

CONSTRUCTED MIDDLES IN MARORI:
AN LFG ANALYSIS

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Abstract

This paper discusses middles in Marori (Isolate, TNG; Indonesian Papua), contributing to the theoretical debate as to the best approach to middles. Marori data on middles shows that the valence and transitivity of a middle structure is constructed in both morphology and syntax. However, certain lexical properties of the predicate (e.g. inherent reflexivity) are important. It is demonstrated that LFG's parallel structure model is well suited to handle the properties of middles in Marori. Drawing insights from earlier LFG works on reflexives/reciprocals (Alsina 1996, Dalrymple et al. 1998, Rákosi 2008, Hurst 2010), a lexical-constructional analysis in LFG to account for the interface of morphology-syntax-semantics of middle expressions in Marori is proposed.

1 Introduction

The middle is part of a 'broad semantic-pragmatic domain including traditional voice categories and also semantic categories of transitivity and intransitivity' (Kemmer 1993).^{*} The middle is conceived as a compromise voice category displaying characteristics of both the active (i.e. notionally from the dynamic Agent-oriented standpoint) and the passive (i.e. from the nondynamic Patient-oriented perspective) (Klaiman 1991:3). Important cross-linguistic characteristics of middle constructions include, among other things, their intransitive syntax with meanings typically associated with 'reflexivity', 'reciprocity', and 'passivity' (i.e. where the subject/agent is also affected). In English middles like *These kinds of walls paint easily*, for example, the verb is 'active' but the syntax is intransitive with subject being patientive. Unlike English (which lacks a middle marker), other languages may have a specific marker for this, e.g. *se* in Spanish, or *ma-* in Balinese. Marori is unusual in that the middle is constructed; its marking is, as we see below, parasitic to the verbal agreement morphology.

Verbs typically in middle constructions are verbs of grooming or self-indulgence. The same is true for Marori. Consider the grooming verb of 'combing' given in (1).¹ As seen, the marking of the reflexive meaning

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¹ Abbreviations, alphabetically ordered: 1,2,3 (first, second and third person), A (Actor), AUX (auxiliary), CPLT (completive), D.AUX (dynamic auxiliary), DEIC (deictic), DUR (durative), F (feminine), FUT (future), HAB (habitual), LOC (locative), IRR (irrealis), MID (middle), NPL (nonplural), M (masculine), MP (macro present), NrPST (near past), O (object), P (Patient), PL (plural), POSS (possessive), PRES (present), Q (question marker), REAL (realis), RmPST (Remote Past), S (intransitive subject), STAT (stative), SG (singular), U (undergoer).

in the grooming verb is parasitic to the existing transitive morphology in this language. The prefix *i-* ‘1SG’ is the Undergoer (U)/object prefix and the suffix *-du* ‘1SG’ is the Actor (A)/subject suffix, encountered in highly transitive structures; see Tables 1 and 2.

- (1) na pu tpab i-ngg-ra-du.
 1SG hair comb 1SG.U-AUX-DUR-1SG.A.PRES
 ‘I am combing my own hair’
 (Lit. ‘I am doing (my own) hair combing.’)

The middle construction shown in (1) is one type, called Middle Type 1 or MID-1 for short. Marori has another type of middle construction, called Middle Type 2 (MID-2), featuring the invariant prefix *n-* in the U prefix slot. This is exemplified in (2).

- (2) pake=na tifa=n-ngg-ra-mon.
 there=1SG hide=MID-AUX-1SG.A.DUR.NrPST
 ‘I was hiding (myself) there.’

Constructions shown in (1) and (2) are middles as they meet cross-linguistic and language-specific properties of middles, distinct from main voice types such as the active, or other constructions such as reflexives (as Marori does have a reflexive construction, see (15)).

- (3) John na=i tirfa=ri-ngg-ra-m.
 John 1SG=U hide=1SG.U-AUX-DUR-3SG.A.NrPST
 ‘John hid me.’

The issues raised by middle constructions in Marori include the following. Firstly, what governs the distribution of the two middle types? Secondly, to what extent can LFG capture constraints associated with the two types? In particular, of great interest is the fact that MID-1 shows up with the verb *abon* ‘steal’, as seen in (4).

- (4) na=i (bosik=i) abon yu-nggo-ru.
 1SG=U pig=U steal 1SG.U-AUX-1SG.A.FUT
 ‘I will steal pigs.’

Sentence (4) has two intriguing properties. One property is the morphology-syntax transitivity mismatch. Note that the verb is morphologically intransitive. That is, it is in middle form with co-referential prefix and suffix. Hence the middle verb is an intransitive form, parasitically constructed through the transitive morphology. Syntactically, however, the verb is ambitransitive as it can appear in transitive syntax as seen by the possibility of it taking the object ‘the pig’.

The other, seemingly puzzling property is that the predicate *abon* ‘steal’ can have its subject flagged by the undergoer clitic =*i* discussed later in Section 3. Note that =*i* is not possible with agentive non-middle predicates, either transitive or intransitive, as shown in (5). The ungrammaticality of the flagging with =*i* is indicated by putting the star (*) inside the brackets, i.e. (*=*i*).

- (5) a. Albert(*=*i*) na=*i* turpar=**i**-ngg-ra.
Albert=U 1SG=U kick=1SG.U-AUX-3.A.DUR.PRES
 ‘Albert (often) kicks me’
- b. na(*=*i*)fis kund-ra-mon.
 1SG(=U) yesterday run-DUR-1NPL.A.NrPST
 ‘I was running yesterday.’

The morphosyntax of Marori middles with the peculiarities briefly illustrated above is further discussed in a precise way within LFG in the ensuing sub-sections. The paper is organised as follows. In section 2, an overview of Marori morphosyntax is given. In section 3, the proposed analysis in LFG is outlined, consisting of the specifications of lexical entries and the formulation of Paradigm Function (PF) rules incorporating mechanism from (G)PFM (Generalised Paradigm Function Morphology) (Stump 2001, Spencer 2010, 2013) to handle Morphology-Syntax-semantics interface issues in middle constructions. In the last section, final remarks are provided regarding the implication of the present study.

2 Types of Marori Middles and their morphosyntax

2.1 Marori clausal structure

Marori is a non-configurational verb-final language, depicted in (6). The verbal predicative complex typically consists of a lexical predicate (X), immediately followed by a light/auxiliary verb (V), inflected for tense, aspect and mood (TAM). Certain lexical items of high frequency such as ‘run’ and ‘walk’ are directly affixed with TAM morphology. This TAM morphology is also for subject agreement. The TAM (subject) suffix sets are classified into two on the basis of aspectual properties; see Tables 1-2. Since middle marking makes use of these suffix sets, TAM meaning is also relevant to the discussion of middles in Marori (cf. section 3).

- (6) NP*(=*i*) , X V
 ARG(=U) LEXICAL PRED (inflected)

	(1a)			(1b)			(1c)		
	IRR/FUT			NrPST (Completive)			RmPST (Completive)		
	1	2	3	1	2	3	1	2	3
SG	-ru	-∅	-∅	-ben	-f	-f	-fori	-fi	-fi
DU	-ren	n-∅	-∅	-ben	n- -f	-f	-fori	n- -fi	-fi
PL	-men	n-(ri)m	-(ri)m	-freben	n- -(fre)f	(fre)f	-mbrofori	-mbrofi	mbrofi
									-frendu

Table 1: Class 1 Argument suffixes in Marori

	(2a)			(2b)			(2c)		
	REAL/MacroPRES (Completive/extended)			NrPST (Durative)			RmPST (Durative)		
	1	2	3	1	2	3	1	2	3
SG	-du	-∅	-∅	-men	-m	-m	-maf	-maf	-maf
DU	-den	n-∅	-∅	-men	n- -m	-m	-maf	n- -maf	-maf
PL	-men	n-∅	-∅	-ben	n- -b/-m	-b/-im	-baf	n- -baf	-baf

Table 2: Class 2 Argument suffixes in Marori

The Undergoer NP receives the U =i enclitic flagging, and is cross-referenced by the U prefix. The U prefix and the corresponding free pronouns are given in Table 3:

		1	2	3
Free Pronoun:	SG	na	ka	efi
	NSG	nie	kie	emnde
U Pref:		i- ²	k-	∅-

Table 3: Free pronouns and S/O prefixes in Marori

2.2 Voice alternations

SUBJ and OBJ are relevant grammatical relations in Marori, distinct from semantic roles. Evidence for this comes from active-middle voice alternations in Marori. Consider the alternation in the following examples:

² In the intervocalic position *i-* becomes *ri-* (i.e. having an *r-* insertion), e.g. *ti=i-nggof* ‘hide=1SG-AUX.NrPST’ → *ti=ri-nggof*. In other phonological context, e.g. in the word-initial position it can appear as *y-*, and both *i-* and *y-* are equally acceptable, e.g. *yu-ngg-obon* / *i-ngg-obon* ‘1SG-AUX-1NPL.NrPST’.

- (7) a. tege famndu mundwe=mi-du dwet=i.
fast very spin=3SG.M.U.AUX-1SG.A.PRES money=U
‘I spin the coin very fast.’ (ACTIVE)
- b. tege famndu mundwa=n=ma-m dwet.
fast very spin=MID-AUX-3NPL.A.NrPST money
‘The coin was spinning fast.’ (MIDDLE)

Sentence (7a) represents the Active Transitive Voice, or Active for short, to be contrasted with Middle (7b) and Impersonal Active discussed below; cf. example (8). In the Active structure, the A argument is SUBJ and referential; this is realised by the verbal suffix *-du* in (7a). and referential. The patient argument (i.e., *dwet* ‘coin’) is OBJ. It receives the U 3.SG.M agreement on the verb (with the high vowel *i/e*) and it is flagged by the U clitic *=i*.

In the Middle structure in (7b), in contrast, there is no A argument present. The structure is morpho-syntactically intransitive. The NP *dwet* now shows up as the sole SUBJ argument, receiving the SUBJ suffix agreement *-m* and, crucially, no *=i* flagging.

Marori has no passive voice. The situation that requires a passive in other languages (e.g., an affected participant with an unknown agent) is expressed by either the (patientive) Middle or Impersonal Active construction. Consider this example of Impersonal Active construction:

- (8) [Context: a boy who grabbed the horns of a deer, mistakenly thinking them as branches of a tree, and then was caught in between the horns.]
mbe sakud pende-fi tanduk rusa saune-fi.
exist hang 3SG.M.U.AUX-3A.RPST horn deer 3SG.M.put-3RPST
‘...he got/was caught hanging, placed in between the deer horns.’

The understood patient argument in (8) is only expressed by the verbal U agreement morphology glossed as ‘3SG.M’. The verbal morphology is active in that it shows the third person A portmanteau suffix *-fi*. This suffix refers to no A participant in the context as seen from the translation. It is non-referential, having no argument linked to it at the level of argument structure. Its presence in the verbal morphology is primarily for TAM purposes. The analysis adopted in this paper for the case of Impersonal Active is that it is syntactically intransitive despite its active transitive morphology (with the third person A suffix). This is an instance of a mismatch between morphology and syntax, an issue further discussed in section 3.

2.3 Two types of middle constructions

The two types of middle constructions in Marori, MID-1 and MID-2, have their own properties, further elaborated in 2.3.1 and 2.3.2. They share the salient property, in contrast to the Active structure, of being morphologically intransitive, with SUBJ being the only argument indexed on the verb. Syntactically, however, a middle construction can be transitive: it comes with OBJ not indexed on the verb but possibly flagged with the U clitic =*i*. Middles in Marori also share cross-linguistically known properties of middles (Kemmer 1993); e.g. associated with inherently self-directed events (i.e. with an affected subject).

Which middle type a predicate can take is semantically determined in Marori. The broad pattern is this: verbs depicting inherently self-directed one-participant events such as *syepud* ‘bathe’ and *tpab* ‘comb’ and also psychological verbs such as *kamaen* ‘angry’ take MID-1; verbs whose affectedness is typically not self-oriented, canonically involving two-participants such as *tV-* ‘hide’ and *komow* ‘wait’, take MID-2.

2.3.1 Type 1 Middle (MID-1)

MID-1 in Marori is characterised by its AUX root form being *nggV*, and by its full constructed morphology, parasitic to the transitive U and A affixes. MID-1 can be schematised as follows:

- (9) Type 1 NP X:PREDS PREF:U_{*i*} – AUX:*nggV* – SUFF:A_{*i*}
-

Verbs in MID-1 include verbs that express self-indulgence, self-instigation, dynamic (psychological) states, reflexivity and reciprocity. Each of these is now exemplified.

Self-indulgence verbs include verbs such as *eni* ‘play’ and *ubun* ‘camp’. The following are from a natural text in Marori, where the subject is realised by the coreferential U prefix and A suffix (in bold):

- (10) sudah me kunonnjon, mbe sesei **yu-nggo-bon.**
 already want go.home.PST exist work 1SG.U-AUX-1NPL.A.NrPST
 ‘after I went home, I did some work.’ (AWMarkus)

Verbs depicting self-instigation can be unergative (i.e. agentive), e.g. *syepud* ‘dive, bathe’ and *fedfed* ‘squat’, or possibly non-agentive, e.g. *kibib* ‘roll’. They can be expressed in MID-1 structures:

- (11) na fedfed yu-ngg-ra-du.
 1SG squat 1SG.U-AUX-DUR-1SG.A.PRES
 ‘I am squatting.’

Note that certain unergative verbs such as ‘run’ (e.g., *kundo-ru* ‘run-1SG.FUT’) are not expressed in middle morphology but in suffixing morphology. Thus there is some lexical idiosyncrasy in the classification of verbs into middles.

Dynamic (psychological) states such as *nggerngger* ‘forget’, *kamaen* ‘angry’ and *sira* ‘afraid’ belong to MID-1 too. Examples:

- (12) a. na=i John=i nggerngger yu-ngg-obon.
 1SG John=U forget 1SG.U-AUX-1NPL.A.NrPST
 ‘I forget John.’
 b. pa=na kamae =yu-nggo-ru.
 soon-1SG angry=1SG.U-AUX.NPL -1SG.A.FUT
 ‘I’ll be angry.’

Verbs of grooming such as *tpab* ‘comb’ are in the middle. These verbs carry a reflexive or reciprocal meaning. The reciprocal meaning is imposed by the adverbial *endre-endre* ‘in turn’, without which the sentence would be ambiguous, with the other meaning being reflexive, ‘we two combed our own hair’.

- (13) na keke syepud i-ngg-ra-mon.
 1SG there bath 1SG.U-AUX-DUR-1.A.NrPST
 ‘I bathed (myself) (by diving) there.’
 (14) nie endre-endre fa pu yar-nggwa-ra-den. cf. (1)
 1NSG in.turn-REDUP with hair 1NSG.U-AUX-DUR-1DU.A.PRES
 ‘We are two combing each other’s hair.’

(15)	Singular		Plural	
PERS:	Free pron	Refl.	Free pron	Refl
1	<i>na</i>	<i>namndu</i>	<i>nie</i>	<i>ninamndu</i>
2	<i>ka</i>	<i>kanamndu</i>	<i>kie</i>	<i>kinamndu</i>
3	<i>efi</i>	<i>ninamdu</i>	<i>emnde</i>	<i>anamndu</i>

Note that Marori has a distinct analytic reflexive construction making use of possessive reflexives shown in (15). An example is given in (16) which shows that the reflexive object is treated as a third person pronoun, as evidenced from the fact that it receives a third person object agreement in the form of zero prefix and low vowel /a/ glossed as ‘3SG’. (The first person U would have the prefix *i-* before the AUX *ma*, but is

unacceptable for the reflexive structure in (16).) As seen, the complex reflexive pronoun contains the noun head *mei* (literary meaning) ‘body’.

- (16) na namndu mei=i kaswa=ma-du.
 1SG 1.REFL body=U 3SG.U.hit.PL=AUX-1SG.A.PRES
 ‘I hit myself (Lit. I hit my own body).’

2.3.2 Type 2 Middle (MID-2)

Type 2 Middle whose construction is depicted in (17) has the following properties: i) the invariant prefix *n-* (instead of the inflected U prefix as in MID-1) in addition to the inflecting A suffix; ii) the AUX root varies depending on the lexical predicate (cf. the invariant root *nggV* for MID-1); and iii) the lexical predicate can be directly in MID-2 morphology. Each of these properties are exemplified below.

- (17) Type 2: NP X:Pred Pref:*n_i* – AUX – SUFF:A_*i*

Consider the examples in (18) with the verb *komow* ‘wait’, which takes the auxiliary *mV*. Sentences (a) and (b) are intransitive in MID-2 structure with the invariant prefix *n-* and the inflecting A suffix (*-du/-den*) showing agreement with the subject. Sentence (c) is a transitive non-middle structure with the object being *ka* ‘2SG’ receiving the U clitic *=i* and the verbal agreement *k-*.

- (18) a. keke di=na komow n-ma-du.
 here soon=1SG wait MID-AUX-1SG.A.PRES
 ‘I just wait here.’
- b. keke di=nie komow n-ma-den.
 here soon=1NSG wait MID-AUX-1.DU.A.PRES
 ‘We two just wait here.’
- c. John nggowke ka=i komow k-ma.
 John there 2SG=U wait 2SG.U-AUX.3NPL.A.PRES
 ‘John waits for you there’

Sentences (19) exemplify the verb ‘hide’ which take the AUX *nggV*. Sentence (a) is intransitive middle with *n-* (i.e., MID-2) and reflexive meaning whereas the other two are active transitive with the verbs showing different U prefixes in agreement with the U NPs (*na* and *Tini*) marked by *=i*.

- (19) a. na ti=n-nggo-bon. (MID-2 INTR.)
 1SG hide-MID-AUX-1SG.A.NrPST
 ‘I hid (myself).’
- b. John na=i ti=ri-nggo-f. (ACTIVE TRANS.)
 John 1SG=U hide=1SG.U-AUX-3.A.NrPST
 ‘John hid me.’
- c. Maria Tini=i ti=nggo-f. (ACTIVE TRANS.)
 Maria Tini=U hide-3.U-AUX-3.A.NPL.NrPST
 ‘Maria hid Tini.’

The verb *tŷyV* ‘meet, see’ exemplifies the verb class that requires no inflected AUX and can appear in MID-2 structure. The verb appears in its transitive structure in (20a) with the masculine third person object Thomas. The verb agreement is reflected in the vowel *e*. The verb appears in intransitive MID-2 structure in (20b), with the subject being a coordinate NP with *fi*.

- (20) a. na Thomas=i tefye-ben. (ACTIVE TRANS.)
 1SG Thomas=U tŷy.e-ben
 meet.3SG.M-1NPL.A.NrPST
 ‘I met Thomas.’
- b. na Thomas fi tafanjabon. (MIDDLE INTR.)
 1SG Thomas and tŷy.a-n-bon
 3.meet-MID-1NPL.A.NrPST
 ‘Thomas and I met (with each other).’

3 LFG analysis

The parallel nature of the LFG model can nicely capture the intricacy of middle constructions in Marori, e.g. the intriguing case of middle in relation to the predicate *abon* ‘steal’, cf. example (40). The components of the proposed analysis consist of the nature of lexical entries, the specification of the verbal morphology and the morphology-syntax-semantic interface. Each will be outlined briefly below.

3.1 Lexical entries

Specifications in lexical entries in LFG make it possible to capture the following lexical constraints of Marori middle morphosyntax: a) the syntactic valence type, e.g. whether a predicate can appear in Type 1 or Type 2 Middle and b) the AUX selection by the lexical predicate, or the absence of it. Together with the c-str specification, we can also capture

the ultimate constructed transitivity of the predicate, e.g. morphologically middle-intransitive but syntactically transitive.

Consider the proposed sample entries for *ti* ‘hide’ and *eni* ‘play’ given in (21). They look the same in terms of argument structure: the patient argument is optional; i.e. allowing it to appear in transitive and intransitive syntax.³ The selected AUX is also the same, namely *ngg*.

- | | |
|-------------------------------|-----------------------------|
| (21) a. <i>ti</i> | b. <i>eni</i> |
| (↑PRED)= ‘hide<A:agt, (P)>’ | (↑PRED)= ‘play<A:agt, (P)>’ |
| (↑AUX-FORM)=c <i>ngg</i> | (↑AUX-FORM)=c <i>ngg</i> |
| (↑VAL-TYPE)= {MID-2 ACTIVE} | (↑VAL-TYPE)= MID-1 |

They significantly differ in the VAL-TYPE specifications, however. The predicate *ti* ‘hide’ allows a MID-2 and ACTIVE alternation (cf. example (19)) whereas *eni* ‘play’ is strictly of MID-TYPE 1. The predicate *eni* allows a transitive syntax but it must still have its verb in intransitive middle morphology, as shown in (22). This is different from *ti* ‘hide’ shown in (19b-c), where the transitive syntax also requires transitive morphology; i.e. the U prefix and A prefix must be referentially different.

- (22) *eni* (bola=i) *yu-ngg-ra-du*.
 play ball=U 1SG-AUX-DUR-1SG.PRES
 ‘I am playing (football).’

The presence of the referentially distinct A and U triggers different valence structures and voice types for different verbs. For example, it requires the ACTIVE voice for the predicate *ti* ‘hide’ (cf. example (19b)) but it requires the MID-1 voice for *eni* ‘play’ as shown in (22).

Nevertheless, in both cases, the syntax is transitive: both A and P arguments in these two sentences are mapped onto SUBJ and OBJ respectively. Assuming a version of a-str and f-str mapping in LFG where linking is regulated by prominence matching of arguments (Arka 2003),⁴ we can have the grammatical function mapping shown in (23) for the two sentences. The precise nature of the a-str of MID-1 reflecting the semantics of the middle voice will be further discussed below.

³ In the interest of limited space, the valency in its various forms (semantic, a-str and f-str) is given in a representation that does not fully comply with the standard LFG formalism, e.g. an optionality of P is shown as (P) rather than a disjunction.

⁴ I assume a version of argument structure as described in Manning (1996) showing thematic prominence as well as syntactic prominence of coreness/obliqueness. The notations of A, R, and P/T reflect this information: A, R, and P/T are Actor, Recipient/Goal and Patient/Theme (macro-)roles respectively, ordered in that way.

- (23) a. Active Transitive Construction, (19b):
- | | | |
|--|-----------------|-------|
| | SUBJ | OBJ |
| | | |
| | ‘ACTIVE.hide <A | P >’ |
| | ‘John’ | ‘1SG’ |
- b. Middle Transitive Construction, (22):
- | | | |
|--|----------------|--------|
| | SUBJ | OBJ |
| | | |
| | ‘MID-1.play <A | P >’ |
| | ‘1SG’ | ‘ball’ |

3.2 Verbal Morphology and function mapping.

I adopt a GPFM model (Stump 2001, Spencer 2010, 2013), where morphology with its M(orphological)-features is an autonomous module separate from syntax and semantics. The GPFM allows us to explicitly capture certain constraints of the complex interface between morphology-semantics-syntax, by means of different kinds of function mapping.

In this model, the transitive A and U agreement morphology carries M-features. For example, *i-* of *iX* has the paradigm function (PF) mapping shown in (24a), abbreviated in (24b). This says that, given the input with the stem/lexeme *X* and a set of M-features $\sigma:\{\text{[ROLE:U]}, \text{[PERS:1]}, \text{[NUM:sg]}\}$, the form *iX* is generated (with those relevant features) by the morphological system. Likewise, the forms *Xdu* and *Xru* are generated given the set of input features shown in (24c) and (24d) respectively. Note that there are additional TAM features $\{\text{pres}\}/\{\text{fut}\}$ with these forms.

- (24) a. $\text{PF}(\langle X, \sigma:\{\text{[ROLE:U]}, \text{[PERS:1]}, \text{[NUM:sg]}\}\rangle) = \langle iX, \sigma' \rangle$
 b. $\text{PF}(\langle X, \sigma:\{\text{U.1.sg}\}\rangle) = \langle iX, \sigma' \rangle$
 c. $\text{PF}(\langle X, \sigma:\{\text{A.1.sg dur pres}\}\rangle) = \langle Xdu, \sigma' \rangle$
 d. $\text{PF}(\langle X, \sigma:\{\text{A.1.sg fut}\}\rangle) = \langle Xru, \sigma' \rangle$

The general morphology-syntax interface showing the morpho-syntactic constraints of ACTIVE and MID-1/MID-2 so far discussed can be captured as a PF mapping from morphology to syntax in a straightforward way, as shown in (25). The representation in (25a) says that the $\text{PF}_{\text{ACTIVE}}$ has the input of A and U M-features with disjoint referential index, which are mapped onto a transitive valence structure. In contrast, the $\text{PF}_{\text{MID-1}}$ (b) has co-referential A and U and maps them to SUBJ. This captures the fact that the MID-1 verb is morphologically intransitive, though fully parasitic to the transitive morphology. $\text{PF}_{\text{MID-2}}$ is different from like $\text{PF}_{\text{MID-1}}$ in having an invariant *n-*.

(25) VOICE TYPES AND MORPHOSYNTACTIC MAPPING IN MARORI:

i or *j* is an abbreviated index of a set of referential

M-features {[PERS], [NUM], [GEND]}

y/z in *yXz* is a variant exponent depending on PERS, NUM & PERS

n in *nX* is an invariant *n*- exponent

MORPHOLOGY:

SYNTAX:

$$a. \text{PF}_{\text{ACTIVE}}(\langle X, \sigma:\{A.i \ U.j\} \dots \rangle) = \langle yXz, \sigma:\{(\uparrow\text{SUBJ}).i \ (\uparrow\text{OBJ}).j \ \dots\} \rangle$$

$$b. \text{PF}_{\text{MID-1}}(\langle X, \sigma:\{A.i \ U.i \ \dots\} \rangle) = \langle yXz, \sigma:\{(\uparrow\text{SUBJ}).i \ \dots\} \rangle$$

$$c. \text{PF}_{\text{MID-2}}(\langle X, \sigma:\{A.i \ U.i \ \dots\} \rangle) = \langle nX, \sigma:\{(\uparrow\text{SUBJ}).i \ \dots\} \rangle$$

The notation *y* or *z* refers to the inflecting prefixal or suffixal exponent in *yXz*. The $\text{PF}_{\text{MID-1}}$ mapping in (26) illustrates the case where *y* and *z* are coreferential exponents associated with the root $X=\text{ngg}V$. This shows the input-output process generating the form **youngobon** in morphology. With the same input, the $\text{PF}_{\text{GF.MID-1}}$ mapping generates the associated set of functional equations shown in (27).

$$(26) \text{PF}_{\text{MID-1}}(\langle \text{ngg}V, \sigma:\{A.[1.\text{sg}]i \ U.i \ \text{NrPST NonDur}\} \rangle) = \textit{input}$$

$$\langle \textit{youngobon}, \sigma':\{A.[1.\text{sg}]i \ U.i \ \text{NrPST NonDur}\} \rangle = \textit{output}$$

$$(27) \text{PF}_{\text{GF.MID-1}}(\langle \text{ngg}V, \sigma:\{A.[1.\text{sg}]i \ U.i \ \text{NrPST NonDur}\} \rangle) = \textit{input}$$

$$\langle \textit{youngobon}, \sigma':\{(\uparrow\text{SUBJ})=i \ (\uparrow\text{TNS})=\text{NrPST} \ (\uparrow\text{ASP})=\text{NonDur}\} \rangle = \textit{output}$$

The next part of the analysis deals with the morphology-semantics interface to capture the marking and semantics of the middle. I propose that the middle M-features be mapped to the semantic structures reflecting at least three (cross-linguistically) common types of middle meanings, also reflected in the argument-structure. The three common meaning types of middles and their associated linking are shown in (28): (a) ‘actions done for the joy/benefit of the doer’, (b) ‘self-affectedness/instigated action’ (which covers reflexive and reciprocal meanings), and (c) P(atientive) orientation. I assume a model of semantic conceptual structure similar to that described in Jackendoff (1990).⁵

The notation $[A=R]i$ and $[A=P]i$ in (28) represents argument conflation (or ‘argument unification’) (cf. Rákosi 2008, Hurst 2010)⁶

⁵ It remains to be worked out, however, how precisely the assumed conceptual structure is to be hooked up to the standard LFG architecture; see Butt (1995) for such a proposal, and also Schätzle and Butt (2015) for a linking schema for a middle based on Kibort (2013; 2014).

⁶ The analysis here draws from work on reciprocals by Alisa (1996), Rákosi (2008) and Hurst (2010). However, instead of using Dowty’s analysis of proto roles ($[P-A][P-P]$), I

where A, R and P are Actor-like arguments, Recipient-like arguments (including goal), and Patient-like arguments respectively. The index (*i*) shows argument identification and linking. For example, the most prominent argument in the a-str, [A=R] in (28a) is understood as ‘affector’ (i.e. the first argument of AFFECT), also the recipient (i.e. argument of FOR).

- (28) a) SELF-INDULGENCE/BENEFIT b) SELF-AFFECTEDNESS
‘PRED <[A=R]*i*, ...>’ ‘PRED<[A=P]*i*>’ (*a-str*)
[AFFECT([*i*],[*j*]) FOR(*i*)] [AFFECT([*i*],[*i*]) (*sem-str*)
- c) P-ORIENTATION
‘PRED<[P]*i* >’ (*a-str*)
[AFFECT([],[*i*]) (*sem-str*)

Given (28), the PF that regulates the morphology-semantic interface, e.g. for the inflected middle form *unggobon* (i.e. ‘self-indulgence’ middle), can be formulated in (29). For simplicity, only the output in the a-str is given here. The simultaneous effect of the operations of the PFs shown in (26), (27) and (29) is the generation of the middle AUX form *unggobon* shown in (30) that comes with the f-str and a-str mapping constraint associated with the argument (index *i*) as well as other f-str specifications such as TNS and ASP.⁷

$$(29) \text{PF}_{\text{SEM.MID-1}}(\langle \text{ngg}V, \sigma:\{A.[1.\text{sg}]i \text{ U.}i \text{ NrPST NonDur}\} \rangle) = \text{(input)}$$

$$\langle \text{unggobon}, \sigma':\{[A=R]i \} \rangle \text{(a-str output)}$$

$$(30) \text{FORM:} \quad \text{F-STR:} \quad \text{A-STR:}$$

$$\text{unggobon} \quad (\uparrow \text{SUBJ})= '1.\text{sg}'_i \quad ' \text{PRED} \langle [A=R]_i \dots \rangle '$$

$$(\uparrow \text{TNS})=\text{NrPST}$$

$$(\uparrow \text{ASP})=\text{NonDur}$$

When *unggobon* combines with the predicate *sesei* ‘work’ as (10), whose argument structure is shown in (31), we get the f-str shown in (31b). The representation of ‘work<(SUBJ:[A=R])>’ in the f-str is a shorthand for the mapping of SUBJ and its [A=R] role, as the output of the

use generalised roles of A, R, and P commonly used by typologists (e.g., Haspelmath 2007) to capture a wider set of meanings of middles that include SELF-INDULGENCE/BENEFIT represented by [A=R]. The category of SELF-INDULGENCE/BENEFIT is roughly equivalent to what Kaufmann (2007) calls ‘indirect reflexive’. However, I keep my category of self-indulgence to accommodate verbs such as *sesei* ‘work’ and *eni* ‘play’, which have no clear reflexive meaning.

⁷ The representation such as ‘3.sg’ abbreviates the standard equations in LFG such as (↑PERS)=3 and (↑NUM)=sg.

PF operations shown in (30). In short, we can capture the fact that, taken all together, the subtle meaning of *sesei yunggobon* (10) is actually ‘I worked for the benefit of myself.’

- (31) a. *sesei* (↑PRED) = ‘work<A:agt>
 (↑AUX-FORM)=c *ngg*
 (↑VAL-TYPE)= MID-1
- b. *sesei yunggobon* $\left[\begin{array}{ll} \text{PRED} & \text{‘work<(SUBJ)}_{[A=R]} \text{’} \\ \text{SUBJ} & \text{‘1.sg’} \\ \text{AUX-FORM} & \text{ngg} \\ \text{VAL-TYPE} & \text{MID-1} \\ \text{TNS} & \text{NrPST} \\ \text{ASP} & \text{NonDur} \end{array} \right]$

The analysis of structures that involve MID-2 can be done in the same way. The middle verb form to be generated is *nX*, and the semantics is typically of the self-affectedness/self-instigation type (largely with reflexive or reciprocal meaning) type (cf. (28b)). The PF rules for MID-2 can be formulated as in (32)-(34) below. Note that [A=P] in (34) is shorthand of the a-str/sem-str specifications shown in (28b).

- (32) $\text{PF}_{\text{MID-2}}(\langle X, \sigma:\{A.i \ U.i \ \dots\} \rangle) =$ (input)
 $\langle nX, \sigma:\{A.i \ U.i \ \dots\} \rangle$ (output, morphology)
- (33) $\text{PF}_{\text{GF.MID-2}}(\langle X, \sigma:\{A.i \ U.i \ \dots\} \rangle) =$ (input)
 $\langle nX, \sigma':\{(\uparrow\text{SUBJ})=i \ \dots\} \rangle$ (output, syntax)
- (34) $\text{PF}_{\text{SEM.MID-2}}(\langle X, \sigma:\{A.i \ U.i \ \dots\} \rangle) =$ (input)
 $\langle nX, \sigma':\{[A=P]i \} \rangle$ (output: a-str/sem-str)

The rules correctly capture the salient property of MID-2: it results in an intransitive syntax because the A and P argument of the lexical predicate are conflated (34), and mapped onto SUBJ as in (33). For example, the predicate *pV* ‘shave’ must take *tnem* ‘beard’ as part of its predicate modification, and the P argument, *John*, is also understood as the possessor of *tnem*.

- (35) a. John=i na tmem=pi-men. (ACTIVE TRANS.)
 John=U 1SG beard=3SG.M.U.shave-1SG.A.DUR.NrPST
 ‘I shaved John (Lit. I beard-shaved John).’
- b. John tmem=nafram. (MID-2 INTRANS.)
 John tmem=n-pa-ra-m
 beard=MID-shave-DUR-3NPL.A.NrPST
 ‘John was shaving (himself/his own beard).’

- c. * John na=i tmem=nafram. (MID-2 TRANS.)
 FOR: John was shaving me.’ (cf. (35))

Two crucial properties should be noted from (35). Firstly, the agreement pattern provides evidence that the active-middle alternation (35a-b) involves a change in grammatical relation: the vowel of the predicate *pV* is inflected to become a high vowel /i/ showing the U/object M gender agreement in sentence (35). In the MID-2 form in sentence (b), in contrast, the vowel of the verb is /a/; i.e. a low vowel for non-3.SG.M argument if the argument is grammatically object. The fact that the masculine NP John can appear with the verb with /a/ means that this NP is not an object; in other words, sentence (b) is grammatically intransitive.

Secondly, the noun *tmem* in (35) is not a syntactic P/object. It is part of the predicate. Evidence for this comes from the fact shown in sentence (35a) where an overt object NP (*John*) is present. This object is referentially distinct from the subject; or else if there is no object as in sentence (35b) MID-2 must be used. Furthermore, MID-2 cannot have an overt object NP that is referentially distinct from the subject, as seen from the ungrammaticality of (35c).

The rules that generate MID-2 *nafram* with the associated properties are shown in (36)-(37). The lexemic root of *pV* ‘shave’ can be thought of as having the basic lexically-specified a-str information of (\uparrow PRED) = ‘shave<A P>’. It is also specified that it belongs to the MID-2 verb class.

$$(36) \text{PF}_{\text{GF.MID-2}}(\langle pV, \sigma: \{A[3.NPL].i \ U.i \} \text{NrPst Dur Mid-2} \rangle) = \\
 \langle nafram, \sigma': \{(\uparrow \text{SUBJ})=[3.NPL].i \ (\uparrow \text{TNS})=\text{NrPST} \\
 (\uparrow \text{ASP})=\text{Dur} \ (\uparrow \text{VAL-TYPE})=\text{MID-2} \} \rangle$$

$$(37) \text{PF}_{\text{SEM.MID-2}}(\langle pV, \sigma: \{A[3.NPL].i \ U.i \} \text{NrPst Dur Mid-2} \rangle) = \\
 \langle nafram, \sigma': \{[A=P]i \} \rangle$$

Taken together, the PF rules (36)-(37) generate the form *nafram*, and a set of f-str/a-str information shown in (38). The system then correctly generates an intransitive structure where SUBJ is understood as both Agent and Patient, shown by the index *i*. The set of equations can then be part of the larger f-str information, e.g. of sentence (35b), shown in (39).

After outlining the proposed morphology-syntax-semantics interface of middle constructions in Marori, we are now ready to tackle what seems to be puzzling (at first) for the verb like *abon* ‘steal’ in Marori as seen in the following examples. Both sentences belong to MID-1, with the same middle form *yunggoru*. The syntax is different, however: intransitive (a)

vs. transitive (b). The A SUBJ *na* in both cases can also be flagged with the U clitic =*i*, even though it is not patientive.

- (38) FORM: F-STR: A-STR:
nafram (↑PRED) ‘shave<(↑SUBJ)*i* > ‘shave<[A=P]*i* >
 (↑SUBJ PERS)=3
 (↑SUBJ NUM)=NPL
 (↑TNS)=NrPST
 (↑ASP)=Dur
 (↑VAL-TYPE)= MID-2

(39) F-str for sentence (35b):

PRED	‘beard.shave<(SUBJ) _{A=P} >’				
SUBJ	<table style="border-collapse: collapse; border-left: 1px solid black; border-right: 1px solid black;"> <tr> <td style="padding: 5px;">PRED ‘John’</td> </tr> <tr> <td style="padding: 5px;">PERS 3</td> </tr> <tr> <td style="padding: 5px;">NUM NPL</td> </tr> <tr> <td style="padding: 5px;">NrPST</td> </tr> </table>	PRED ‘John’	PERS 3	NUM NPL	NrPST
PRED ‘John’					
PERS 3					
NUM NPL					
NrPST					
TNS	NrPST				
ASP	Dur				
VAL-TYPE	MID-2				

- (40) a. *na=i abon di=yu-nggo-ru.* (INTRANS. MID-1)
 1SG=U steal FUT=1SG.U-AUX-1SG.A.FUT
 ‘I will steal (something).’
- b. *na=i bosik=i abon yu-nggo-ru.* (TRANS. MID-1)
 1SG=U pig=U steal 1SG.U-AUX-1SG.A.FUT
 ‘I will steal pigs.’

The analysis in this paper is that *abon* ‘steal’ is of the ‘self-benefit’ type of middle predicate, whose basic argument structure is shown in (41). It says that *abon* ‘steal’ is a three-place predicate, as shown in an informal way in its sem-str in (41). Its a-str shows that *abon* is inherently middle of the self-benefit type, captured by the conflated [A=R] role specification (cf. (28a)). In addition, it is also specified that it belongs to the MID-1 class and that the thing stolen (P) is not required to be present as seen in (40); hence P is placed within brackets.

- (41) FORM: F-STR: A-STR:
abon {(↑PRED)= ‘steal<(↑SUBJ)_i > ‘steal<[A=R]_i (P)_j>’
 |(↑PRED)= ‘steal<(↑SUBJ)_i (↑OBJ) > }
 (↑VAL-TYPE) = MID-1
 A-STR: ‘A_i does the stealing (of P) (for the benefit of R.self_i).’

Given the principles of the morphology-syntax-semantics interface laid out earlier, the conflated [A=R] is mapped onto SUBJ and the auxiliary verb carries MID-1 marking *i-X-ru* realised as *yunggoru*, where both *i-* and *-ru* index SUBJ. Furthermore, the [A=R] conflation makes it possible for this argument to be flagged by *=i*, because it is actually R (i.e. an U property). Recall that a highly agentive argument without R or P conflation cannot not be flagged by the U clitic *=i* in Marori (cf. example (5)).

The proposed conflated [A=R] analysis of the a-str of the middle construction can account for cross-linguistic facts about the realisation of R in the middle. Since R is conflated to A, it is not realised as a distinct argument. It is understood as part of the meaning of the middle, e.g. as shown in (42b) from Fula (Niger-Congo) (Kaufmann 2007). In the proposed analysis it is also expected that a active-middle alternation may not change the grammatical relation involved, as in Ancient Greek: *louío X*[acc] ‘wash.1SG.ACT X = I wash X’ vs. *louómai* ‘wash.1SG.MID= I wash X for myself’ (Shibatani 2006:236).

- (42) a. mi wu’y-ii=mo deptere. ‘I lent him/her a book.’
 I lend-PERF.ACT=3SG book (ACTIVE)
- b. mi wu’y-ake deptere. ‘I borrowed a book.’
 I lend-PERF.MID book (MIDDLE)

Finally, the patientive middle (i.e. with the P-ORIENTATION Type, cf. (28c)) needs to be briefly discussed. Consider the pair of examples in (43). They show different voice types, with a subtle difference in meaning in terms of imperfectness of the DUR aspect, conceivable as the episodic/stage-level vs. individual-level distinction:

- (43) a. na kara yu-ngg-ra-du. (MID-1)
 1SG sick 1SG.U-AUX-DUR-1SG.A.PRES
 ‘I am sick (at the moment of speaking).’
- b. na kara yu-ngg-ra. (IMPERS. ACTIVE)
 1SG sick 1SG.U-AUX-DUR.3NPL.A.PRES
 ‘I am (often) sick (not necessarily at the moment of speaking).’
 (or, ‘I am often affected by sickness.’)
- c. PRED ‘sick<[P]i >’ (*a-str*)
 [AFFECT([],[i]) (*sem-str*)

With the MID-1 structure (43a), it refers to progressive or on-going dynamic process, whereas in the Impersonal Active one (43b) it refers to

the habitual dynamic process. As far as the a-str is concerned, in both cases the subject *na* ‘1SG’ is patientive, having no control over the sickness. They both share the same a-str/sem-str shown in (43c).

Note that the suffix –du carries the M-feature of {A} at the level of morphology. However, this feature has no contribution in terms of agentivity at the level of sem-str, and correspond to no A argument at the level of a-str. The only relevant contribution of the features of *-du* is in relation to ASP and TNS.

However, this is not always the case. With other predicates that depict events with a certain degree of controllability, e.g. ‘cough’, the alternation between MID-1 and Impersonal Active does give rise to a subtle difference in agentivity. Consider the pair of examples below:

- (44) a. *medi mar kafa-ru, pa toufo=ri-nggo.*
 if.FUT NEG drink-1SG.FUT FUT cough=1SG.U-AUX.3PRES.
 ‘If I don’t drink, I will cough.’ (i.e. unintentional only)
- b. *na taufa=ri-ngg-ra-du.*
 1SG cough=1SG.U-AUX-DUR-1SG.A.PRES
 ‘I am (deliberately) coughing now.’ (possibly intentional)

Sentence (44a) is in Impersonal Active (with ‘coughing’ understood as unintentional only) whereas sentence (44b) is in MID-1 (with ‘coughing’ understood as possibly intentional).

I propose that certain predicates are inherently classified as highly patientive, while others such as ‘cough’ are canonically patientive but they allow certain degree of agentivity; hence partly controllable, depicted by a conflated [(A=)P] role. Thus, ‘cough’ in Marori is essentially intransitive (a one-place predicate) whose lexical entry is shown in (45). This lexical specification is consistent with the MID-1 meaning of ‘self-affectedness’ shown in (28b), and the deliberate interpretation of ‘coughing’ is constructionally imposed when the predicate combines with MID-1 AUX as seen in (44b). This is literally interpreted as ‘I coughed myself’. In addition, since the A conflation is optional (indicated by [(A=)P]) we can also capture that, even when in MID-1, the coughing event can still be understood as totally patientive (cf. the free translation in (44b)). In this case, the P-orientation meaning of MID-1 applies.

- (45) *toufow*
 PRED ‘cough<[(A=)P]i>’ (a-str)
 [AFFECT([],[i]) (sem-str)

The non-middle structure (44a) can be also straightforwardly captured. When *toufow* combines with the AUX in Impersonal Active structure, while the A M-feature (glossed as ‘3PRES’) is arguable present in the morphology, given the model adopted here, it corresponds to no A argument in the semantic structure. Note that there is no argument in the first argument position of AFFECT in (45).

To conclude, possible subtle differences in meaning in the middle and Impersonal Active alternation is a result of interplay between the lexical information of a predicate and the information constructionally imposed the verbal morphology.

4 Final remarks

This paper has discussed middle constructions in Marori. Two salient properties of middles in this language include the following properties. Firstly, there are two middle constructions. Middle Type 1 (MID-1) is fully parasitic to transitive A/U inflectional morphology whereas Middle Type 2 (MID-2) is only partially parasitic, making use of the invariant *n-* instead of the U prefix. The distribution of the two is largely lexically determined, even though there is evidence that MID-2 is derivational in nature (e.g., turning a transitive stem to intransitive, the non-finite MID-2 verb retaining its *n-* prefix). Secondly, middles in Marori provide good evidence for the idea that ultimate clausal structures are morpho-syntactically constructed. Morphologically, this is clear from the morphological make-up of MID-1 verb, illustrated by example (4): intransitive morphology is constructed by having co-referential A and U exponents on the same verb. However, the morphologically intransitive verb can enter a transitive construction with the presence of the object NP analytically flagged by *=i*.

These two empirical points on Marori middle constructions pose a theoretical challenge in the analysis of middles: lexical (e.g., Fagan 1992), syntactic (e.g., Hoekstra and Roberts 1993), constructional (e.g., Iwata 1999), or a parametric combination of these (Marelj 2004). In this paper, I have demonstrated that LFG is well equipped to handle Marori middles, and that an LFG-based lexical-constructional analysis has been proposed. The analysis makes use the full machinery of LFG rich lexical specifications and parallel-based model, augmented by the mechanism from GPFM. It has been demonstrated that the morphology-syntax-semantics interface involved in the complex expressions in Marori can be captured explicitly within GPFM, in particular the idea of morphology as an autonomous module in grammar, separate from syntax and semantics.

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