 ‘the village chief hit (it) with a club.’
- c. *Na fis ti-no=nggo-bon mbaren kwi moro=ku*  
 1SG yesterday hide-MID-AUX-1SG.NrPST side tree head=LOC  
 ‘I hid myself behind the tree.’

### 46.3 Nominal number

This section discusses the number category associated with entities/participants; henceforth nominal number. While intricately related, nominal number is different from the number category called event or verbal number (further discussed in the next subsection). Nominal number in Marori can be realised by free nominals and bound (agreement) pronominal forms on the verb.

Overall, the nominal number system in Marori encodes a three-way distinction: SG-DU-PL. Formal morphological coding, however, can be underspecified, as NSG, as shown in (9).

- |     |                                   |  |                |
|-----|-----------------------------------|--|----------------|
| (9) | Category:                         | Formal number distinction:   | Ref.:          |
| (a) | bound pronouns on the verb        | 3-way distinction, 1/2.A: SG vs. DU vs. PL<br>2-way distinction, 3.A: PL vs. NPL<br>2-way distinction, U: SG vs. NSG | Tables 2 and 3 |
| (b) | free pronouns                     | 2-way distinction: SG vs. NSG  | Table 2        |
| (c) | demonstrative and spatial deitics | 2-way distinction: SG vs. NSG  | Figure 1       |
| (e) | common nouns                      | general number,  | examples (10), |

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except very few nouns

- (d) derived event      2-way distinction: SG vs. NSG      example (11)  
 nominal

As seen from (9), the distribution of number marking and agreement indexing in Marori follows the animacy hierarchy (cf. Corbett 2000:90ff). As expected, pronouns have more distinction than nouns (cf. Cabredo Hofherr, this volume). The specifically marked SG-DU-PL distinction applies only in the top segments of the hierarchy (first and second bound pronominals on the verb). In addition, this is only relevant for the A agreement. The PL vs. NPL or SG vs. NSG distinctions are relevant elsewhere, including for the third person bound/free pronominals.

Demonstratives and spatial deictics in Marori show a SG and NSG number distinction, in addition to the general number, cross-cutting the proximal, semi-distal and distal distinction. This is given in Figure 1. These deictic items can function as determiners appearing with nouns, or as free pronouns (i.e. appears by themselves alone). Note that the proximal forms, *kefi* and *kemde*, are clearly related to the third person pronouns *efi* and *emnde* respectively (see Table 1). The grammaticalisation of demonstratives to become third person pronouns is attested in other languages .

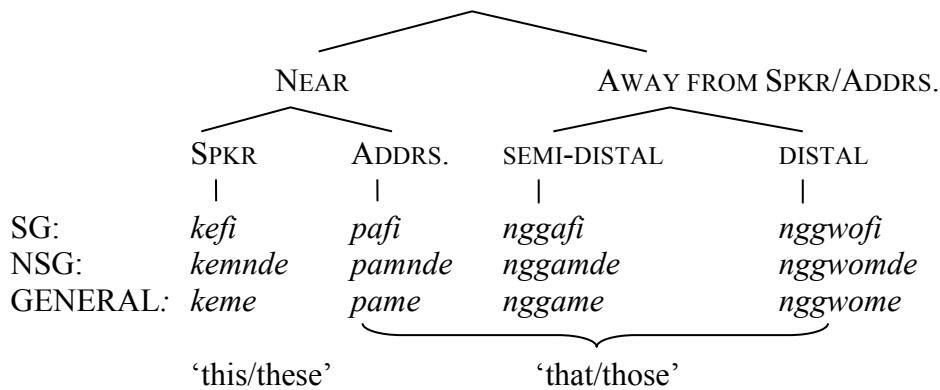


Figure 1



Common nouns in Marori are not marked for number. Their number is understood from the indexing morphology on the verb or from the context. The common noun *awo* ‘kangaroo’, for example, receives SG or NSG interpretation in (10) due to the shape of the root and the vowel quality of the verb.

- (10) a. Na awo=i ife-ben  
 1SG kangaroo=U 3SG.U.M.see-1SG.NrPST  
 ‘I saw a/the male kangaroo.’
- b. Na awo=i yofo-bon  
 1SG kangaroo=U 3.U.NSG.see-1SG.NrPST  
 ‘I saw (the) kangaroos.’

Certain nouns (typically human nouns), such as *parapur* ‘girl.SG’ /*moipur* ‘boy.SG’ and *meninggon* ‘children.NSG’, are lexically specified for SG or NSG number. They receive SG or NSG agreement accordingly.

Derived nominals are inflected, showing a distinction of SG and NSG, marked by *-on* and *-(n)de<sup>2</sup>* respectively. These nominalisers are synchronically distinct from the demonstratives shown in Figure 1 even though *nde* might be historically related to the NSG demonstratives such as *kemnde* and *pamnde*. For example, from the adjective base, *kutow* ‘bad’, we can derive *kutow-on* ‘bad-NML.SG=bad one’ and *kutow-nde* ‘bad-NML.NSG= bad ones’. From the root *abon* ‘steal’, we can derive *abon-on* ‘steal-NML.SG=thief’ and *abonde* ‘steal-NML.NSG=thieves’. Examples:

- (11)a. kefi buku wonngo-won te.  
 PROX.SG book good-NMZ.SG BE.3NPL.PRES  
 ‘This book is good/a good one.’
- b. kemde buku wonngo-nde te-re.  
 PROX.NSG book good- NMZ.NSG BE-3PL.PRES.  
 ‘These (more than two) books are good (ones).’

Nominal number is always associated with participants but participant number can also be inferred from verbal number. That is, non-pronominal verbal stems vary depending on the number of the participants involved, a topic further discussed in the next section.

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<sup>2</sup> The allmorph *-nde* is use with a stem ending with a vowel as in *wonngo* ‘good’ in ( )b.

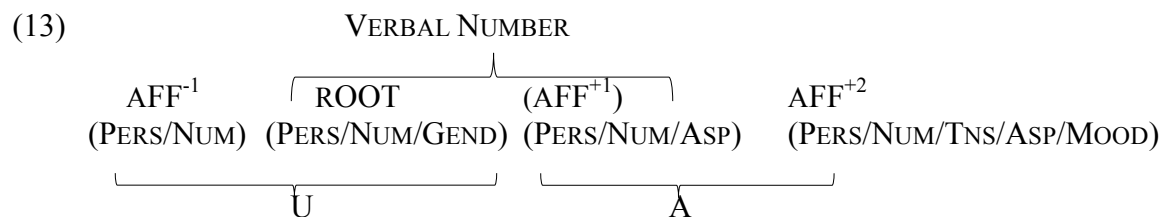
#### 46.4 Verbal number

Verbal number is a category of number related to events, typically reflecting the number of tokens/times an action/state happens (Durie 1986, Corbett 2000, Veselinova 2008). Singularity or plurality of an event is a complex phenomenon in Marori, intricately related to nominal number. PL events can be conceptualised as iterated events involving the same participants (in a given occasion or different occasions) or distributive events in a given space involving different participants.

PL events in Marori are expressed through the strategies given in (12), further discussed the following subsections.

- (12) (i) By suppletive roots, directly part of inflected verbs (subsection 46.4.1);  
 (ii) By suppletive roots, part of lexical nominal predicates preceding the auxiliaries (subsection 46.4.1);  
 (iii) By pluractional suffix *-ro*, part of inflected verbs (subsection 46.4.2);  
 (iv) By combination of (i)-(iii), possibly showing constructed number and aspectual meaning (subsections 46.4.3-46.4.4).

To understand the different strategies of PL event expression in Marori, consider the simplified template of inflected verbs in this language, shown in (13).



The template shows two important interlocking properties. Firstly, like other languages of Trans-New Guinea (TNG), Marori shows distributed exponence. The NUM feature, for example, is distributed across different sites within the verb (and also across words). For example, the number of the U argument is expressed by the prefix on the verb (i.e. nominal number) and by the shape of the verb root (i.e. verbal number). Secondly, verbal number is associated with both the root and the suffix. We go through simple cases with suppletive roots first.

#### 46.4.1 Suppletive root alternation

The first strategy, suppletive roots as part of the inflected verbs, is exemplified by the intransitive verb ‘come’ in (14). As seen, the roots alternate between *umo-* and *seri-*, depending on whether the events are NPL<sub>vb</sub> (14)a or PL<sub>vb</sub> (14)b, which correlate with the number of the subject participants.<sup>3</sup> Note that there is no material for AFF<sup>+1</sup> in these examples. Root (or stem) alternations for the verb ‘come’ are more complex than this, however; further discussed below.

- (14) a. Ami (Mikael fi) tamba umo-nof  
Ami Michael COM already come.NPL<sub>vb</sub>-3RPST  
‘Ami (and Michael) already came (here) long time ago.’
- b. Emnde usindu tamba seri-nof  
3NSG all already come.PL<sub>vb</sub>-3RPST  
‘They all came (here) long time ago.’

The second strategy, suppletive event noun not part of the inflected auxiliary, is exemplified by the predicative noun ‘hit’ in exemplified (15), which takes the auxiliary *me-*. The suppletive predicative nouns precede the auxiliary, which is inflected for masculine gender, as seen in examples (16). While forming a phonological word, these lexical roots are independent syntactic words indicated by the notation =.

- (15) a. ter ‘hit.NPL<sub>vb</sub>’  
b. keswe ‘hit.NPL<sub>vb</sub>’
- (16) a. ter=∅-me-ben  
hit.NPL<sub>vb</sub>=3.U-3SG.M.U.AUX-1SG.A.Nr.PST.PF  
‘I hit him (once or twice).’
- b. keswe=∅-me-men  
hit.PL<sub>vb</sub>=3U-3SG.M.U.AUX-1SG.A.Nr.PST.IPF  
‘I hit him repeatedly’ or ‘I was hitting him.’

An important point to note from examples in (16) is the interpretation of the event number, which in this case is the opposition of NPL vs. PL events. The NPL ‘hitting’ is simply translated as ‘a single hit or two’ whereas the PL counterpart is translated as

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<sup>3</sup> If necessary, a subscript is added to the NPL/PL, e.g. PL<sub>vb</sub>, to indicate that we are dealing with event plurality.

‘repeatedly’. Native speakers would accept three tokens of hitting as non-durative; hence licensing the use of the NPL root. It is common that event number is not good with exact cardinal. This has been noted in the literature (Dressler 1969; Cusic 1901); also see Cabredo Hofherr (this volume). This is the crucial difference between event number and nominal number, where NPL for nominal number is either SG or DU. That is, the aspectual nature of the event—in this case the punctual nature of ‘hitting’—is critical for the interpretation of event number; further discussed 46.4.4. In short, a PL event of hitting is durative, necessarily repetitive, involving at least several tokens of hitting (typically many more; therefore, it is unsurprising that the root marked for verbal plural also marks progressive aspect).

Finally, different shapes of the roots also trigger the use of different A suffixes, reflecting different aspectual properties of the events. PL<sub>vb</sub> forms such as *kesw* ‘hit.PL<sub>vb</sub>’ trigger the use of the imperfective suffix; e.g. *-men* as seen in (16)b. The NPL<sub>vb</sub> verbs such as *ter* ‘hit.NPL<sub>vb</sub>’ expressing telic/punctual events trigger the use of the perfective suffix, e.g. *-ben* (16)a. Thus, lexical aspect and grammatical aspect interact very closely..

#### 46.4.2 Pluractional suffix *-ro*

In the third strategy, the plurality of events is marked by the pluractional suffix *-ro* (with its allomorphs *-re/-ri/-ra* depending on gender, tense-aspect and vowel harmony). This suffix is clearly not a subject agreement marker as it can combine with a singular argument as shown in (17)a, or a plural argument as in (17)b. In these examples, the pluractional *-ri/-ra* expresses an iterative meaning, in contrast to (17)c where it is absent. Note that the imperfective *-f* suffix must be used in (17)c, and that the perfective suffixes *-m* and *-b* in (17)a and (17)b respectively.

- (17) a. Thomas    fek        **nggu-ri-m**  
          Thomas    nod        AUX.3SG.M-PL<sub>vb</sub>-NPL.NrPST.IPF  
          ‘Thomas was nodding.’

- b. Nie usindu fek yar-nggwa-ra-b  
 1NSG all nod 1PL-AUX- PL<sub>vb</sub>-PL.NrPST.IPF  
 ‘We were all nodding.’
- c. Thomas fek **nggu-f**  
 Thomas nod AUX-PL.NrPST.PF.  
 ‘Thomas nodded (once).’

In the expression of stative states, the pluractional suffix expresses a multiplicity of states, associated with different participants; hence it looks like a PL subject marker. This is observed with the stative copula *te* ‘BE.3NPL.PRES’ vs. *tere* ‘BE.3PL.PRES’. This is an instance of multiple (i.e. non-iterative PL) states, whereby the subject is pluralised by the pluractional suffix.

- (18) a. John sor-on te.  
 John short-SG.NMZ BE.3NPL.PRES  
 ‘John is short (Lit. John is a short one).’
- b. emnde usindu sor-de te-re  
 3NSG all short-SG.NMZ BE-3PL.PRES  
 ‘they are all short (Lit. they are short ones).’

The fourth strategy to express PL events is to use the pluractional suffix in combination with the suppletive root. This gives rise to a space in which complex verbal number meaning can occur. The verb ‘bring’, for example, can have the four stems shown in (19) before nominal number morphology is added. For simplicity, only one meaning, namely the distributive PL event with a SG object (cell (iii) in (19)), is exemplified in (20). While SG in form, the U participant (‘coconut’) is understood as PL, due to the plurality of the event of bringing. However, grammatically it is a singular object as evidenced from the presence of the numeral *sokodu* ‘one’. The (singular) object ‘coconut’ is treated as masculine, indexed by the high vowel /e/ on the verb, triggering vowel harmony across all syllables in the verb.

- |      |                      |              |                     |                    |
|------|----------------------|--------------|---------------------|--------------------|
| (19) |                      |              | ROOT ALTERNATION:   |                    |
|      | PLURACTIONAL SUFFIX: | ‘bring.SG.U’ | ‘bring.PL.U’        |                    |
|      |                      | NPL          | (i) <i>ndV-∅</i>    | (ii) <i>kei-∅</i>  |
|      |                      | PL           | (iii) <i>ndV-rV</i> | (iv) <i>kei-rV</i> |
- (20) nie usindu sajer-sajer sokodu poyo=i  
 1NSG all day-REDUP one coconut=U

**nde-re-men**                      pambe  
3SG.U.M.bring-PL<sub>vb</sub>-1PL.PRES there  
'We all (three or more), each of us, every day bring one coconut  
there.'

The examples in (21) show the combination of suppletive predicative nominal (strategy (12).ii) and pluractional *-ro* appearing on the auxiliary (strategy (12).iii). The lexical predicates show suppletive roots *anep* 'big.SG' and *kofe* 'big.NSG', with the latter requiring the pluractional *-ro* on the auxiliary, as seen in (21)b. Note that the inflected auxiliary comes with both U and A affixes (see Arka 2015 for details of this construction).

- (21) a. tamba=na      **anep**      yu-nggo-bon  
    already=1SG big.SG    1SG-AUX-1.NrPST.PF  
    'I have become big.'
- b. Nie    usindu   tamba    **kofe**      yer-nggo-**ro**-bon  
    1NSG all       already big.NSG 1NSG-AUX-PL-1.NrPST.PF  
    'We all have become big.'

#### 46.4.3 Constructed dual and duactional

Dual number can be expressed with or without specific dual morphology in Marori. Specific dual morphology for nominal number is observed only for the first-person category; see Tables 2-3. DU without dual morphology for nominal number is observed in the second person category. Consider the formation of number distinction for the future tense (22), exemplified in (23), where two underspecified formatives are used. DU is constructed from the combination of NSG (*n-*) and NPL (*-Ø*).

(22)

	EXPONENT1-ROOT-EXPONENT2	
SINGULAR :	Ø-	-Ø
DUAL :	n-	-Ø
PLURAL :	n-	-m

- (23) a. kesweme  
    kswV= Ø-    Ø-      me                      -Ø  
    hit.PL= 3.U- 2NPL.A- 3SG.M.U.AUX -2NPL.IRR.A  
    'You (SG)will hit him (repeatedly).'

- b. kesneme  
 kswV= Ø- n- me -Ø  
 hit.PL = 3.U- 2NPL.A- 3SG.M.U.AUX -2NPL.IRR.A  
 ‘You (DU)will hit him (repeatedly)..’
- c. kesnemem  
 kswV= Ø- n- me -m  
 hit.PL = 3.U- 2NPL.A- 3SG.M.U.AUX -2PL.IRR.A  
 ‘You (>2) will hit him (repeatedly)..’

Likewise, duactional number may be encoded by a specific suppletive stem, or constructed by combining NSG and NPL forms. The verbs meaning ‘come’ show verbal number, with suppletive stems given in (24)a. The stems themselves carry person, number and tense features as evidenced from the paradigms given in (24)b. As seen, the form *nworimo-* is a duactional form, expressing two tokens of ‘coming’ (also necessarily involving two participants). This is exemplified by example (25)b, in contrast to the single and plural events, (25)a and (25)c respectively. The suffix *-n* is a portmanteau deictic marker (toward the speaker), also functioning as a past perfective marker..

- (24) a. Verbal stem forms meaning ‘come’ in Marori:
- |             |                     |                |                           |
|-------------|---------------------|----------------|---------------------------|
| <i>umo</i>  | ‘come.NPL.vb’       | <i>nworimo</i> | ‘come.2DU <sub>vb</sub> ’ |
| <i>ya</i>   | ‘come.3PL.FUT.vb’   | <i>nojri</i>   | ‘come.2PL <sub>vb</sub> ’ |
| <i>seri</i> | ‘come.1/3PL.PST.vb’ |                |                           |

b. Paradigm for the verb ‘come’:

	FUT	MacroPRES <sup>4</sup>	RPST
1SG	umo-ndu	umo-ndu	umo-nofori
1DU	umo-nden	umo-nden	umo-nofori
1PL	seri-ndu	seri-ndu	seri-nofori
2SG	umo-n	umo-n	umo-nof
2DU	nworimo-n	nworimo-n	nworimo-nof
2PL	nojri-n	nojri-n	nojri-nof
-----			
3NPL	uma-m	umo-n	umo-nof
3PL	ya-m	seri-n	seri-nof

- (25) a. ka fis umo-n Wasul mbe  
 2SG yesterday come.NPLvb-NrPST Wasur to  
 ‘you came to Wasur yesterday.’

<sup>4</sup> This covers PRES and NPST.

- b. kie fis nurrimo-n Wasul mbe  
 2SG yesterday come.DUvb-NrPST Wasur to  
 ‘you two came to Wasur yesterday.’
- c. kie fis nojri-n Wasul mbe  
 2SG yesterday come.PLvb-NrPST Wasur to  
 ‘You (three or more) came to Wasur yesterday.’

The sentence in (26) exemplifies a constructed duactional verbal number. The remote past paradigm of the copula ‘be’ for the first person is irregular: *orowe* ‘BE.1NPL.RPST’ vs. *mirrarnggi* ‘BE.1PL.RPST’. The root for the predicate for short is *sor-* ‘short’, and the DU states with DU participants are constructed without specific DU morphology:

- (26) Nie mundo sor-de orowe  
 1NSG long.time.ago short-NSG.NMZ BE.1NPL.RPST  
 ‘We two were short long time ago.’

#### 46.4.4 Verbal number and aspect

Verbal number and (grammatical/lexical) aspect are distinct categories in Marori. They are encoded differently and have their own distinct functions in the grammar. Suppletive roots marking event number appear in finite and non-finite verb forms, while grammatical aspect is exclusively marked by verbal affixation on inflecting verbs. Functionally verbal number expresses the number of event tokens and/or number of participants.

Verbal number and aspect are intimately related, however. Forms expressing verbal number typically show a SG vs. NSG distinction, or a PL vs. NPL distinction. The distinction appears to be related to the lexical aspect of the root; e.g. whether the depicted event is aspectually stative or dynamic, or whether it is punctual. Consider a sample of lexical predicates from different lexical classes showing root alternations in (27). The general patterns are as follows: 1-place state predicates (27)a-b and those expressing non-punctual events (27)f typically have forms showing a SG-NSG distinction, whereas predicates expressing motion (27)c-d and punctual action (27)e show a PL-NPL distinction.

- (27) a. *anep* ‘big.SG’ vs. *kofe* ‘big.NSG’ (state: 1-place pred.)



- b. *monjun* ‘small.SG’ vs. *menindum* ‘small.NSG’ (state: 1-place pred.)
- c. *kunonjo* ‘go.NPL’ vs. *kurfenj* ‘go.PL’ (motion, –telic: 1-place pred.)
- d. *umo* ‘come.NPL’ vs. *seri* ‘come.PL’<sup>5</sup> (motion, +telic: 1-place pred.)
- e. *trV* ‘hit.NPL.U’ vs. *kswV* ‘hit.PL.U’, (+punctual: two-place pred.)
- f. *ndV* ‘bring.SG.U’ vs. *kei* ‘bring.NSG.U’ (–punctual: two-place pred.)

We have seen that there is a co-occurrence constraint, whereby certain PL events must appear with (auxiliary) verbs in the imperfective (IPF) aspect; cf. the contrast in examples (16)-0 for ‘hitting’. Given that ‘hitting’ is aspectually punctual, this constraint is unsurprising, since such temporally PL events (by same participants) are necessarily repetitive and durative. However, with other predicates, the reverse does not hold; durative aspect does not always require PL repetitive events. Predicates expressing atelic/non-punctual events, such as ‘bring’, can appear with their NPL root *ndV*-, which co-occurs with imperfective aspect—in this case *-m*, as shown in (28).

- (28) Piter Albert=i ndi-m  
 Peter Altert=U 3SG.M.bring-3NPL.NrPST.IPF  
 ‘Peter carried Albert.’

In addition, PL events do not necessarily appear in imperfective aspect. Thus, spatial plurality of events (i.e. distributive simultaneous PL events) can appear in perfective aspect, as seen in example (29).

- (29) Emnde poyo=i nde-fre-f nggambe  
 3NSG coconut=i 3SG.M.U.bring-PL-NrPST there  
 (i) ‘They brought a coconut there’ (total: more than three coconuts)  
 (ii) ‘They brought a coconut there’ (i.e. a total of one coconut)

To conclude, examples like (28) (a SG event with SG participants, appearing with imperfective aspect) and (29) (PL events in perfective aspect) provide strong evidence that event/verbal number expressed by stem suppletion and the rV suffix is distinct from grammatical aspect.

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<sup>5</sup> For simplicity only the REAL form *seri*- is given here; the IRR form used for FUT tense is *yam*.

## 46.5 Number agreement and comitative-inclusory plural

Bound agreement pronominals on verbs (i.e. affixes occupying positions AFF-1 and AFF+2 in (13) are referential. That is, they can independently refer to entities in the discourse without the presence of the free NPs. The presence of free argument NPs is therefore pragmatically motivated, e.g. the need for the argument to be focused or topicalised; see Arka (2016c) for the detailed description of information structure in Marori. The agreement between the overt free NP and the bound pronoun on the verb is therefore anaphoric. Co-occurrence of units with incompatible values of NUM feature is permitted in Marori, and this gives rise to comitative-inclusory interpretation, discussed in detail in Arka (2017). First, consider (30). The 3NPL actor suffix *-f* is compatible with the free (singular) NP *John*, and the anaphoric reading (i) is arrived at. Contrastively, the verb in (31) carries the pluractional suffix (realised as its allomorph *-fre*), and the comitative inclusory PL reading (iii) is arrived at. As seen, inclusory DU reading (ii) is not possible in (30)- (31). To express the inclusory DU reading, the subject argument *John* must be flagged with the comitative marker *fi* and the verb must appear with NPL actor morphology, as seen in (32). This again highlights the point about distributed exponence of number, allowing DU to be constructed without using specific DU morphology.

- (30) John kier=i      ki=ngge-f  
John village=U    leave=3SG.M.AUX-3NPL.NrPst  
i.    ‘John left the village.’  
ii. \* ‘John and his associate left the village.’  
iii. \* ‘John and his associates left the village.’
- (31) John kier=i      ki=ngge-fre-fi  
John village=U    leave=3SG.M.AUX-PL-3RPst  
i. \* ‘John left the village.’  
ii. \* ‘John and his associate left the village.’  
iii.    ‘John and his associates left the village.’
- (32) John fi      kier=i      ki=ngge-f  
John with    village=U    leave=3SG.M.AUX-3NPL.NrPst  
i. \* ‘John left the village.’  
ii.    ‘John and his associate left the village.’  
iii. \* ‘John and his associates left the village.’

Free pronouns can also function inclusorily. An example is given in (33), in which *nie* ‘1NSG’ is the inclusory pronoun, agreeing with the actor suffix *-den* ‘1DU.PRES’ on the verb. As seen from the translation, ‘NSG/DU’ refers the totality of two participants in the event of walking, including the first SG person. The PP with comitative postposition *fi* ‘with/and’ is the modifier of the pronoun *nie* ‘NSG’.

- (33) *nie bab desa fi keme uma-den mukedu*  
 1NSG uncle village with REL walk-1DU.PRES middle  
 ‘(here are) the village chief and I who walk in the middle’

Inclusory-comitative constructions with argument indexing of the type exemplified in (31) and (33) is possible in Marori only with NSG verbs with proper names especially if they are associated with A arguments. A free pronoun requires the presence of the comitative marker *fi* as exemplified in (34). (The star outside the brackets in (34) means that *fi* is obligatory otherwise the sentence is ungrammatical.)

- (34) *Efi \*(fi) kier=i ki=ngge-fre-fi*  
 3SG with villlage=U leave=3SG.M.AUX-PL-3RPst  
 ‘They with him/her left the village.’

Inanimate nouns can appear in the inclusory-comitative construction with the mismatch number, provided that the plural form is associated with the verb, not with the dependant. For example, the plural verb *keyi* requires plural U argument but it can appear with a singular NP with singularity encoded by the modifier *anep* ‘big.SG’ in (35). As seen from the translation, the understood U participants are plural, not singular, with the ‘single big coconut’ being included in the plural set.

- (35) *Fis anep poyo=i sokodu keyi-ben*  
 yesterday big.SG coconut=U one bring.PLvb-1NPL.NrPST  
 ‘One big coconut I bought it yesterday with the other ones.’

The reverse indexing pattern (i.e. plural NP + singular verb) does not give rise to an inclusory meaning, but a ‘small plural’ or paucal-like meaning. This is exemplified by the

pluralia tantum noun *meninggon* ‘children’ indexed with a NPL A suffix in (36), which means ‘a small number of children’.

- (36) Meninggon    kier=i      ki=ngge-f  
 children        village=U    leave=3SG.M.AUX-3NPL.RPst.  
 ‘A small number of children (i.e. few, three, or two) left the village.’

#### 46.6 Plural semantics in Marori

In this section, we briefly describe two semantic properties of number in Marori: first plurality in relation to the count/mass distinction and then exclusive and inclusive PL readings.

##### 46.6.1 Kinds of plurality and the count/mass distinction

Nominal and verbal number in Marori exhibits an intricate interaction with the count/mass distinction. Mass nouns, e.g. *mim* ‘water’, are like other nouns in this language in having general number, usable for SG and NSG reference. They are treated as (masculine) SG in Marori by default, and accordingly receive SG indexing. However, they can be associated with PL verb, giving rise to instances in which mass nouns have an individuated interpretation, e.g. with the additional meaning of ‘kinds of’, ‘pieces of’, ‘bottles of’, etc. as shown in (37). In (37)a, the mass noun *mim* ‘water’ is the object of the PL verb *kei-* ‘NSG.U.bring’. As seen from the free translation, *mim* is understood as ‘NSG units’, e.g. three or more containers of water. Likewise, the oil in (37)b is understood as PL (i.e. three or more bottles of oil).

- (37) a. Emnde    usindu    mim=i      kei-fre-f  
           3NSG    all        water=U    3NSG.U.bring-PL-2/3PL  
           ‘They all brought water (i.e. all carried their own bottles).’  
 b. poyo    holoi    menindun    te-re  
       coconut oil    small.NSG    BE-2/3PL.PRES  
       ‘They’re coconut oil in small quantities (e.g. in (small) bottles).’

The nominaliser *-(w)on* ‘SG.NMZ’ and *-(n)de* ‘NSG.NMZ’ in Marori turns a (mass nominal) stem to a countable nominal. Thus, from the colour noun *singgu* ‘black’, we can

derive a countable noun *singgu-wen* (black-SG.NMZ) ‘the/a black one’ and *singgu-nde* (black-NSG.NMZ) ‘(the) black ones’ (two or more), and from the mass event noun *abon* ‘steal’, we can derive *abon-on* (steal-SG.NMZ) ‘the/a thief’ and *abon-de* (steal-NSG.NMZ) ‘(the) thieves’. Once individuated, then these nominals can enter number structures including DU. This is exemplified by (38)b, in which the specific number value (DU) is achieved through the combination of nominal number (marked by NSG *-nde*) and verbal number (shown by the NPL *te*).

- (38) a. *singgu-wen*     **te**  
          black-SG.NMZ BE.3NPL.PRES  
          ‘it’s black (or a black one).’
- b. *singgu-nde*     **te**  
          black-NSG.NMZ BE.3NPL.PRES  
          ‘they (two) are black (ones)’
- c. *singgu-nde*     **tere**  
          black-NSG.NMZ BE.3PL.PRES  
          ‘they (three or more) are black (ones)’

PL events can be spatially distributive or non-distributive. The same predicate can have both interpretations. This is exemplified by the predicate ‘bring’, which is lexically atelic, and the pluractional morphology (realised by *-fre*) encodes the individuation/pluralisation of the event with PL actors. As seen in (39), the interpretation with the SG object is ambiguous between a distributive PL meaning (i.e. a PL event, reading (i)), and a non-distributive meaning (a single event with PL agents, reading (ii)).

- (39) *Emnde poyo=i nde-fre-f nggambe*     (= (29))  
       3NSG coconut=i 3SG.M.U.bring-PL-NrPST there  
       (i) ‘They brought a coconut there’ (total: a total of three or more coconuts)  
       (ii) ‘They together brought a coconut there’ (i.e. a total of one coconut)

Note that, with an inherently punctual predicate like ‘hit’, event plurality can also be along the temporal line (i.e. repetitive in a given durative occasion by the same actor; cf. example 0), in which case, a PL verbal root is used. In (40)a below, we see a more complex temporal plurality (also with a PL root) across occasions in durative habitual aspect. Even more complex is the combination of multiple PL events in both spatial and temporal dimensions. This is exemplified by the habitual hitting with PL root as shown in (40)b.

- (40) a. Mbe nggewendu Jhon Maria=i kaswa=ma-∅  
 MBE often John Maria=U hit.PL=AUX-3PRES  
 ‘John often hits Maria (with multiple hittings in each occasion).’
- b. Emde usindu mbe Maria=i nggewendu koswo=mb-ro-∅  
 3NSG all MBE Maria=U often hit.PL=AUX-PL-3PRES  
 ‘They all often hit Maria (with each of the actor regularly hitting her repeatedly in each occasion).’

#### 46.6.2 Exclusive and inclusive PL readings

Since Marori shows a three-way number system, therefore the meaning of PL in this language (i.e. ‘three or more’, or ‘>2’) is not exactly the same as that in English (i.e. ‘two or more’). Nevertheless, as in English, Marori number shows exclusive and inclusive PL readings in similar distributional contexts. Inclusive and exclusive readings of PL noun phrases in English are illustrated in (41)a and (41)b respectively (Farkas and de Swart 2010). Note that the difference of the interpretation of the PL form *children* correlates with the difference in the clausal types. In the positive context (41)a, the sentence is false if the speaker saw only one child: this is the exclusive reading of the PL. Contrastively, *children* in (41)b has an inclusive reading; that is, in addition to its >1 reading, its reference also includes **single** individuals.

- (41) a. *I saw children.*  
 (Exclusive PL reading only: speaker saw more than one child; false if the speaker saw only one child)
- b. *I didn’t see children.*  
 (Inclusive PL reading: speaker did not see one or more children).

We find the parallel pattern in Marori, even though the way plurality is expressed in Marori is significantly different from that in English. Consider (42), where the pluractional *-re* encodes the A, i.e. ‘snake’, as PL.

- (42) a. John=i kaf imbi-re-f paya-ke fis  
 John=U snake 3SG.M.bite-PL-2/3PL.NRPST forest -LOC yesterday  
 ‘John was bitten by snakes (>2) in the forest yesterday.’  
 (The exact number of snakes is unknown, but more than two.)
- b. Maar tanamba kaf John=i imbi-re-f  
 NEG just.now snake John=U 3SG.M.bite-PL-2/3PL.NRPST

‘No snakes bit John just now.’  
(inclusive: Not even one snake (or two snakes) bit John.)

In positive context (42)b, the PL receives an exclusive reading involving at least three snakes (>2). In negative context (42)b, the PL can have an inclusive reading, as seen from the free translation.

In addition to negations, inclusive PL interpretation is also observed in questions and conditionals; see Arka and Dalrymple (2016), and also chapter 7 on nominal plural morphology for a discussion of typical contexts for inclusive plural interpretations.

#### **46.7 Conclusion**

Overall Marori shows a three-way nominal number distinction, but number marking is distributed across morphological and syntactic sites. Nominal number marking consists of free nominal marking (free pronouns and derived nouns) and verbal indexing. It follows the animacy hierarchy (cf. Corbett 2000:90ff) with a specific SG-DU-PL opposition is relevant only in the top segments of the hierarchy, namely first and second bound pronominals. In most of other cases, number marking is underspecified (PL vs. NPL / SG vs. NSG distinction).

It has been also demonstrated that verbal morphology in Marori exhibits verbal number, which is intricately tied to nominal number. Underspecification and distributed exponence in number marking allow specific number, like DU, to be constructed without DU morphology. Distributed number exponence is not unique to Marori. It is also a salient feature of the neighbouring languages of Southern New Guinea; e.g. found in Nen (Evans 2015), Ngkompu (Carroll 2016) and Marind (Olsson 2017).

This chapter has also discussed number in relation to agreement indexing and inclusory constructions. Free NPs are indexed by bound pronouns on verbs, and the relationship between them is anaphoric in nature with the agreement typically involving the person

feature. The number feature of free NPs and verbs can be incompatible, however. This is the case with inclusory constructions, where the verbs must be in plural forms. The reverse pattern (with plural free NPs and singular verbs) give rise to a small plural/paucal-like meaning.

The complexity of number systems and the interaction with other grammatical systems in Marori and other Papuan languages pose a challenge to any grammatical theory.

Theoretical analyses of Marori data has been done by Arka (Arka 2012a, b, 2013, 2015, 2016a, b, 2017, 2016c), mainly within LFG (Bresnan et al. 2015, Dalrymple 2001, Falk 2001). For the diversity of the neighbouring Papuan languages in Southern New Guinea, see Evans et al (2017); Papuan languages of the Bird's Head, Eastern Indonesia and east Timor, see Holton and Klamer (2017); Papuan languages of Island Melanesiam see Stebbins, Evans, and Terrill (2017); and for the typological diversity of Papuan languages in general, see Foley (1986, 2017).

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