Information structure and its morphosyntactic resources in Marori

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1 Introduction [*]

This paper will discuss information structure in Marori (also known as Morori/Moraori; ISO 639-3: mok; a subgroup-level isolate, TNG/Papuan, highly endangered, with 16 fluent speakers), focusing on alternative realisations of clausal dependants, which correlate with their pragmatic functions, and the morphosyntactic resources so employed.

Findings from natural texts confirm that the head-final structure (S-V/A-P-V) is the unmarked structure in Marori, and that different nominal types have different pragmatic distributions. Overt pronominal and non-pronominal NPs serve as primary/reintroduced topics (TOP) and as secondary as well as contrastive TOP/FOC(us). Continuing TOP is, however, expressed by verbal agreement with elided NPs. Generic reference must be expressed overtly by a non-pronominal NP and shows rigid word order.

The paper is organised as follows. An overview of information structure in section 2 is followed in section 3 by an outline of Marori clausal morphosyntax to give the reader some understanding of the resources made available for information structure (i-str) in this language. Discourse functions in Marori are described in detail in section 4, with concluding remarks in section 5.

2 Information structure and the framework: preliminaries

Discussion of information structure revolves around the formal mechanisms (i.e. morphosyntactic, prosodic and lexical resources and related constraints) by which meanings are packaged to accommodate speaker-hearer needs for effective communication in a given discourse context (cf. the definition of i-str in Lambrecht's (1994:5) Vallduví and Engdahl (1996:460), among others). The same proposition, such as 'kill(agent:John, patient:robber)', is expressed in different ways in different contexts (e.g., *John killed the robber, the robber was killed by John, it's John who killed the robber*), depending on specific information such as shared knowledge, whether the patient is known to both speaker and hearer, and the speaker's intent to give emphasis to the patient.

The precise mechanism underpinning the various ways in which information is packaged within and across languages has been subject to intense study (Vallduví and Engdahl 1996, Erteschick-Shir 2007, Dalrymple and Nikolaeva 2011, among others). Issues relating to information structure include the nature of identified units (e.g. TOP(IC) and FOC(US)) and how, precisely, they relate to other grammatical

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components (i.e. their morphosyntactic interface). I will show that, in Marori, different kinds of TOP should be distinguished; that TOP is distinguishable from FOC; and that i-str resources include word order/linear precedence, ellipsis, parallelism and emphatic particles.[1]

To make sense of i-str facts in Marori, I assume an LFG-like framework, which separates different layers of structure, distinguishing linear order (i.e. constituent structure, or c-str) from grammatical and discourse functions or relations in the grammar (A/subject vs. U/object, TOP vs. FOC). Across layers, and specifically in relation to i-str, the idea of newness of the information communicated in a given context is central to the notion of relative prominence. These prominence and newness features form the i-str space shown in Figure 1 (cf. Choi (1999:133)). Although represented by a binary value (+/-), each feature should be thought of as a gradient—for instance, a Topic can be old information that is given new emphasis by the speaker, giving rise to the sub-type of contrastive TOP.

TOPIC (roughly, what is being talked about) is a broad category encompassing at least four subtypes: Primary Topic, Secondary Topic, Reintroduced Topic and Contrastive Topic. TOP is classified as prominent, as its referent is already shared, known or stands out in participants' memory. FOCUS is also a broad category, encompassing information packaging that reflects the speaker's communicative intent to highlight certain new information. Newness can be thought of as having two important sub-types (Dik 1997, Choi 1999): the gap (i.e. new in the addressee's knowledge) and contrast or emphasis (i.e. old knowledge lent new or additional pragmatic salience by contrast or emphasis). Following Erteschick-Shir (2007), I adopt the analysis that FOCUS and TOPIC are not mutually exclusive—that is, TOPIC can be given salience/contrast; hence the existence of Contrastive TOP.

<table>
<tr><td></td><td></td><td colspan="2">Prominence/Salience:</td></tr>
<tr><td></td><td></td><td colspan="2">+ ⟷ −</td></tr>
<tr><td rowspan="2">Newness:</td><td rowspan="2">+
↕
−</td><td>Contrastive Focus</td><td>Completive/gap Focus</td></tr>
<tr><td>Contrastive Topic
Reintroduced Topic
Primary Topic
Secondary Topic
Afterthought Topic</td><td>Tail</td></tr>
</table>

Figure 1: i-str space.

3 Morphosyntactic resources

3.1 Structural resources

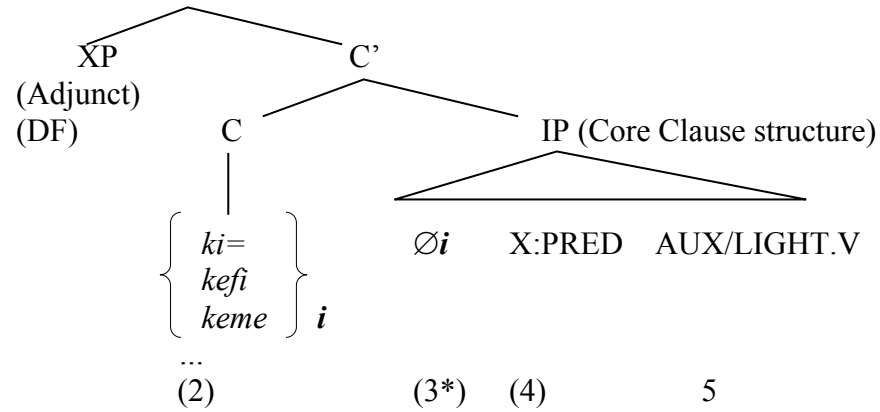
Marori is a verb-final language (X* V), with core arguments (A/S/P) and obliques coming freely, typically preverbally. While Marori has no VP in its clause-internal

[1] Prosody appears to be important, but its role in i-str in Marori has not been investigated. It is not discussed in this paper.

structure (having a flat S/IP), there is good evidence from relative clauses and pragmatically marked sentences that the maximal structure of a sentence, known as the extended clause structure, is configurational, which is why Marori is a discourse-configurational language, as shown in example (1a) below. An example of a canonical structure with all syntactic dependants appearing internally in the sentence (IP) is shown in example (1b).

As shown, there are at least six important positions that should be noted, two of which (positions 1 and 2) are clause-initial for discourse purposes. In real language use, only the inflected verb (in position 5) is obligatory, indicated by the absence of bracketing for this position. Position 1 is the outermost sentence-initial position, typically occupied by the most prominent XP (any unit, argument or adjunct), including the topicalized XP/FOCUS item, such as a QP (question phrase/word). Position 2 is the relativizer C position (if the clause is a REL clause), indexed by a focused NP or otherwise unoccupied. In Position 3*, the star (*) indicates that more than one unit (including none), freely ordered subject to the i-str constraint, may be associated with the dependants of the clause. Positions 4-5 are occupied by the lexical predicate and light verb (copula or auxiliary). Position 6* is an adjunct position, possibly adjoined to the left (or right to IP/C'/CP). If adjoined to the left, the adjunct appears preverbally, before IP or CP.

1 a.



b.

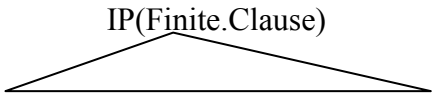
na=i	*patar*	*yu-nggo-f*
1SG=U	cold	1SG-AUX-NrPST

'I suffered from cold'

Example 2 shows a finite clause in which two dependants appear in position 3, filled by the A and U arguments (*na* and *Thomas*). The adverbial particle *pa*= can be analysed as appearing in [Spec, CP] (not shown here).[2]

[2] Abbreviations, alphabetically ordered: 1,2,3 (first, second and third person), A (Actor), AUX (auxiliary), DET (determiner), DU (dual), DUR (durative), EMPH (emphatic), F (feminine), FUT (future), Gen (genitive), IMP (imperative), LOC (locative), IRR (irrealis), NEG (negator), NPL (nonplural), M (masculine), NrPST (near past), P (Patient), PART (particle), PL (plural), POSS (possessive), PRES (present), Q (question marker), PERF (perfective), REAL (realis), REL (relativiser), RmPST (Remote Past), S (intransitive subject), STAT (stative), SG (singular), TOP (topic), U (undergoer).

2



(3)	(3)	(4) (5)
Pa=na=i	*Thomas*	*ter=i-mo*
soon=1SG=U	Thomas	hit=1SG-AUX.3SG.FUT

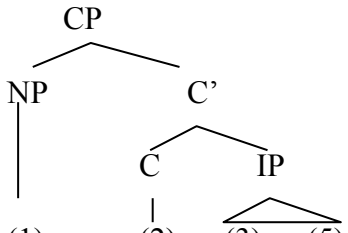
'Thomas will hit me.'

The structure in (3) shows a complex sentence with a relative clause (RC) embedded in the matrix clause of 'the table is already broken'. (For simplicity, the tree structure of the matrix clause is not shown.) Note that the adverbial 'yesterday' is part of the embedded RC, as it modifies the RC as seen in the translation. The relativised NP ('bench') is actually indexed by the relativizer *keme*, which bears the FOC function not shown in the tree but forming part of the information structure; see Arka (2016) for a formal account.

3.2 Morpholexical resources

Morpholexical resources for information structure in Marori are summarised in Table 1. As shown, the resources make use of lexical categories (i.e. different types of nominal), particles and verbal agreement morphology. Brief comments on important properties of these are in order here, with more examples to follow later.

3



(1)	(2)	(3)	(5)
Efi	***njaj***	[*fis*	***keme****=na*
DET	bench	yesterday	REL=1SG

kufa-mon]	*tamba*	*rafonngi-n*
sleep-1SG.NrPST	PERF	broken-PERF

'The table on which I slept yesterday is already broken.'

	Lexical NP	**Pron. NP**	**Elided**	**Verbal AGR**	**PART *=ndu***
Primary/switch/ reintroduced TOP	✔	✔	–	✔	–
Secondary TOP	✔	✔	✔	✔	
Continuing TOP	–	–	✔	✔	
New/gap FOC	✔	✔	–	✔	–
Contrastive FOC/TOP	✔	✔	–	✔	✔
Generic reference	✔	–	–	✔	–

Table 1: Nominal types and their pragmatic functions

Common nouns in Marori are not inflected for number or gender. Certain nouns are lexically specified for this NUM and GEND information, which then triggers the relevant agreement on the finite verb. Nouns such as *meninggon* ('children') and *kofepurpur* ('adults') are lexically plural (i.e. more than two; see Arka and Dalrymple (to appear)) and must therefore have plural verbal agreement. Free pronouns entail a singular (SG)/non-singular (NSG) distinction across all person categories (e.g. *na(wa)* '1SG' vs. *nie* 'NSG').

Pronominal affixes on the verb reflect agreement with free A and U NPs. They are themselves referential (i.e. they can refer to entities in the absence of their corresponding NPs), with a three-way distinction (SG vs. DU vs. PL) for the first and second persons and a two-way (NPL vs. PL) distinction for the third person form. These affixes are grammatically required and therefore obligatorily present as indicated by the tick (✔) mark in Table 1, although their discourse function is as continuing topics. The typical division of labour among verbal affixes (including zero pronouns/elided NPs) is shown in example 4. Further details are given below.

4	old/presupposed	--------	new/being asked/contrasted/emphasized
	TOP		FOC
	zero/verbal.agreement		free/lexical NPs/Question Words

The discourse particle *=ndu* is used to give emphatic contrast, as further discussed in subsection 4.8. Here are some examples.

5 a. naam nggafi nuron te
1SG.POSS DET wife 3BE.NPL.PRES
'That is my wife.'

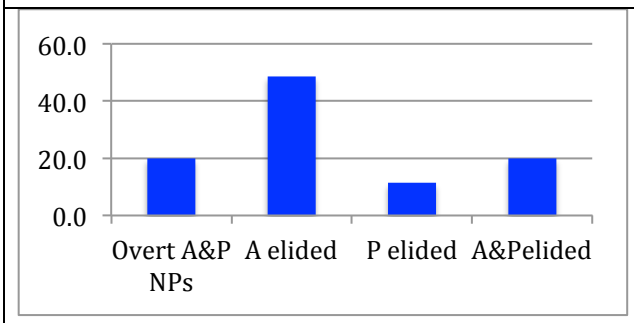
b. naam=ndu nggafi nuron te
1SG.POSS=FOC DET wife 3BE.NPL.PRES
'That is MY wife (not somebody else's wife).'

4 Information structure properties in Marori

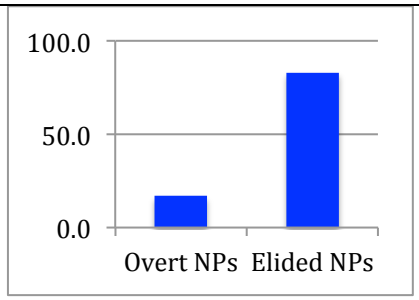
This main section examines properties of i-str in Marori in detail, including evidence and examples of the analysis that SOV is indeed the default clausal order in Marori, and that there are different kinds of TOPICs and FOCUS (as shown in Figure 1). While grammatically syntactic dependants are freely ordered, semantic-discourse constraints such as new information in question-answer pairs and generic referents render word order fixed in Marori.

4.1 Textual evidence

Examination of natural texts in Marori reveals the following patterns. First, A/P arguments are elided in most cases (80%; 48.6% of A elided, 11.4% of P elided and 20% of A and P elided). This pattern is shown in **Figure 2**a and 2b. This statistical evidence tends to confirm that there is, in most cases, at least one NP that serves as a (continuing) TOP whose referent needs minimal coding in the clause—that is, no explicit NP is required. This minimal coding is achieved through verbal agreement morphology, which is a grammatical requirement.



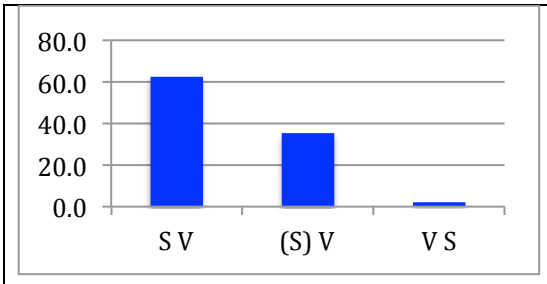
(a)



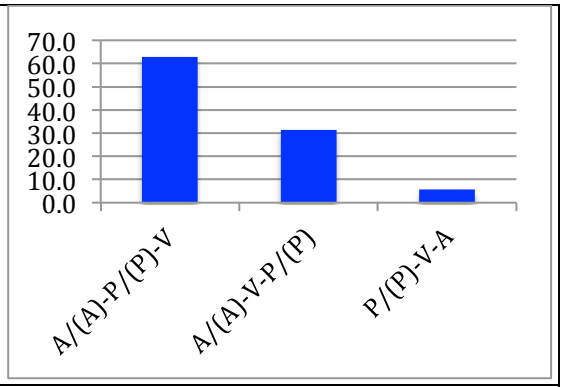
(b)

Figure 2: Overt and elided A and P NPs in Marori

Consider the following statistics (Figure 3a and 3b), which show the linear order of arguments in the clause. When overtly expressed, the intransitive subject (S) almost always comes preverbally (97%). Likewise, when overtly expressed, the transitive A and P more often come preverbally (70% and 72%, respectively). This justifies the analysis of unexpressed A and P arguments as preverbal zero/elided NPs, giving rise to patterns in which intransitive structures are predominantly S-V and transitive structures are A-P-V. In other words, the textual evidence supports the view that Marori is a verb final language with default/unmarked order S/A-P-V. If word order reflects prominence (the earlier unit being the more prominent), this pattern confirms that A is by default more prominent than P.



(a)



(b)

Figure 3: Linear order of the verb and its core arguments

4.2 MBE construction: sentential focus—a new episode

The *mbe* construction comes with an overt NP, marked by the particle *mbe*, and introduces a new line or episode, typically with a new referent. The NP comes preverbally, giving rise to the NP(S/A/P)−VERB structure. Consider the following *mbe* construction (example 6), in which two participants are both old referents as they are already mentioned in the preceding lines. What is new here is the grandmother's trick in the line introduced by *mbe*.

6 [previous context from a different topic/episode: daily activity of the grandfather and grandmother]
sokodu sajer pandrew nuafa, mbe maswag yoropur=i sewer pende-fi
one day afternoon while exist grandma grandpa=U lie AUX-RPST
'One afternoon, the grandma tricked the grandpa.'
(tete dan nene10-11: 00:01:04.930-00:01:06.680)

Consider now the following example 7, in which a series of new happenings in the story all come with *mbe*:

7 [Context: an old husband-wife couple went into a forest.]
Mbe kembe nuarya-fi=a
MBE this.way go.out.PL-NPL.RmPST=part
'They (two) went out of that jungle.'
(tete dan nene.024: 00:01:43.070-00:01:44.100)

mbe eku timbenii tefye-fi ngga urew
MBE there unfamilar.object=U find -RPST like bow
'There they found an unfamiliar object, like a bow.'
(tete dan nene.025: 00:01:46.660-00:01:48.350)

mbe tanamba sira=nggu-fi
MBE now fear=BE.3SGM-RmPST
'Grandfather became scared.'

"ndote maswag" "ka di=swo"
no.worries grandmother 2SG soon=go

'Grandpa became scared; "No worries". "Grandma, you go!"'
(tete dan nene.027: 00:01:51.120-00:01:54.570)

mbe maswag efrew ngguofi efe sejale efrew
MBE grandmother near over.there this thing near
'Grandmother approached the thing.'
(tete dan nene.028: 00:01:55.830-00:01:58.590)

mbe sajale efi lib ere=nggu-fi
MBE thing this visible change=AUX-RPST

mbe purfam nggu-fi mbarumen wonnggo malimpuanem
MBE person AUX-RPST young.adult good young.adult.SG

'The thing emerged as a young handsome man.'
(tete dan nene.029: 00:01:59.310-00:02:02.070)

8 [Context: an old husband-wife couple had an adventure in the jungle and encountered a strange-looking object.]
mbe maswag efrew=nggwo-fi efe sejale efrew
MBE grandmother approach-AUX-3NPL.RmPST that thing approach
'Grandmother approached the thing.'
(tete dan nene.028: 00:01:55.830-00:01:58.590)

9 Efe alau rowa=ngge mbe tok mbe nuarya-fi
that hole inside=from MBE frog MBE come.out-3NPL.RmPST
'From inside the hole, there was a frog coming out.'
(FrogStory_Paskalis.038: 00:02:54.000-00:02:56.870)

4.3 Different kinds of Topics

A TOP is a definite NP whose referent is already known in the discourse (typically, after first mention). When it is a reintroduced TOP, it can be overtly expressed, possibly with some emphasis/contrast or, to avoid ambiguity, when there is more than one competing referent in the discourse. However, a continuing TOP is often an elided NP, in which case the referent is identified by the pronominal agreement on the verb.

In the following text fragment, for instance, the two referents (grandmother and grandfather) are definite (i.e. already mentioned) in the discourse and are therefore equally potential Topics in each clause. However, one should become the primary TOP (e.g. *yoropur* in (a)) where it must be expressed overtly as the Topic NP. The NP *mei* ('meat') becomes a TOP in (b) after being mentioned in the second clause in (a). This P NP is also topicalised/fronted, appearing before the negator *mar*. Note that *yoropur*, mentioned only in the first clause in (a), was elided in the second clause in (a) and in the subsequent clauses in (b) and (c) as a continuing topic in these sentences. In (b), it can also be thought of as the secondary TOP, the primary TOP being 'meat'.

10 [Context: grandfather and grandmother's daily activities, going to the garden and forest; the following is an occasion of some significance in the story]
a. yoropur kunonjo-n mei keine-f. [S is reintroduced]
grandfather come-3PST meat bring-3SG.PST [A is elided TOP; P:NEW]
'The grandfather came back, bringing meat.'

b. *efi meii madi maswagi njomo* [A is elided, cont TOP]
efi mei=i mar=di maswag=i njomo [T is DEF, primaryTOP]
this meat =U NEG=FUT grandmother =U give.3FUT R is DEF, contr. FOC)

c. *mbedi koroi maya* [A is elided, cont TOP]
mbe=di koro=i maya [R:NEW]
MBE=FUT dog =U feed.3FUT [T: DEF, Cont TOP, elided]

'The meat he would not give it to the grandma
but to the dog.'
(tete dan nene.007-8: 00:00:56.940-00:01:02.150)

4.4 New FOC information

Completive FOC (i.e. new information) in the discourse is, by definition, always overtly expressed. It is typically expressed by indefinite NPs that come later than the definite NPs in clauses, in either the preverbal or postverbal position. For example, the noun *mei* ('meat') in example 10 (a) is indefinite and first mentioned; as a P argument,

it comes in its canonical preverbal position and later than the TOP NP, which is *yoropur* ('grandfather').

Clear cases come from imperative structures in which the addressee is the subject (always definite) and the other argument is often new:

11 ka=tanamba meninggon kamin=naramnda
2SG=now children make=AUX.2DU

usin pa=mein sokodu kier pende-men
many soon=so.that one kampong make-1PL.FUT

'Now (you're married already) you make a lot of children
so we'll open a village.'
(tete dan nene.056: 00:03:27.860-00:03:32.190)

In natural texts, new information is often part of a narrative in which the NPs expressing old/known information are elided. Consider the fragment in example 12 below, in which the dog was looking for the frog around the house, lifting shoes and so on. Lifting his head is something new in the series of events; the flow makes use of parallelism and ellipsis: A-P-Verb and (A)-P-(Verb).

12 *koro* *nangga* *morow* *tur=ngge-fi* *morow* *rerwo=rowa*
dog lift head put.into=AUX -RPST head jar=inside
'The dog lifted (its) head and put its head into the jar …'
(FrogStory_Paskalis.016: 00:01:39.550-00:01:44.580)

4.5 Generic NPs

An argument with generic reference is expressed by use of an overt NP. In this structure, certain referential features are neutralized (e.g. NUM does not matter). For example, although they have different number values (singular, dual or plural), all of the three sentences in example 13 have the same meaning—that is, the NPs all make the same generic reference to the salient nature of the tail of the bird of paradise.

13 a. Yag ninam=ndu njimbu kri-wen te (sg)
bird.of.paradise POSS=INT tail.feather long-SG BE.3NPL.PRES
'The tail feather of a bird of paradise is a long one.'

b. Yag ninam=ndu njimbu kri-nde te (dual)
bird.of.paradise POSS=INT tail long-NSG BE.3NPL.PRES
'The tail feathers of a bird of paradise are long ones.'

c. Yag ninam=ndu njimbu kri-nde tere (plural)
bird.of.paradise POSS=INT tail long-NSG BE.3PL.PRES
'The tail feathers of a bird of paradise are long ones.'

The following is an example from the Marori corpus.

14 *Nggaje=ke* *awe* *nggie* *enni=nggo-ro*
like.that=LOC fish often play=AUX-3PL.DUR
'In places like that, fish often come and swim around.'
(ProfilKampungWasur.106: 00:06:26.570-00:06:29.610)

One important structural property of NPs with generic reference is that their word order is fixed; when they are transitive, the order must be A-P-Verb, as in the (a) sentences below. Reversing the order (as in the (b) sentences) is not acceptable. This

provides additional evidence that the basic word order of the clause in Marori is A-P-Verb.

15 a. Awo paya kafra
kangaroo grass eat.PRES
'Kangaroos eat grass.'

b.?* Paya awo kafra
grass kangaroo eat.PRES
For 'Kangaroos eat grass.'
#'Grass eat kangaroos.'

16 a. Ujif kwi uyowe pyafangg-ra
bird tree on.top.of live-DUR.PRES
'Birds sleep on trees.'

b.?* kwi uyowe pyafangg-ra ujif
tree on.top.of live-DUR.PRES bird
'Birds sleep on trees.'

4.6 Question-answer pairs

A Q-A (question-answer) pair provides a good window on the information structure. A QW (question word) can come preverbally within the core clause structure, or in the clause-external position (i.e. sentence-initially; cf. position 1 in example 1). The following is an example of the QW in the internal core clause position.

17 Koro pafi fis ina=i imbrim?
dog that yesterday who=U bite-PST
'Who did the dog bite yesterday?'

When the QW appears sentence-initially, there is evidence that it is in clause-external position, as it precedes the subject (if overtly present). For instance, *iye* precedes *ka=* in (a); a postverbal question word is ungrammatical, as in (b) and (c).

18 a Iye=di ka=swo? b. * ka=swo iye=di?
when=FUT 2SG=go c. * di=ka=swo iye?
'When are you going to leave?'

Additionally, Q-A pairs show parallelism where the answer/gap FOC appears to be in the same structural position as the question FOC. The question in example 19 (a) can therefore be answered by a short reply, as in (b.A1), or by a long complete answer, as in (b.A2). The structures in (a) and A2 are parallel, where the FOC *iye* and *tanamba* must be in the sentence-initial position. Note that the answer in which tanamba=ndu appears sentence-finally is not acceptable. It should be noted as well that postverbal adjunct is common in other contexts, as shown in example 20.

19 a. Q: Iye=di ka=swo?
when=FUT 2SG=go
'When are you going to leave?'

b. A1: Tanamba=ndu (a short reply)
now=FOC
'now'

A2: Tanamba=ndu (na) swo-ru (paya-ku)
now=FOC 1SG go-1SG.FUT forest-LOC
'(I'm) leaving now (for the forest).'

A3:#(na) swo-ru tanamba=ndu (paya-ku)
1SG go-1SG.FUT now=FOC forest-LOC
'(I'm) leaving now (for the forest).'

20 (na) swo-ru tanamba, maar pamnggu
1SG go-1SG.FUT now=FOC NEG tomorrow
'I'm going to the forest now, not tomorrow.'

The following is a further example of a Q-A pair in which the QW is questioning the A argument, and the answer comes sentence-initially:

21 Q: John, mbeni ka=i kimbra-f?
John, what 2SG=U 2.bite-3NPL.PST
'John what bit you?'

A: kaf yambra-f / # yambraf kaf
snake 1U.bite-3NPL.PST
'A snake bit me.'

A topicalised NP (or a sentential adjunct, if any) can precede the QW. Examples (a) and (b) are considered better than (c); while the QW in (a) is in situ inside the core clause structure, that in (b) is fronted. That the definite topicalised NP *koro pafi* 'the dog' appearing before this fronted QW as in (b) is considered better than (c) suggests that TOP precedes FOC in clause-external positions.

22 a. Koro pafi fis ina=i imbrim?
dog that yesterday who=U bite-PST
[TOP [FOC PRED]$_{\text{CORECLAUSE}}$]]
'Who did the dog bite yesterday?'

b. Koro pafi ina=i fis imbrim?
dog that who=U yesterday bite-PST
[TOP [FOC [PRED]$_{\text{CORECLAUSE}}$]]
'Who did the dog bite yesterday?'

c. Ina=i koro pafi fis imbrim?
who=U dog that yesterday bite-PST
'Who did the dog bite yesterday?'

4.7 Imperatives

Imperative structures are of interest for the investigation of information structure because verbs are also focused in this kind of structure. The imperative construction consists of the IMP marker *ka* and IRR/FUT verb. The order requires that *ka* precedes the verb. The reverse (i.e. putting the verb in FOC [Spec, CP] position) is ungrammatical, as shown in (c). Fronting a verbal element is highly constrained (see section 4.8 below).

23 a. ka=kufu koku!
IMP=sleep here
'You sleep here!'

b. ka=koku kufu!
IMP=here sleep
'You sleep here!'

c. *kufu ka=koku!
sleep IMP=here
'You sleep here!'

The imperative marker *ka* is actually also the second person singular pronoun, which has been grammaticalized to become an imperative marker. The evidence for this grammaticalization is that it can appear with a free pronoun in the same clause: *kie* '2NSG' or *ka* '2SG', as in example 24.

24 a. kie koku=ka norufu!
2NSG here=IMP 2PLsleep
'YOU (PL) sleep here!'

b. ka sour=ke ka=kuye kanamndu kier=ke
2SG house=LOC IMP=stay 2POSS.EMPH place=LOC
'YOU stay in your OWN house'

In example 24, the free pronoun is in the DF position clause-externally, with contrastive emphasis (TOP) indicated in the translation by the upper case. Politeness is achieved by adding the politeness particle *sa,* translatable as 'please':

25 Ka=kufu=sa
IMP=sleep=PART
'Please sleep!'

4.8 Contrastive and emphatic focus

Contrastive focus can be explicit or implicit. Structures showing explicit contrastive focus contain elements being contrasted—for example, in English sentences such as (*it is*) *John, not Mary,* (*who*) *was lying*, John and Mary acquire contrastive FOC by negation. In Marori, this is achieved by using ellipsis, with the contrasting element assigned to the second clause. Consider the following sentences where the P argument (*na*) is given contrastive focus.

26 a. Na=i koro yambra-f; maar Johni=i
1SG=U dog 1SG-bite-3NPL.PST NEG John=U
'The dog bit me, not John.'
'I, not John, was bitten by the dog.'

b. Koro na=i yambra-f; maar Johni=i
dog 1SG=U 1SG-bite-3NPL.PST NEG John=U
'The dog bit me, not John.'/
'I, not John, was bitten by the dog.'

c. * Koro, maar kaf, na=i yambraf
FOR: 'It is a dog, not a snake, that bit me.'

As seen, the flagging of P with =*i* is important for identification of the contrastive element. Reversing the order of A (*koro* 'dog') and P (*na* '1SG') in the first clause does not affect the contrastive FOC assignment to the element in the first clause, as seen from the translation in (a) and (b). In other words, the negation of the argument marked by =*i* in the second clause is enough to encode that the NP flagged with =i (i.e. *na*, the P argument) is contrasted with John.

Implicit emphatic contrast is expressed by the EMP particle =*ndu*. When the emphasis is applied to an argument, =*ndu* shows up in an emphatic reflexive form:

27 *John* *ninafondu* *swo-f* *nggambe*
John 3.self.EMPH go-PST there
'Only John (or John alone, nobody else) went there.'

A dependent element can be fronted and marked by *=ndu* for emphatic focus:

28 a. Keke=ndu ka di=ka fyu kufa! (adjunct)
here=EMP 2SG FUT=IMP sleep lie
'You sleep HERE!'

b. sokodu=ndu twoloi awoi Johni werngge-f (quantifier)
one=EMP male kangaroo=U John 3SGM.U.catch-PST
'Only one male kangaroo was caught by John.'

c. awon=ndu wernggef sokodu (P argument)
kangaroo=EMPH 3SGM.U.catch-PST one
'Only kangaroo was caught, and it's one.'

Strong emphasis can be achieved by having *mbya* together with *=ndu* in clause-initial position. Placing the marked unit clause-finally is not acceptable:

29 a. mbya John=ndu di=umam
only John=EMPH FUT-come
'Only John will be coming.'

b. *di=umam mbya John=ndu

A verb can be placed in this construction for emphasis, and it appears that it should be in the infinitive form:

30 a. mbya fya=ndu di=umam
only walk=EMPH FUT=come.3PST
'He came briefly [i.e. immediately went away again].'

b. mbya fyu=ndu umondu
only sleep=EMPH come.1SG
'I came and only slept.'

c. mbya nama=ndu siramon
only cry-EMPH sad.1SG.PST
'I was sad/scared and crying only.'

d. mbya sira=ndu umon-du
only scared=EMPH come.1SG
'I came and was very scared.'

4.9 Relative clauses

The structure of relative clauses also provides a good way of looking at i-str because the relativized argument is given pragmatic (and syntactic) prominence; i.e. under focus. It is known across languages that relativization results in nominalization. RCs in Marori can come with or without a relativizer. The RC markers are the same forms used as proximal demonstratives: *kefi* (abbreviated as *kei/ki/k=), kemnde, keme:*

31 SG NSG
kefi/ kei/ki *kemnde*
keme

Given that a relativized unit is FOC, it must come clause-initially, possibly preceded by a topicalised NP (cf. the extended clause structure in (1)). The relative clause structure is often used for emphasis in equational sentences.

32 a. kemnde keme kakak tanambadu ruma-m
DET.PL REL elder.sibling just.now plant-3NrPST
'These are the ones that your elder sister just planted.'
(PaskalisBerkebun16122011.024: 00:03:51.270-00:03:55.860)

b. efe iwag-on keme irin njime-fi
DET girl-PST REL father give.3SG.M.O-RmPST
'That was the girl that the father gave to him.'
(Tete dan nene.072: 00:04:17.680-00:04:20.030)

The contrastive focus with relativization is often accompanied by pointing. This is seen in example 33; in the context of a feast where different groups are present, the relative clause is used to describe while pointing to certain individuals.

33 a. kemde=sa kemde yeufara
REL.NSG=EMPH REL.NSG dance.PL.3PRES
'They are the ones who are dancing.'
(Kunjungan ke PNG: 00:23:54.165-00:23:58.128)

b. kemde sa tanamba minggri Bas nuron Thomas
REL.NPL EMPH now sit.3PLRES Bas wife Thomas
'The ones who are now sitting are Bas and Thomas' wife.'

nuron Sota-on namik sa keme refi
wife Sota-ON brother EMPH REL stand.3NPL.PRES

'The wife of the brother from Sota is the one who is standing.'
(KunjunganKePNG.067: 00:05:20.400-00:05:27.310)

Relativization in Marori is complex and beyond the scope of the present paper; see Arka (2016) for a detailed account of externally and internally headed relative clauses in Marori, and their constraints.

4.10 Postverbal elements

Marori is a head-final language. We have seen that more pragmatically prominent elements come earlier in the structure while less prominent or non-prominent elements come later, although they all typically come before the verbal predicate. However, certain elements can come postverbally, raising the question of what i-str properties of postverbal units are found in a verb-final language like Marori.

Postverbal units can be arguments and adjuncts; topical arguments, classified here as after-thought topics, can occupy this position. Consider the postverbal actor (A) argument Thomas and koro ('dog') in example 34.

34 mbe tanamba tok=i eyew=nda-fi [Thomas=fi=a koro=fi]A
MBE now frog=U see=AUX-RPST Thomas=and=PART dog=and
'Now Thomas and the dog were looking for the frog.'
(FrogStory_Paskalis.022: 00:02:03.630-00:02:07.320)

The contextual story in the previous lines (including the line in example 34) is that Thomas and the dog are topical—that is, the story is about the two of them. In particular, the story is about the dog falling onto the ground from the window with its head inside the jar. This line in example 34 describes a new or different episode (hence, FOC

introduced by *mbe*) about the search for the missing frog conducted by the dog and Thomas. Consider now the following fragment.

35 [Context: as the grandfather and grandmother walked through the forest, the grandmother told him about something strange in the forest.]

a. eku yorapur sira=nggu-fi
there grandfather fear=AUX-RPST

b. eku pondo-fi **meswag=i**
there tell-RPST grandmother=U

c. 'ike tere emnde sejale?'
where BE.3PLPRES 3PL thing

'In that place, the grandfather was scared;
(he) asked the grandmother
"Where are the (strange) things?"'
(Tete dan nene.021: 00:01:32.850- 00:01:37.090)

In the above fragment, both the *yorapur* ('grandfather') and *meswag* ('grandmother') are topical. However, they serve different discourse functions; *yorapur* is the primary TOP in (a) and the continuing TOP in (b). The postverbal argument *meswag* in (35b) is semantically patient (P), serving as after-thought TOP.

We can also have an after-thought (new) FOC (i.e. additional specific new information) provided by the speaker about a referent of a preverbal unit. In example 36 (a), the preverbal P is unfamiliar to the speaker and is given the additional specification 'like a bow'. Additional specification can also be quantification, as seen in example 36 (b).

36 a. mbe eku timbeni=i tefie-fi **ngga** **urew**
MBE there unfamilar.object=U find-RPST like bow
'There they found an unfamiliar object, like a bow.'
(Tete dan nene.025: 00:01:46.660-00:01:48.350)

b. ka=tanamba meninggon kamin naramnda **usin**
2SG=now children make 2NSG.AUX.NPL many
'Now you make many children.'
(Tete dan nene.056: 00:03:27.860-00:03:32.190)

In the following example, the after-thought FOC is associated with the lexical predicate *purfam* 'person'.

37 mbe sajale efi lib ere=nggu-fi
MBE thing this visible change=AUX-3RPST

mbe purfam nggu-fi **mbarumen**
MBE person AUX-3RPST young.man.SG

'The thing emerged as a young handsome man.'
(Tete dan nene.029: 00:01:59.310-00:02:02.070)

The postverbal unit can simply be a new FOC, as seen in the following examples featuring the dative beneficiary dependant (a) and second goal object (b).

38 a. kefe=ngge ka tanamba kawi **nduafara** **nan**
this=with 2SG now hunt always 1SG.DAT

‘With this bow now you always hunt for me.’
(Tete dan nene.036: 00:02:18.880-00:02:20.640)

b. mbe mbeni=i fi-fi **eme** **swon=i**
MBE something=U say-3RPST that son =U

‘tukerte kefi kanam nuron=te’
already 3SG 2SG.POSS wife=BE.3PL.PRES

‘(the grandpa) said something to his son:
“Okay, this is your wife.”’
(Tete dan nene.036: 00:03:24.300-00:03:27.190)

5 Conclusion

In this discussion of i-str properties and resources in Marori, the investigation into the linear order constraint, using natural texts and (elicited) data associated with certain meanings such as generic expressions, confirms the S/A-P-V pattern as the default order. While the core clause structure is flat without a VP (i.e. the object and subject can be freely ordered in preverbal positions), there is good evidence from relativization and pragmatically marked structure that Marori has an extended configurational clause structure, represented as CP with a DF phrasal position in [Spec, CP]. Marori is therefore a discourse-configurational language.

Discourse functions identified in Marori include varieties of TOP and FOC; as seen in in Figure 1, the left-most position is taken by a highly prominent TOP, possibly emphatic/ contrastive, or primary TOP. A secondary TOP is an overt NP coming later in the clause, and a continuing TOP is an elided NP, typically identified only by pronominal agreement on the verb. FOCs can be of various types; a contrastive/emphatic FOC comes earlier, typically outside the core clause structure, whereas the completive/gap FOC comes in situ inside the core clause structure. Unlike TOP, all units including the predicate can be focused.

Of particular interest is the unit that comes postverbally. This is typically a unit that provides more specific information to a unit already mentioned in the preverbal element (and therefore classified as FOC) or that reintroduces known elements in the discourse. Because its presence simply reiterates the TOP, it is known as ‘after-thought TOP’.

Based on this description of the different discourse functions of a clausal unit and the structural positions available, an argument can, in theory, appear anywhere in the described positions. In practice, as far as information structure is concerned, different units do not have the same salience in the mind of the speaker, as at least one of them is salient for some reason. This asymmetry in discourse salience or prominence then regulates which units appear in which positions. In short, information structure plays an important role in determining the alternative realisation of a syntactic unit.

On a theoretical note, the patterns exhibited by Marori data are consistent with the general pattern found in other languages. In particular, Marori exhibits harmonious alignment of units across layers of structures. I assume an LFG-like framework (Dalrymple 2001, Bresnan 2001), in which the grammar of the language is organised in different layers of structure (e.g. discourse/information structure comprising TOP and FOC; grammatical relation structure comprising SUBJ and OBJ; semantic structure comprising roles such as agent and patient; and syntactically relevant meanings and

classes such as states and actions), each with its own constraints, properties and prominence.

It is known that prominence plays an important role in grammar, and this is also observed in Marori. For example, at the grammatical level, A/subject outranks P/object; at the structural linear-order level, earlier positions are more prominent than later ones. We have observed the (statistical) tendency of A > P, where A comes before P.

Given the i-str space (Figure 1), TOP outranks new/gap FOC, and we see a prevalence of patterns in which a new FOC, typically P (or lower end dependants), comes later in the clause. When two arguments are non-referential or generic, there is no clear difference in discourse salience between the two. It is expected that only sematic salience applies (with A outranking P), and that the ordering of A and P is fixed—an expectation confirmed in section 4.5.

The distribution of postverbal units, though possibly deemed part of the information structure in keeping with the TOP vs. FOC distinction, is presumably also motivated by cognitive processing load. In SOV languages, processing of a long and complex modifier of an object/subject NP before a verb is known to be constrained. For ease of processing, heavy units or specific details associated with preverbal units are forcibly placed after the verb. This is consistent with the finding that the reduction of preverbal arguments in SOV languages is a compensatory strategy to reduce heavy production and comprehension costs (Hawkins 2004, Ueno and Polinsky 2009, and the references therein).

References

Arka, I Wayan. 2016. Relative clauses in Marori. Department of Linguistics, ANU.

Arka, I Wayan, and Mary Dalrymple. to appear. "Number and Plural Semantics: Empirical evidence from Marori." *NUSA*.

Bresnan, Joan. 2001. *Lexical functional syntax*. London: Blackwell.

Choi, Hye-Won. 1999. *Optimizing structure in context: scrambling and information structure*. Stanford: CSLI.

Dalrymple, Mary. 2001. *Lexical Functional Grammar*, *Syntax and semantics*. San Diego: Academic Press.

Dalrymple, Mary, and Irina Nikolaeva. 2011. *Objects and information structure*. Cambridge: Cambridge University Press.

Dik, Simon C. 1997. *The theory of functional grammar*. Berlin: Mouton de Gryuter.

Erteschick-Shir, Naomi. 2007. *Information structure*. Oxford: Oxford University Press.

Hawkins, John A. 2004. *Efficiency and complexity in grammars*. Oxford: Oxford University Press.

Ueno, Mieko, and Maria Polinsky. 2009. "Does headedness affect processing? A new look at the VO-OV contrast." *Journal of Linguistics* no. 45:675-710.

Vallduví, Enric, and Elisabeth Engdahl. 1996. "The linguistic realisation of information packaging." *Linguistics* no. 34::459-510.