Number and Comitative-inclusory Constructions in Marori

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Proceedings of the LFG'19 Conference

Australian National University

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2019

CSLI Publications

pages 48–68

http://csli-publications.stanford.edu/LFG/2019

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Arka, I Wayan. 2019. Number and Comitative-inclusory Constructions in Marori. In Butt, Miriam, King, Tracy Holloway, & Toivonen, Ida (Eds.), *Proceedings of the LFG'19 Conference, Australian National University*, 48–68. Stanford, CA: CSLI Publications.

Abstract

The number system in Marori is morphosemantic, showing underspecified distributive exponence in number marking, which allows for the rich expression of nonsingular comitative-inclusory-associative meaning. The proposed LFG analysis consists of two parts: the decomposition of the number values ([+/-SG] and [+/-CUM]), and c-structure annotations with two template calls to capture the intricacies of the conjunctive and appositive properties involved in comitative constructions in Marori. It is demonstrated that the LFG analysis can straightforwardly capture the interaction of nominal and verbal number in expressing comitative meaning.

Keywords: number, plural, comitative, inclusory, associative, morphosemantic, coordination, appositive.

1 Introduction*

This paper discusses the interface of the morphology, syntax, and semantics of number in Marori with special reference to the comitative-inclusory constructions (Papuan, ISO:MOK, Merauke Indonesia), contributing to the existing typological and theoretical studies on this topic and related issues, including coordination (Corbett 1996, Stassen 2000, Sadler and Nordlinger 2010). The core meaning of comitative constructions, exemplified by (1) in English, is 'accompaniment', which involves an 'accompanee', a 'companion', and often a relator marking the comitative meaning (Stolz, Stroh, and Urdze 2006:2). Cross-linguistically, the comitative construction may also encode an inclusory meaning and this is often expressed by a pronominal form in Marori, such as example (2), in which a 'group' is part of the component meaning. In English, this 'plural/group' meaning can be added by the adverb *together*.

1 Obama (accompanee) spends his vacation together (group) with (relator) his daughters (companion) …

The meaning components of the comitative-inclusory constructions are schematized in Figure 1. Languages differ in their manner of expression for these component meanings (cf. Lichtenberk [2000] for other Austronesian languages of the Pacific, such as Niuean, and Moravcsik [2003] for other languages, such as Hungarian).

* I gratefully acknowledge the support of ARC Discovery Grant (DP10100307) and ELDP MDP0336 (2016-17). For their stimulating discussion, I thank the audience at the LFG2019, in particular Miriam Butt and Rachel Nordlinger, as well as the anonymous reviewers whose comments have led to the improvement of the description and analysis presented in this paper. I also thank my Marori consultants (Pak Lukas, Pak Wiliam, and Mama Agustina) and my research assistants (Maxi Ndiken and Agustinus Mahuze) for their help throughout my research in Merauke.

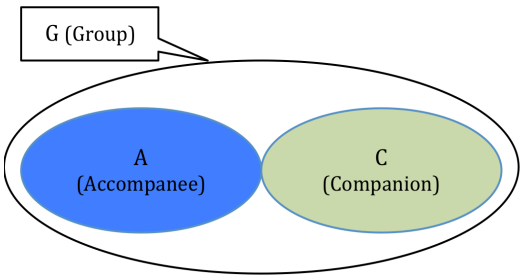

Figure 1: Conceptual elements of Comitatives

Comitative constructions in Marori are of special interest due to the fact that Marori has rich expressions demonstrating four different types in the same system (to be discussed and exemplified in section 2.2). Unlike the English example in (1), where the comitative unit prepositionally marked by *with* is an oblique not participating in the agreement with the verb, the equivalent structure in Marori shows that the comitative unit functions through coordination and, therefore, participates in the verbal agreement, as seen in (2). The singular subject ending *-du* is unacceptable because there are two participants involved in the event of sitting.[1] It is worthwhile noting that the free argument NPs in (2), such as *na*, have special discourse functions that are further discussed in section 3.1.

2	Na	kuye-den	/*kuye-du	Markus	fi
	1SG	sit.NPL-2DU.PRES	sit.NPL-1SG.PRES	Markus	COM
	'I am sitting with Markus.'				

In addition, distributed exponence in Marori number expression allows certain comitative meanings (such as the comitative-inclusory dual) to be expressed without inclusory dual pronouns (cf. example [9]).

The paper is structured as follows: after an overview of the morphosyntax and number system in Marori, the different types of comitative constructions in Marori are presented with examples. Then, the proposed LFG analysis is outlined with a demonstration of how the different comitative types and related issues can be accounted for. The conclusion is given in the final section.

[1] Abbreviations, alphabetically ordered: 1,2,3 (first, second and third person), A (Actor), AUX (auxiliary), CPLT (completive), AUX (auxiliary), COM (comitative), CUM(cumulative), DEIC (deictic), DU (dual), DUR (durative), F (feminine), FUT (future), HAB (habitual), LOC (locative), IRR (irrealis), MID (middle), NPL (nonplural), M (masculine), MP (macro present), NPL (Nonplural), NPST (near past), NSG (nonsingular), O (object), P (Patient), PART (particle), PL (plural), POSS (possessive), PRES (present), Q (question marker), REAL (realis), REL (relativiser), RPST (Remote Past), S (intransitive subject), STAT (stative), SG (singular), U (undergoer).

2 Marori comitative-inclusory constructions and their morphosyntax

2.1 Basic clausal morphosyntax and the Marori number system

Marori is a non-configurational verb-final language with the verb showing complex morphology that is inflected for tense, aspect, and mood (TAM). This TAM morphology is also used for number agreement, which is exemplified in (3) with the agreement suffix (*-ben* and *-ru*) indexing the Actor (A), or subject, while the prefix indexes the Undergoer (U). Marori also shows gender (U) agreement, however this is only applicable for the third person singular argument and is indicated by a vowel (/e/ 'masculine' vs. /o/ for feminine) on the verbal root, such as *-ife-* in (3a):

3 a. Na John=i ∅-ife-ben
1SG John=U 3SG.U-3SG.M.U.see-1NPL.NrPST
'I saw John.'

b. mbe=na kundo-ru
PART=1SG run-1SG.A.FUT
'I will run.'

The Marori number system is complex, showing an intricate nominal and verbal number interaction (see Arka [2012]). The nominal number system shows a three-way distinction (SG-DU-PL), but its formal morphological coding is underspecified as NSG or as NPL except for the first and second bound pronouns on the verb, as shown in (4).

4 Number coding system in Marori

		singular	dual	plural
Bound A pronouns on the verb	1 or 2	SG	DU	PL
	3A	NPL		PL
Bound U pronouns on the verb	3U	SG	NSG	
Free pronouns		SG	NSG	
Dem/spatial deictics		SG	NSG	
Derived event nominal		SG	NSG	
Common nouns*				

*with the exception of very few nouns

I argue that, unlike the English-type morphosyntactic number, the Marori number system is morphosemantic in nature (following Kibort [2010] and Corbett [2012]), allowing both the morphology and syntax to directly access and construct semantic number. The notable implication is

that number 'agreement' in Marori differs significantly from that in English. Unlike in English, the free NP in Marori is optional, and its co-indexed bound pronominal on the verb is optionally referential.[2] In addition, the number of participants may also be encoded by the verbal number. Given these properties, it is not surprising that common nouns are not inflected for number (i.e. showing the so-called 'general number'). For example, the noun *purfam* in (5a) is interpreted as plural because it is understood as the sole participant of the intransitive plural verb 'stay'. However, in (5b) it is understood as singular due to the non-plural subject indexing *–fi*. Of course, the presence of the numerals *pnar*/*sokodu* also augments the plural/singular interpretation.

5 a. sokodu sour ke pnar **purfam** minggri-maf
one house LOC three person stay.PL-3RPST
'in the house there were three people staying'
(FrogStory_Paskalis.004:00:00:42.962-00:00:49.852)

b. mara sokodu **purfam** kunonjo-fi kier=ku
NEG one person return-3NPL.RPST village=LOC
'no one returned to the village'
(tete dan nene.077: 00:04:38.767-00:04:43.227)

Another important implication of Marori morphosemantic number, besides its underspecified morphological coding or distributed exponence of number coding, is the possibility of conveying constructed number. For example, dual meaning can be constructed by the NPL and NSG combination within a word or in the syntax between a free NSG pronoun and a co-indexed NPL suffix on the verb (see Arka [2012] for details).

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[2] The bound pronoun on the verb is optionally referential because it may simply indicate agreement in cases where the reference is indefinite or generic, like in the following example:

Awo *paya* *kafra*
kangaroo grass 3.eat.3PL.PRES
'Kangaroo eat grass.'

The Marori data point and the proposed analysis in this paper are in line with Simpson (1991) and Austin and Bresnan's (1996) analysis (contra to Jelinek's [1984] Pronominal Argument Hypothesis). Arguments with generic referents in Marori are always expressed with overt NPs. In this case, the NPs supply the semantic contents of the subject/object arguments, and the bound (zero) pronouns on the verb are simply agreement markers. In the LFG analysis, this is captured by having the PRED= 'pro' equation optional in the lexical entry of the subject/object affix. In most other cases, particularly when referents are definite (with no NPs present), and in cases involving comitative referents as discussed in this paper, the bound pronouns are referential.

Finally, the morphosemantic number in Marori allows the construction of even further number-related meaning: incompatible number values are not banned in syntax, but are, in fact, a resource exploited for a specific subtle number meaning. This is the case with plurality in relation to the comitative-inclusory construction, the focus of this paper, to which we now turn.

2.2 Types of comitative-inclusory constructions in Marori

As discussed earlier (cf. Figure 1), the core meaning of comitative constructions is the 'accompaniment' of A ('accompanee') and C ('companion'), with a reference to G ('group'). Cross-linguistically, elements C or G may be implied. Comitative constructions come with a cluster of related meanings, such as 'togetherness', 'proximity', and 'co-controlling of the events', which necessarily gives rise to semantic plurality. Their distinctive plural meaning is 'heterogenous plurality with reference to groups' (Daniel and Moravscik, 2005). This heterogeneous plurality is commonly observed in the plurality of pronouns. For instance, the first-person plural 'we' is a heterogeneous plural since it refers to a group of different people that includes the speaker and others, possibly with or without 'you' (inclusive/exclusive plural). This is different from a 'homogenous' or 'additive' plural as seen in common nouns, such as the plural noun *apples,* which refers to a group that is made up of the same kind of entities, each classifying as an 'apple'.

Cross-linguistically, the heterogeneous plural of accompaniment can be of different types, depending on how explicit or overt the accompaniment elements of A ('accompanee'), C ('companion'), and G ('group') are expressed and marked. Referring to Figure 1, there can be types such as 'comitative' (A + C), 'comitative-inclusory' (A + C + G), and 'inclusory-associative' (G + implicit/implied A/C). The English example in (1) represents the comitative type that is neither inclusory nor associative. Marori, however, does not have this type because the comitative construction in Marori requires NSG verbal agreement of the verb functioning as an inclusory pronoun. In what follows, different types of comitatives attested in Marori are discussed and exemplified, as summarised in Table 1.

Table 1: Comitative Constructions (CC) Types in Maori

	FREE NP ACOMMPANEE?	PRESENCE OF COMPANION MARKER *fi*	FREE INCL PRON?	INCL BOUND PRO ON THE VERB?
CC TYPE 1	Yes	Yes	No	Yes
CC TYPE 2	No	Yes	Yes	Yes
CC TYPE 3	No	Yes	No	Yes
CC TYPE 4	No	No	No	Yes

2.2.1 Comitative Constuction Type 1

Comitative Construction Type 1, the comitative-inclusory construction, is characterised by the overt presence of all elements (A, C, and G). This is exemplified by (6): the companion C (*Markus*) is a free NP flagged by the postposition *fi*. The accompanee (*na* '1SG') is also expressed by a free NP without flagging. The pronoun bound on the verb, *-den*, is inclusory, representing G. As seen previously in (2), forcing singular 'agreement' with *-du* '1SG.PRES' (i.e. treating it like the English example [1]) results in ungrammaticality. This suggests that the *fi*-flagged NP and the bare NP together participate in the verbal agreement. Therefore, unlike English *with*, *fi* in Marori functions like a coordinating conjunction.

6 Na kuye-den /*kuye-du Markus fi
1SG sit.NPL-1DU.PRES sit.NPL-1SG.PRES Markus COM
A G C
'I am sitting with Markus.'

A and C can both be flagged by *fi*, however. This is shown by the data from a natural text in (7).[3]

7 mbe tanamba tok=i eyew=nda-fi
PART now frog=U see=3.AUX-3NPL.RPST
G
Thomas=fi koro=fi
Thomas=COM dog=COM Thomas
A C
'Thomas and the dog were together looking for the frog'
(FrogStory_Paskalis.022: 00:02:03.630-00:02:07.320)

[3] Given that both group members ('Thomas' and 'dog') are flagged by *fi*, it is not immediately clear which is A or C. The focal member, which typically comes earlier (i.e. 'Thomas' in [7]) is analysed as A for pragmatic reasons.

2.3.1 Comitative Constuction Type 2

The Comitative Construction Type 2, exemplified by (8), is characterised by the presence of the group element G, possibly as free and bound pronouns, the companion C flagged by *fi*, and the implied accompanee A. The different pronouns expressing G in (8), *nie* '1NSG' and *-den* '1DU', refer to the same participant. They are appositive in nature, showing underspecified agreement and sharing the first person and non-singular values. The companion 'village chief' (C) shows up as a free NP flagged by *fi*. Contextually, it is understood as singular (i.e. there is only one village head). The accompanee (A), however, is implied and understood as '1SG'. This 'singular' interpretation is based on the following interpretation: the total number value of the set (i.e. a group number, which is 'dual') deducted by one (i.e. the 'singular' number value of C, 'the village head'). The notation [A] means that the comitative element A is implied.

8	nie	bab	desa	fi	uma-den	mukedu
	1NSG	uncle	village	COM	walk-1DU.PRES	middle
	G[A]	C			G[A]	

'I together with the village chief walk in the middle'
(BerburuPaskalisDkk18122011.134: 00:11:06.030_00:11:08.200)

Another example of the Comitative Construction Type 2 is given in (9). The inclusory G ('dual') is constructed by a NSG and NPL combination. Given that the companion C, *John,* is 'singular', then the implied number value of the accompanee A, 'you', can be worked out as 'singular'. That is, sentence (9) is only felicitous in the context where there is a single addressee, 'you', with *John* not being present at the moment of speaking.

9	Mba	kie	John=fi	korow=ku	war=na-ngga-fi?
	Q	2NSG	John=COM	hand=LOC	hold=RECIP-AUX.NPL-RPST
		G[A]	C		G[A]

'Did you (singular) and John marry with each other?'
(Lit. Did you and John hold hands with each other?'

2.3.2 Comitative Construction Type 3

Comitative Construction Type 3 is characterised by the presence of COM *fi* marking on C, and the absence of the free inclusory pronoun representing G. G only shows itself on the verb. In addition, there is no

separate marking that is specific for A; it is only implied, as exemplified by (10) below:

10 **bab desa fi** uma-**den** mukedu
uncle village COM walk-1DU.PRES middle
C G[A]
'I together with the village chief walk in the middle'

Example (11) shows a Type 3 with a comitative-associative meaning, where both C and (implied) A are third person participants: John is accompanied by an implied nonspecific associate (reading [ii]). Note that the inclusory NPL on the verb elicits a singular interpretation of the implied associate A (i.e. the unacceptability of a plural interpretation, reading [iii]). Sentence (11) cannot have a non-comitative interpretation either (i.e. the unacceptability of reading [i]). If a non-comitative reading is intended, then the COM marker *fi* must not be used, as shown in (12), reading (i):

11 John fi kier=i ki=ngge-∅-f
John COM village=U leave=3SG.M.AUX-3NPL-NPst.PF
C G[A]
i. * 'John left the village.'
ii. 'John and his associate left the village.'/
'With John included, they (NPL/two) left the village.'
iii. * 'John and his associates left the village.'

12 John kier=i ki=ngge-∅-f
John village=U leave=3SG.M.AUX-3NPL-NPst.PF
i. 'John left the village.'
ii. * 'John and his associate left the village.'
iii. * 'John and his associates left the village.'

2.3.3 Comitative Construction Type 4

Comitative Construction Type 4 is characterised by the exploitation of incompatible number values in the agreement system in Marori; the plural number of the verb functions inclusorily to express G when it co-occurs with a singular free argument NP. This is exemplified in (13): *John*, the singular subject NP, is made compatible with the plural intransitive verb (appearing with the pluractional *-fre*), giving rise to an inclusory-associative reading and implying that there are other companion participants, as shown by reading (iii). Note that reading (i) (non-comitative) is not acceptable. Reading (ii) (i.e. the comitative-inclusory

with a singular associate) is also not acceptable because the total number value of the group (G) (including 'John') is plural, and plural in Marori is 'more than three' (Arka 2011, 2012):

13 John kier=i ki=ngge-fre-fi
John villlage=U leave=AUX-PL-3RPst
A G[C]
i. * 'John left the village.'
ii. * 'John and his associate left the village.'
iii. 'John and his associates left the village.'

As shown in (14), flagging the free NP with *fi*, making it CC Type 3, is also acceptable with the same logical meaning. The only subtle difference seems to be that (14) has the pragmatic focus of *John* as the companion (C) rather than the accompanee (A).

14 John fi kier=i ki=ngge-fre-fi
John COM villlage=U leave=AUX-PL-3RPst
C G[A]
i. * 'John left the village.'
ii. * 'John and his associate left the village.'
iii. 'With John, his associates left the village.'

Sentence (15) is another example showing that incompatible number values trigger a comitative-inclusory interpretation. In this example, the values of the PERS feature are also incompatible: '3' of Markus vs. '1' of *-den*. It should be noted that while the absence of the COM marker *fi* is acceptable, sentence (15) is preferred with the presence of *fi*:

15 Markus (fi) kuye-**den**
Markus COM sit.NPL.1DU.PRES
'With Markus, I am sitting.' or 'Markus and I are sitting together.'

The comitative meaning of 'togetherness' also applies to inanimate arguments, which are typically associated with objects. Consider Type 4 in (16)[4], exploiting the verbal number resource in Marori: the verb root *kei* is in plural form, requiring a plural object argument, but the object NP is singular, as indicated by the adjectival singular noun *anep* 'big.SG' and the numeral *sokodu* 'one'. The sentence means that the object is a collection of entities, with one of them being a big coconut; the things carried could be other coconuts of different sizes and/or other entities.

[4] It remains a question for future research whether comitative constructions with inanimate arguments are possible under other CC types.

16 fis [anep poyo=i sokodu] [kei-ben]
yesterday big.SG coconut=U one bring.NSG-1NPL.NrPST
'one big coconut, I/we (two) carried it together with other coconuts/things'

3 LFG analysis

The components of the proposed LFG analysis consist of two parts: fine-grained referential (number and person) features in lexical entries and phrase structure annotations capturing the different status of free NPs and their (dis)agreeing pronouns on the verb. All comitative types in Marori show properties associated with coordinating/asyndetic structures. Following earlier work on coordination and nominal juxtaposition in LFG (Sadler and Nordlinger 2010, Dalrymple and Kaplan 2000, Dalrymple 2001), I will demonstrate that the complexity of comitative-inclusory constructions in Marori is treated as having set-valued grammatical functions.

3.1 Number (NUM) and person (PERS) features

Given the morphologically rich number system in Marori, especially its underspecification and distributive exponence in number coding that allows a constructed number (Arka 2012), I adopt an analysis whereby number values of 'singular', 'dual', and 'plural' are decomposed into features, as shown in (17). The features +/−SING and +/−CUM refer to 'singular' vs. 'nonsingular' and 'cumulative' vs. 'noncumulative', respectively (Arka and Dalrymple 2013). CUM(ulative) is a property of cumulative reference. Only the plural (which, in Marori, is 'three or more') is [+CUM], whereas 'singular' or 'dual' is [−CUM].

17 Decomposition of number values

'Singular'	'Dual'	'Plural'
+SG	−SING	−SING
−CUM	−CUM	+CUM

I also follow Dalrymple and Kaplan (2000) in representing PERS values in terms of a set of S '1st', H '2nd', and { } '3rd'; hence, the following represents the first person inclusive/exclusive NSG:

18 a. {S} U {H} = {S, H} '1st INC'

b. {S} U { } = {S} '1st EXC'

The lexical entry for the dual/plural pronoun contains the referential features signifying a set of non-homogenous referents. For example, the

entry for the first person dual bound pronoun on the verb, *-den*, as seen in sentence (15), can be represented as (19). Its information is then passed up to become the value of SUBJ during the process of word formation (briefly discussed in the next subsection).

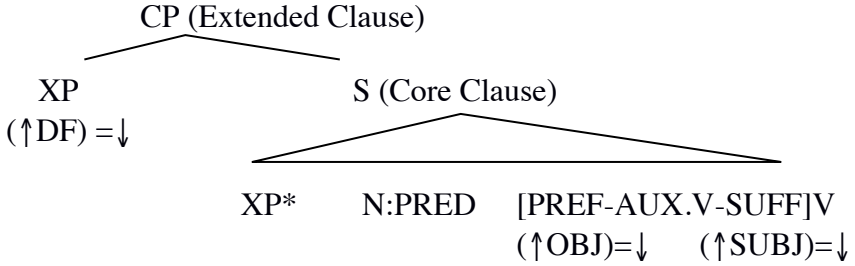
19 *-den*
((↑PRED)= 'pro')
(↑INDEX NUM) = [-SG,-CUM]
(↑INDEX PERS)= {S, H}
(↑TNS) = PRES

3.2 Phrase structure analysis and GF annotation

The representation in (20a) shows the main c-structure properties of the Marori clausal structure. Further, it demonstrates that the language is verb-final, and that a sentence may be analysed as having an extended clause structure with a sentence-initial free XP, bearing a discourse function (DF) such as TOP or FOC (see Arka [2017] for the details of the information structure in Marori). In between, there can be other XPs (freely ordered) and a predicative nominal (N:PRED), which typically immediately precedes the inflected light or auxiliary (AUX) verb.

The bound pronominals on the verb are arguments bearing SUBJ and OBJ functions. A unit marked by the COM marker *fi* is a PP (20c) in which *fi* is a postposition whose lexical entry is shown in (20d). The free XP can be a NP or a PP (20b), carrying different template calls (represented by @), whose details are shown in (20f-g): two (either @CNJT or @APPOS) for the NP and one (@CNJT) for the PP.

20 a.



b. XP = {NP: {@CNJT | @APPOS} |
PP: @ CNJT}

c. PP → NP P

d. *fi* P (↑PCASE) = COM

e. DF = {TOP, FOC}
GF = {SUBJ, OBJ, OBL, ADJUNCT }

f. CNJT:
↓∈(↑GF)
(↓INDEX PERS) ⊆ (↑GF INDEX PERS)
(↓INDEX GEND) ⊆ (↑GF INDEX GEND)

g. APPOS:
↓∈ (↑GF)
(↓INDEX) = (↑GF INDEX)

The templates @CNJT and @APPOS in (20f-g) follow Sadler and Nordlinger's (2010) formulations, which capture conjunctive and appositional specifications, respectively. The only difference is the notation ↓∈(↑GF), which means that the information (regarding the XP) is part of the set-valued GFs. This captures an important empirical point in Marori, specifically that comitative constructions exhibit properties associated with coordinating/asyndetic structures.

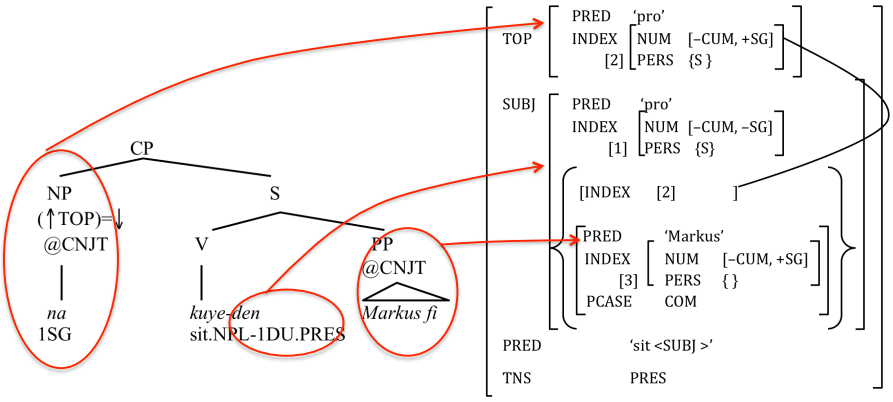
Importantly, the template @CNJT (20f) expresses that the person (PERS), number (NUM) and gender (GEND) features are part of an INDEX, which is non-distributive (i.e. resolving), whereas the constraint of @APPOS makes INDEX values distributive (i.e. identical to the mother node). @CNJT creates the effect of a unification in which a {S, H}(1st person) unit combines with a {H}(2nd person) unit to be resolved in becoming {S, H}(1st person) (see Dalrymple and Kaplan [2000] for details). In contrast, the @APPOS specification results in the spread of the INDEX values to the mother node. The availability of the two options (@CNJT or @APPOS) for an NP argument leads to the (im)possibility of a particular number and comitative interpretation, as will be discussed in the following subsections.

3.3 Demonstration and discussion

This section demonstrates how the proposed analysis works to account for each CC type and discusses relevant issues. We start with CC Type 1, represented by sentence (6) and repeated as (21). The NP TOP *na* carrying [+SG] must also be identified to bear a GF, which is SUBJ in this case. Hence, it can only have the @CNJT option because the @APPOS option would make its NUM value clash with the dual SUBJ *-den*, which carries [–SG]. The @CNJT specifications result in the referent (INDEX) of *na* being understood as a subset of SUBJ. Likewise, the f-str contents of the PP *Markus fi* result in a subset of the SUBJ value, as expected, yielding the right comitative interpretation.

21 Na kuye-den Markus fi
1SG sit.NPL-1DU.PRES Markus COM
'I am sitting with Markus.'

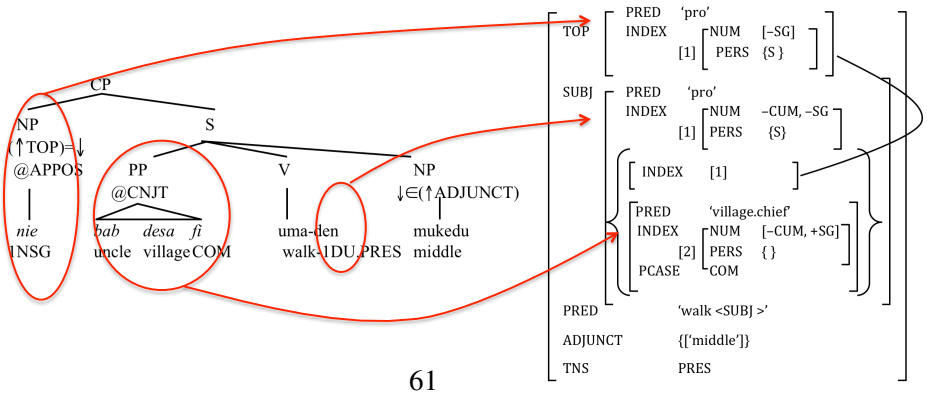
C-str and f-str of (21):



CC Type 2 is illustrated by sentence (22), which demonstrates an appositive relation of inclusory pronouns in the sentence. Its c-str and f-str representations are given in (23). The TOP NP *nie* can take the @APPOS option, and its index is also identified as the SUBJ (tag [1]) because its number value carries [–SG], and, therefore, it can unify with that of the dual SUBJ *-den* coming from the verb (carrying [–CUM, –SG]). Note that *nie* is underspecified, carrying no CUM feature in its entry, as it is usable for 'dual and plural'. The comitative PP 'the village head', as expected, can only have its contents as a subset of the value of SUBJ.

22 a. nie bab desa fi uma-den mukedu (= 10)
1NSG uncle village COM walk-1DU.PRES middle
'the village chief and I walk in the middle', or
'we (two) including the village chief walk in the middle'

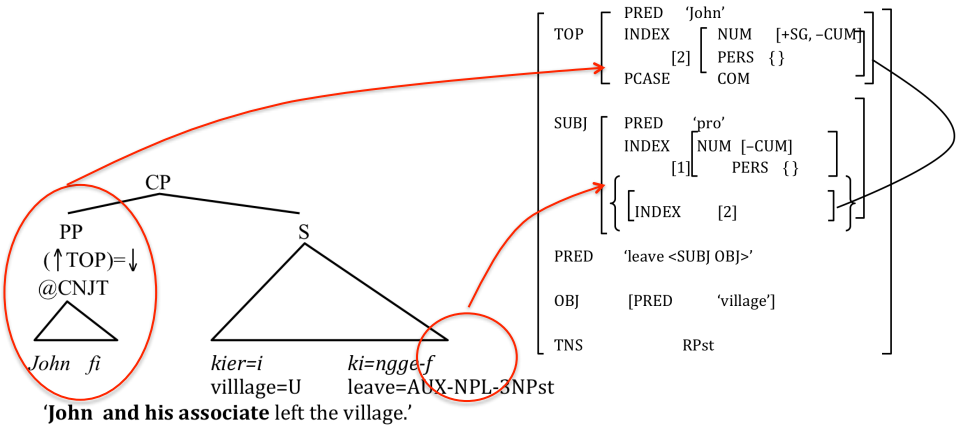
23 C-str and f-str of (22).



CC Type 3 can be accounted for straightforwardly. Consider the following example in (24), which results in a dual comitative-associative meaning. The c-str and f-str are shown in (25). The COM PP *John fi* can only have the conjunctive specifications, and its INDEX (tag [2]) is a subset of the SUBJ value. Given that its NUM value is [+SG] and that the inclusory SUBJ is [–CUM], then the plural reading (iii) is excluded because plural is [+CUM]. Further, reading (i) is also excluded as *fi* explicitly marks *John* as a companion member in a group/set together with another participant (see the conception in Figure 1):

24 John fi kier=i ki=ngge-∅-f (=11)
John COM village=U leave=3.AUX-3NPL-NPst.PF
i. * 'John left the village.'
ii. 'John and his associate left the village'/
'With John included, they (NPL/two) left the village.
iii. * 'John and his associates left the village.'

25 C-str and f-str of (24):



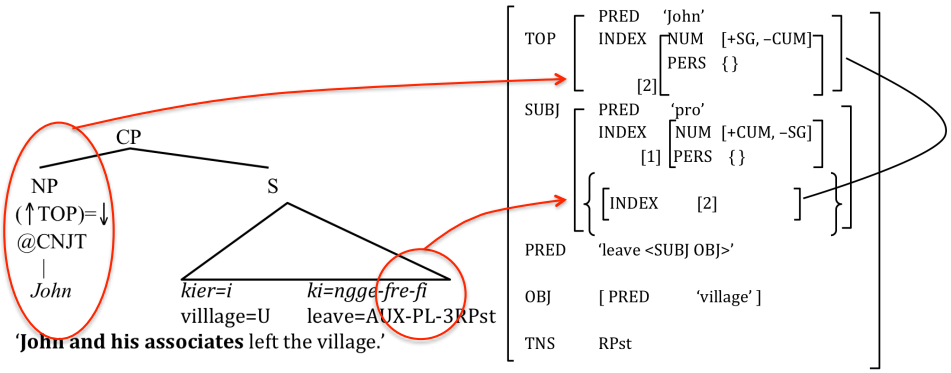
'**John and his associate** left the village.'

It should be noted that the inclusory-accompanee/associate meaning within a group is only implicit in the f-str representation in (25). It is clearly part of the constructed inclusory dual number in Marori. To be explicit, it is perhaps necessary to enrich the feature structure of (17) with [+/– GRP(group)] (cf. Jones [2015], building on work by Sadler [2011], Arka [2011, 2012] and Nordlinger [2012]). In this revised feature structure analysis, 'dual' would be represented as [–SG, –CUM, +GRP]. A discussion on the implications of adding [+/– GRP] to the currently adopted feature system of number is beyond the scope of this paper.

Recall that CC Type 4 is characterised by the absence of the *fi* flagging and the exploitation of incompatible number values. This type can also be nicely captured in the proposed analysis through the use of the @CNJT annotation. Consider (26), whose c-str and f-str are represented in (27). Note that while the NP can have either @CNJT or @APPOS, only @CNJT is applicable because @APPOS would result in a clash with the number value of *John* ([+SG]) and that of SUBJ, which carries [–SG]. As seen in (27), the @CNJT option results in *John* being interpreted as a member of the plural set ([+CUM, –SG]). It correctly captures the plural associative meaning that John's companion is not singular in number.

26 John kier=i ki=ngge-fre-fi
John village=U leave=AUX-PL-3RPst
i. * 'John left the village.'
ii. * 'John and his associate left the village.'
iii. 'John and his associates left the village.'

27 C-str and f-str of sentence (26).

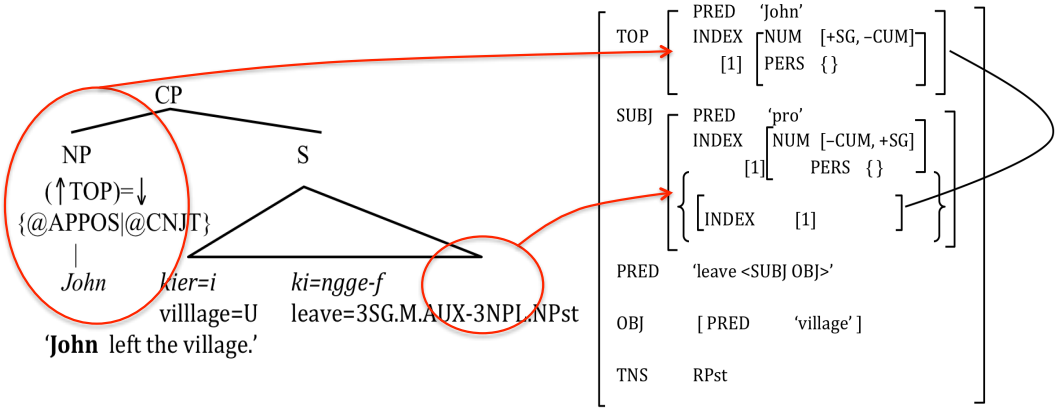


There is an issue with the non-comitative reading of the structure of the type exemplified in (28) that merits further discussion. The c-str and the f-str of the non-comitative reading, due to the application of the @APPOS associated with the NP (*John*), are shown in (29). This is straightforward, with the singular value ([+SG]) spreading and giving rise to reading (ii).

Reading (iii) is expected to be unacceptable because of the NPL value of the subject. However, reading (ii), which is expected to be acceptable, turns out to be unacceptable as well. Further, reading (ii) is expected to be acceptable if the @CNJT option is applied. Recall that this option is available for an NP, and it is indeed applicable, as seen in (26).

28 John kier=i ki=ngge-f
John village=U leave=3SG.M.AUX-3NPL.NPst.PF
i. 'John left the village.'
ii. ?* 'John and his associate left the village.
iii. * 'John and his associates left the village.'

29 C-str and f-str of sentence (28).



A close examination of the case in (28) reveals that the free NP and the SUBJ carry harmonious referential features: *John* comes with [PERS {}] and [NUM +SG, –CUM], and the verb comes with [NUM –CUM]. This is important, and I propose the presence of a preference constraint for agreement (in line with the elsewhere or Paninian rule). That is, agreement with harmonious features in Marori grammar is unmarked for which feature spreading (captured by @APPOS) applies, whereas the @CNJT application is a marked 'disharmonious' type of agreement. As we have seen, the overt marking of @CNJT is performed by *fi* in Marori. In other words, when the structure is unmarked and contains harmonious agreement features, then @APPOS applies. Otherwise, if it is flagged by *fi*, then @CNJT must apply, thus blocking @APPOS.

However, it should also be noted that @CNJT can apply without *fi* when the supposedly agreeing arguments carry disharmonious referential features. Evidence for this comes from data points shown in sentence (15), repeated here as (30):

30 Markus (fi) kuye-**den**
Markus COM sit.NPL.1DU.PRES
'With Markus, I am sitting.' or 'Markus and I are sitting together.'

As seen, the dependent argument *Markus* ([–CUM, +SG]) and the SUBJ pronoun *-den* ([–CUM, –SG]) are not harmonious in terms of the NUM feature. This 'disharmonious' agreement licenses the application of @CNJT to the dependent. Hence, the flagging by *fi* is optional, as shown by placing *fi* within brackets. That is, even if the NP *Markus* is without *fi*, it receives the conjunctive specifications, resulting in the comitative reading.

Finally, the comitative construction in Marori which makes use of verbal number can also be captured straightforwardly in LFG. The relevant example (16) is repeated here as (31). The verb 'bring/carry' shows a suppletive root alternation (*kei* ~ *ndV*), encoding the participant number of the undergoer, in combination with the pluractional suffix *–rV,* which encodes event plurality and may also encode the plurality of the actor participant.[5] The two give rise to the stem forms shown in (32).

31 fis [anep poyo=i sokodu] [kei-ben]
yesterday big.SG coconut=U one bring.NSG-1NPL.NrPST
'one big coconut, I carried it together with (an)other coconut(s)/thing(s)'

32

		ROOT ALTERNATION:	
PLURACTIONAL SUFFIX:		'bring.SG.U'	'bringNSG.U'
	NPL	(i) *ndV-∅*	(ii) *kei-∅*
	PL	(iii) *ndV-rV*	(iv) *kei-rV*

The different participant number requirements can be specified in the lexical entries of the roots, as shown in (33).

33 a. *ndV*
(↑PRED)= 'bring<SUBJ, OBJ>'
(↑OBJ INDEX NUM)= +SG

b. *kei*
(↑PRED)= 'bring<SUBJ, OBJ>'
(↑OBJ INDEX NUM)= –SG

As discussed earlier, all dependent argument NPs can have an alternative option of either @APPOS or @CNJT, thus the sentence (31) will have disharmonious referential features in its INDEX path. The @APPOS option would lead to a clash (i.e. unacceptable). The @CNJT option provides a way out, but it gives rise to a comitative heterogeneous plural reading. The f-structure is shown in (34). It should be noted that the nonsingular group reading of OBJ is underspecified; it is typically

[5] The notation *V*, in *ndV*- and *rV*, refers to a 'vowel' whose specific value is determined by vowel harmony, and it encodes gender and number inflection; see Arka (2011, in press) for details.

heterogeneous ‘plural’ rather than ‘dual’, but its interpretation is a matter of context.

34
$$\begin{bmatrix} \text{PRED} & \text{‘bring<SUBJ OBJ>’} \\ \text{SUBJ} & \begin{bmatrix} \text{PRED} & \text{‘pro’} \\ \text{INDEX} & \text{1NPL} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \text{INDEX} & [\text{NUM} \quad -\text{SG}] \\ & \left\{ \begin{bmatrix} \text{PRED} & \text{‘coconut’} \\ \text{INDEX} & [\text{NUM} +\text{SG}] \\ \text{SPEC} & \text{‘one’} \\ \text{ADJUNCT} & \{\text{‘big.SG’}\} \end{bmatrix} \right\} \end{bmatrix} \\ \text{ADJUNCT} & \{\text{‘yesterday’}\} \end{bmatrix}$$

4 Conclusion

This paper has discussed the number system in Marori with special reference to comitative constructions. The data points demonstrate how incompatible referential (NUM/PERS) features in Marori are acceptable and give rise to a comitative reading, strongly suggesting that agreement in this language is quite different from those in Indo-European languages, such as English. The Marori number system is morphosemantic in nature and not morphosyntactic as in English. It allows the exploitation of referential NUM/PERS resources to express rich nonsingular (i.e. ‘dual’ and ‘plural’) meanings, including those identified as ‘comitative-inclusory-associative’. This is particularly possible due to the distributive underspecified coding of number, which allows the so-called ‘constructed’ number in the Marori language (a salient feature that Marori shares with its neighbouring languages in southern New Guinea [Evans et al. 2017], such as Ngolmpu [Carroll 2016]).

It has been demonstrated in this paper that LFG is well equipped with the machinery to capture the intricacies of the Marori number system. The comitative constructions in Marori can be straightforwardly analysed in LFG by means of template call annotations on c-str. The template calls (@CNJT and @APPOS) capture the essence of their conjunctive and/or appositive properties. Further, the analysis accurately captures the intricacies of how nominal and verbal number interact in constructing comitative-inclusory meanings in this language.

More research is needed, however, to uncover the full extent of the interaction of nominal and verbal number in Marori within a typological context, as well as its theoretical significance. Marori, for example, has 'paucal' referring to a small group of entities in contrast to a big one (not discussed in this paper; see Arka [in press]). The full analysis of 'paucal' in Marori and its interaction with comitative meaning is beyond the scope of the present paper. It requires refinement of the proposed number feature decomposition given in (17). Such future research will ideally incorporate evidence from textual/corpus-based evidence.

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