APPLICATIVIZING COMPLEX PREDICATES: A CASE STUDY FROM MURRINH-PATHA

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Abstract

In this paper we give an analysis of Murrinh-Patha verbs as morphological complex predicates. We argue that the different parts of the complex predicate provide information for different layers of the argument structure; more precisely, that classifier stems determine the number of arguments a verbal complex takes while lexical stems contribute thematic information. We further show how the argument structure composition interacts with valency-changing processes such as applicativization and reflexivization/ reciprocalization and that the argument structure has to be built up from right to left.

1 Introduction

Complex predicates have been discussed widely in the LFG literature, e.g. Mohanan (1994), Butt (1995), Alsina (1996), Alsina et al. (1997), Andrews and Manning (1999), Wilson (1999).[1] However, little work has dealt with the interaction of complex predicates with other valency-changing morphological processes.

This article focuses on the formation of complex predicates and its interaction with applicativization and reflexivization/reciprocalization. We are concerned with complex predicates in Murrinh-Patha, a polysynthetic language from Northern Australia. Murrinh-Patha has a bipartite verb system in which an inflecting element with a rather generic meaning combines with an invariable element, which carries more specific meaning, into a single morphological word. In this paper we use the term 'classifier stem' for this generic element (following previous work on Murrinh-Patha and related languages and McGregor 2002), and 'lexical stem' for the other element; the two combine to form a complex predicate.

However, these complex predicates seem to work differently from what has been previously established in the literature. We show that these complex predicates can be accounted for by assuming two different levels on which the different parts of the complex predicate operate: the classifier stem provides the argument structure (slots) while the lexical stem provides thematic information. A distinction between these different levels has been used in previous analyses of complex predicates, for example, by Alsina (1997) or Mohanan (1997). However, in those analyses both parts of the complex predicate jointly contribute information for these levels. The analysis we propose thus adds a new dimension to the discussion around

[1] Unless otherwise specified, the data in this paper is taken from Rachel Nordlinger's fieldnotes collected in Wadeye between 2005-2009. Rachel would like to thank the Murrinh-Patha speakers who have so patiently taught her their language, especially Carmelita Perdjert, Norma Kulumboort, Bonaventure Ngarri and Theodora Narndu. She is also grateful to the Arts Faculty at the University of Melbourne, and the Australian Research Council (DP0343354 and DP0984419) for funding fieldtrips. For helpful input into the analysis presented here, we would like to thank the participants of the LFG Conference 2010 in Ottawa. Special thanks go to Miriam Butt who provided very valuable ideas and commented on various versions of the poster and this article.

complex predicates cross-linguistically.

To help the reader follow the complex examples in the later sections, we first provide a short overview of the Murrinh-Patha language and a discussion of its verbal structure in section 2.

In section 3 we discuss the composition of the argument structure for the basic verbal complex. We show that the number of arguments of the complex predicate mainly follows the number of arguments provided by the classifier stem. In contrast, the thematic information is provided by the lexical stem. Argument structure alternations as known in other languages, e.g. the locative or causative alternation, are thus realized by combining the same lexical stem with different classifier stems.

Our approach is also compatible with the interaction of complex predicates with morphological valency-changing processes. Murrinh-Patha has a morphological applicative marker *–ma* which promotes a source to the function of a direct object (Nordlinger 2009). We discuss this applicative marker and its interaction with the argument structure of complex predicates in section 4.

Finally, section 5 deals with the interplay of the applicative and the various reflexive/reciprocal constructions in Murrinh-Patha. Different coindexation properties exist when applicatives and reflexive/reciprocal processes interact. We account for these differences by assuming that reflexivization/reciprocalization can either coindex two arguments or may result in an intransitive verbal complex. The interaction of the applicative and reflexive/reciprocal processes further shows that the argument structure is built up in the inverse order of the morphological markers in the verbal template, i.e. from right to left.

2 Murrinh-Patha overview

Murrinh-Patha is spoken in and around Wadeye (Port Keats) in the Daly River region of the Northern Territory of Australia. It is one of a small number of Australian languages which is still acquired as a first language by children in the community. Currently, there are approximately 2500 speakers – probably more than pre-contact because it has developed into the lingua franca of the region. It is a head-marking, polysynthetic language which incorporates body parts, adverbials etc. in the verbal complex and has minimal case morphology.

The nominal system comprises nominal classifiers, nouns, adjectives, demonstratives and numerals (Blythe 2009). A single noun may be used with one or several of the 10 semantically motivated noun classes (Walsh 1997). As the focus of this article is on complex predicates, we will not deal with the nominal system in any detail here.

As has been stated before, verbs are bipartite, consisting of a classifier stem (traditionally glossed with a number) combined with a lexical stem into a single morphological word. The classifier stems are inflected for subject person, number and tense/aspect/mood. This information is encoded in portmanteau forms. There are approximately 38 classifier stem paradigms.

Lexical stems on the other hand are invariable, and their class is

considerably larger. The combination of classifier stem and lexical stem determines the verbal predicate. Some straightforward examples are given in (1). (1a,b) show examples of the same classifier stem combining with different lexical stems. In contrast, (1c,d) show examples of the same lexical stem combining with different classifier stems.[2]

(1a) *bangarntal*
bangam-rtal
3sS.BASH(14).nFut-chop
'He chopped it (with an axe).'

(1b) *bangamelmel*
bangam-melmel
3sS.BASH(14).nFut-flatten
'He flattened it (with a hammer).'

(1c) *nungarntirda*
nungam-rirda
3sS.FEET(7).nFut-push
'He kicked him.'

(1d) *marntirda*
mam-rirda
3sS.HANDS(8).nFut-push
'He pushed him (with his hands).'

Some classifier stems, primarily classifier stems 1-8, can also occur without a lexical stem. This is exemplified in (2) which shows two portmanteau forms of the classifier stem 'SIT(1)'. In contrast to lexical stems in other Australian languages, e.g. in Wagiman (Wilson 1999), lexical stems in Murrinh-Patha can never function as the sole verbal stem.

(2a) *dim*
3sS.SIT(1).nFut
'He's sitting.'

(2b) *pirrimka*
3dS.SIT(1).nFut
'They two are sitting.'

As mentioned above, classifier stems are inflected for subject person and number and tense/aspect/mood (TAM). There are five major TAM categories: non-Future (nFut), Past Imperfective (PImp), Future (Fut), Future Irrealis (FutIrr) and Past Irrealis (PstIrr). Apart from non-Future, the TAM categories require an additional tense marker on the combination of classifier and lexical stem. Additionally, the classifier stems 1 to 7 carry aspectual information when they are combined with a lexical stem or cliticize onto another classifier and lexical stem combination. We will not be concerned with this phenomenon here, for more information see Street (1996) and Nordlinger (2010a).

Subject number is also jointly determined by the portmanteau forms of the classifier stem and number markers which morphologically attach to the classifier and lexical stem combination. The classifier has three number categories. The special number markers distinguish between dual and plural in two different genders and sibling classes. Different combinations of these classifier forms and number markers then yield a five-way number and

[2] The following non-obvious abbreviations are used: *NC* noun classifier (NC:anim 'animate class', NC:hum 'human class', NC:water 'water class'), *DO* direct object marker, *DM* discourse marker (function unknown), *IO* indirect object marker (both object markers may be inflected for gender and number), *sS/dS/pS* singular/dual/plural subject form of classifier stem, *du.m/du.f* dual masculine/feminine subject or object marker, *pauc.m/pauc.f* paucal (3-10 people) masculine/feminine subject or object number marker, *FOC* focus marker, *RR* reflexive/reciprocal marker.

Where data is taken from Street (1989), we provide our own glosses.

sibling contrast, which is schematicized in table 1 (see Nordlinger 2010a for further discussion).

Classifier form	**Number Marker**	**Subject Properties**
SING	unmarked	singular
SING	dual non-sibling	dual non-sibling
DU	unmarked	dual sibling
DU	paucal non-sibling	paucal non-sibling
PL	unmarked	paucal sibling/plural

Table 1: Subject number and sibling marking

Object agreement is also marked on the verbal complex. Example (3a) shows 1st person singular direct object marking which attaches directly to the classifier stem. 3rd person singular direct object marking, however, is unmarked, which can be seen in (3b).

(3a) *dirra-**ngi**-wintharrarr-dha*
3sS.WATCH(28).PImp-**1sDO**-seek-PImp
'He was looking for me.'

(3b) *dirra-wintharrarr-dha*
3sS.WATCH(28).PImp-seek-PImp
'He was looking for him/her.'

Similarly to direct object marking, indirect objects are also marked in the same slots of the verbal template. An example is given in (4).

(4) *nhinhi-re thim-**na**-ku*
2s-Erg 2sS.SIT(1).nFut-**3smIO**-hit
'You punched him.'

Beside classifier and lexical stem, markers for TAM, subject number and object, the verbal complex may include incorporated body parts and an applicative marker, adverbials and a reflexive/reciprocal marker as can be seen in the simplified verbal template in table 2. We will come back to the applicative and reflexive/reciprocal markers in later sections when we deal with the phenomena in more detail.

This section gave the description of the verbal system of Murrinh-Patha required to follow the examples in the following sections. For a more detailed view on the various template slots and the interaction between the different markers see Blythe (2009) and Nordlinger (2010b). For further references on other phenomena of the language see e.g. Walsh (1976, 1996), Street (1987, 1989) and Nordlinger (2009, 2010a).

1	2	3	4	5	6	7	8	9
CS.SUBJ.TNS	SUBJ.NUM / OBJ	RR	IBP / APPL	LEXS	TNS	ADV	SUBJ.NUM / OBJ.NUM	ADV

Key:		
	CS.SUBJ.TNS:	classifier stem, marked for tense/aspect/mood & subject person/number
	SUBJ.NUM:	subject number markers for dual & paucal
	OBJ:	object agreement marker
	OBJ.NUM:	object number marker for dual & paucal
	RR:	reflexive/reciprocal marker
	IBP:	incorporated body part
	APPL:	applicative marker
	LEXS:	lexical stem
	TNS:	tense marker
	ADV:	adverbial

Table 2: Simplified verbal template

3 Argument structure of classifier and lexical stem

In this section we provide an analysis of the composition of argument structure in the verbal complex. Following work on similar constructions in other Australian languages (e.g. Wilson (1999) for Wagiman, Schultze-Berndt (2000) for Jaminjung, and Bowern (2004) for Bardi), we treat the two parts of the verb – the classifier stem and the lexical stem – as providing aspects of the argument structure, which combine to form the argument structure of the whole.

McGregor (2002) emphasizes the (semantic) classificational role of classifier stems, i.e. he treats the classifier stem as a verbal classifier similar to semantically motivated nominal classifier systems. He proposes that three parameters may be relevant for the kind of classifier system that can be found in Murrinh-Patha: aktionsart, valency and vectorial configuration. In this paper we focus only on valency, as mediated through argument structure. Aktionsart and other aspects of lexical semantics play a substantial role in determining permissible combinations of classifier and lexical stems, the resulting semantics of the complex predicate and the semantic effects of alternative possible combinations. A complete analysis of the Murrinh-Patha system therefore needs to incorporate an analysis of these issues as well. Such an analysis is well beyond the scope of this study, however, and so we will restrict our discussion to argument structure issues alone.[3]

The main semantic load of the verbal complex is carried by the lexical stem. Therefore, the thematic information of the verbal complex is provided by the lexical stem. We will show that the classifier stem does not provide thematic information when it combines with a lexical stem. For this reason,

[3] Recall from the discussion in section 2 that lexical stems can never occur alone, and neither can the vast majority of the classifier stems. This means that an analysis of the contributions of each element of the complex predicate can only be arrived at through careful analysis of all possible combinations that each element is found in. Such an analysis requires substantial expansion of the present corpus, and we leave it for future research.

we use variables to represent the argument slots in the argument structure of the classifier stem.

This analysis thus calls on a distinction between semantic/thematic structure and argument structure. A distinction between these levels has been used in the analysis of complex predicates for example by Alsina (1997) and Mohanan (1997). However, in these analyses the different parts of the complex predicates determine both levels jointly, e.g. the complex predicate itself determines the thematic roles and the number of argument slots in the two different levels. In contrast, we argue that the Murrinh-Patha classifier stems alone determine the number of argument slots, and the lexical stems provide thematic information. These two parts of the argument structure then have to combine before linking to grammatical functions can commence, accounting for why neither part can constitute a verbal predicate on its own.

We provide some initial straightforward examples here. Following Reid (2000) in his treatment of the verbal structure of Ngan'gitymerri, a Daly river language related to Murrinh-Patha, we assume that classifier stems can be divided into intransitive, transitive and reflexive/reciprocal (RR) stems. Intransitive classifier stems provide one argument <x> while transitive classifier stems provide two arguments <x y>. Thus, in (5), the classifier stem provides one argument slot and the lexical stem provides the thematic information 'agent'. The argument structure of the verbal complex as a whole thus requires one agent as its argument.

A transitive classifier stem as in (6) provides two argument slots. The lexical stem provides an agent and a patient: thus, the verbal complex together requires an agent and a patient.

(5a) *kanam-kaykay*
3sS.BE(4).nFut-call.out
'He continually calls out.'(Street 1989)

(5b) BE(4) < x >
kaykay, 'call out' < ag >
=> BE(4)-*kaykay* < ag >

(6a) *mam-kurrk*
1sS.HANDS(8).nFut-scratch
'I scratched something.'

(6b) HANDS(8) <x y>
kurrk, 'scratch' <ag th>
=> HANDS(8)-*kurrk* <ag th>

Having laid out the basic analysis here, we provide evidence for our claims in the remainder of the section. In 3.1 we discuss evidence for the claim that the lexical stems provide the thematic information while classifier stems only provide argument structure slots. In 3.2 we present three argument structure operations which show that the number of arguments mainly follows the number of slots provided by the classifier stem.

3.1 Evidence: Lexical stems determine theta roles

In this subsection we show that lexical stems provide more fine grained meaning and thematic information while classifier stems may not place strict requirements on the thematic information provided by the lexical stem. Evidence for this claim comes from minimal pairs such as (7) in which different lexical stems combine with the same classifier stem. In (7a) the lexical stem *ngkamumur,* 'be blind' provides a theme while in (7b) the lexical stem *kaykay,* 'call out' provides an agent. These theta roles are also the theta roles of the whole complex predicate.

(7a) *ngani-ngkamumuy-nu*
1sS.BE(4).Fut-be.blind-Fut
'I'll be blind.' (Street 1989)

(7b) *kanam-kaykay*
3sS.BE(4).nFut-call.out
'He continually calls out.' (Street 1989)

Examples of such alternations can also be found for transitive classifier stems. In (8) the same classifier stem combines with two different lexical stems and these determine the thematic roles, i.e. an experiencer and theme in (8a), and an agent and theme in (8b).

(8a) *nakurl ba-nhi-ngkardu-nu*
later 1sS.13.Fut-2sDO-see-Fut
'I'll see you later.'

(8b) *kura patha ba-gurduk-nu*
NC:water good 1sS.13.Fut-drink-Fut
'I will drink water.'[4] (Street 1989)

Thus, classifier stems can vary in terms of the thematic roles depending on the lexical stem involved. The classifier stems are not, however, semantically empty. This can be seen by the fact that not every classifier stem can combine with every lexical stem that provides the right number of thematic roles. Furthermore, different classifier stems lead to different predicate meanings when combined with the same lexical stem, as shown in the examples in (1c) and (1d). Nevertheless, the semantic information provided by the classifier stem can be so opaque in some cases that lexical stems with different thematic roles can combine with the same classifier stem. We leave it to future research to work out a thorough semantic analysis of the combination of classifier and lexical stems.

[4] *Kura patha* is an idiom meaning 'drinking water'.

3.2 Argument structure operations

In the previous subsection we laid out our basic assumptions about the argument structure of Murrinh-Patha verbal complexes and presented evidence that the thematic information is provided by the lexical stem. In this subsection we show that it is the classifier stem which accounts for the number of arguments of the complex predicate.

Determining the number of arguments of the complex predicate is quite straightforward, e.g. direct object marking and/or the presence of an unmarked NP in a patient/theme role indicates that the complex predicate is transitive. However, it is more difficult to determine whether classifier and lexical stems are transitive or intransitive. This can only be determined by looking at the multitude of possible combinations of lexical and classifier stems and working out the semantic meaning of the different parts of the complex predicate.

We consider three different combinatorial types: firstly, we consider cases in which the number of argument slots contributed by the classifier stem and the number of thematic roles contributed by the lexical stem match. Secondly, we look at cases in which the lexical stem provides more thematic roles than argument slots provided by the classifier stem. These cases can be divided into two subgroups: some examples seem to be clearly intransitive in that only one of the thematic roles provided by the lexical stem is realized. These examples will be discussed in 3.2.2. The second subgroup comprises examples with an openly expressed NP which seem to be a direct object. Thus, at first glance these examples seem to contradict our claims. However, as will be discussed in 3.2.3, the NPs in these cases are generic 3rd person objects which seems to be non-referential and have to be treated differently from "normal" objects.

3.2.1 Transitivity Matching

In most cases, the number of argument slots provided by the classifier stem and number of arguments provided by the lexical stem match, i.e. intransitives combine in (9) while transitives combine in (10).

(9a) *dim-karrk*
3sS.SIT(1).nFut-cry
'He's crying.' (Street 1989)

(9b) SIT(1) < x >
karrk, 'cry' < ag >
=> SIT(1)-*karrk* < ag >

(10a) *mam-lerrkperrk*
1sS.HANDS(8).nFut-crush
'I crushed it.'

(10b) HANDS(8) < x y >
lerrkperrk, 'crush' <ag th>
=>HANDS(8)-*lerrkperrk* <ag th>

As stated before, lexical semantic restrictions might further restrict which lexical stems might combine with which classifier stems. We leave the detailed working out of the semantics to future research.

3.2.2 Reduction of Thematic Roles

If the classifier stem only provides one argument, not all thematic roles licensed by the lexical stem may be realized**.** Depending on the lexical semantics of the verb, either the theme or agent might be suppressed. Thus, similar to the distinction between 'eat' and 'eat something' in English, certain lexical stems may omit their theme when combined with an intransitive classifier stem. For example in (11), *dhegdhek,* 'play' may combine with the transitive classifier stem HANDS(8) in (12a) which then yields a transitive verbal complex. It can, however, also combine with the intransitive classifiers stem BE(4) which then yields an intransitive activity reading.

(11a) *pumamka-dhegdhek-ngime*
3duS.HANDS(8).nFut-play-pauc.f
'They're playing around with that girl/boy.'

(11b) *parnamka-dhegdhek-ngime*
3duS.BE(4).nFut-play-pauc.f
'They're playing.'

(12a)	HANDS(8)	< x y>
	dhegdhek, 'play with'	<ag th>
	=> HANDS(8)-*dhegdhek*	<ag th>
(12b)	BE(4)	< x >
	dhegdhek, 'play with'	<ag th>
	=> BE(4)-*dhegdhek*	< ag >

The argument structure of (11a) is presented in (12a) which is a simple transitive combination in which the number of arguments and the number of thematic roles match. In contrast, in (12b), which provides the argument structure for (11b), the classifier stem only provides one argument slot but the lexical stem provides two thematic roles. In the combination of classifier and lexical stem, only the agent is realized.

In contrast, transitive lexical stems with a causative meaning can combine with SIT(1), which deletes the agent and thus triggers an anticausative/resultative reading as in the examples in (13). The lexical stems *lerrkperrk,* 'crush' and *warnta*, 'split open' normally combine with transitive classifier stems which denote the kind of action that leads to the state of being smashed or split open. An example of *lerrkperrk,* 'crush' with a transitive classifier stem is given in (14).

These lexical stems can thus be considered to have an agent and a theme as their thematic roles. When combining with SIT(1), only the theme is realized and the combination has an anticausative reading. The argument structure of (13a) is given in (15).

(13a) *dim-lerrkperrk*
3sS.SIT(1).nFut-crush
'It's smashed.'

(13b) *dim-warnta*
3sS.SIT(1).nFut-split.open
'It's cracked.'

(14) *ku* *tumtum* *mam-lerrkperrk*
NC:anim egg 1sS.HANDS(8).nFut-crush
'I crushed the egg with my hand.'

(15)

SIT(1)	< x >
lerrkperrk, 'smash'	<ag th>
=> SIT(1)-*lerrkperrk*	< th >

We suspect that the lexical semantics of the lexical stem determines which thematic role is realized if the classifier stem does not provide enough argument slots. We leave the testing of this for future field work.

To sum up, this subsection has dealt with examples of intransitive classifier stems combining with transitive lexical stems which result in an intransitive verbal complex. The next subsection looks at instances in which the lexical stem also provides more thematic roles than the classifier stem provides argument slots. However, in these examples the thematic roles seem to be realized in the verbal complex.

3.2.3 'Adding' Arguments

We claimed above that the classifier stem determines the number of arguments which are realized in the verbal complex. However, there are a couple of examples in which an intransitive classifier stem seems to result in a transitive verbal complex. In the examples in (16), an intransitive classifier stem combines with a transitive lexical stem and an overt NP.

(16a) *thamul* *pirrim-nga-batbat*
spear 3sS.STAND(3).nFut-1sIO-throw(RDP)
'He always throws the spear at me.' (Street 1989)

(16b) *kura patha kanamkurdugurduk*
kura patha kanam-gurdugurduk
NC:water good 3sS.BE(4).nFut-drink(RDP)
'He continually drinks water.' (Street 1989)

(16c) *ku* *ngurlmirl* *wurran-ku*
NC:anim fish 3sS.GO(6).nFut-fish
'He continually catches fish.' (Street 1989)

At first glance, these examples seem to contradict our claim. However, when looking at the examples more closely, all take a narrow semantic class of generic objects. These objects seem to be non-referential and serve to characterize the action rather than pick out a participant (cf. Van Valin & LaPolla 1997:148ff). Reid (2000), reporting on similar constructions in Ngan'gityemerri, claims that these constructions focus on the subject's posture or activity and are thus less transitive (in a Hopper and Thompson (1980) sense) than regular transitive combinations. Thus, these examples seem to resemble (pseudo) noun incorporation as discussed by Mohanan

(1995), Ball (2004) and Duncan (2007).

However, it is possible to find other (albeit infrequent) examples in which an intransitive classifier stem results in a transitive complex predicate with a clearly referential direct object, as in the following examples:

(17a) *kumparra warra punni-dha* *berematha gathu*
first first 3plS.GO(7).PImp-PImp that's all towards

warda ***pirrim-pun****-mardaputh*
after that **3sS.STAND(3).nFut-3plDO**-load_up_a_truck

'A big mob went in front, after that he picked them all up on the truck.'

(17b) ***ngani-nan****-part-nu-warda* *ngurru-warda*
1sS.BE(4).Fut-2plDO-leave-Fut-now 1sS.GO(6).Fut-now
'I've got to leave you behind, I'm going.'

The empirical facts remain to be fully determined in terms of which intransitive classifiers can combine with direct objects in these ways, and under what conditions. It may be that some intransitive classifiers in fact contain an optional second argument position that enables them to combine with certain transitive lexical stems as well as intransitive lexical stems. This does not invalidate the overall analysis, however: we have no examples in which transitive classifier stems are found in intransitive complex predicates, and in the vast majority of examples the valency of the classifier stem correlates directly with that of the complex predicate.

In this section we have presented our basic assumptions about the argument structure of the verbal complex in Murrinh-Patha and provided evidence for our claim that the number of arguments is generally determined by the classifier stem while the thematic information is provided by the lexical stem. The analysis suggests that the classifier stem and the lexical stem function as co-heads in the verbal complex as they account for different parts of the combined argument structure.

4 Applicatives in Murrinh-Patha

In this section we show how the argument structure of the verbal complex as laid out in the previous section interacts with the valency-changing process of applicativization. The applicative marker *-ma* attaches to the verbal complex in the slot for incorporated body parts (see Nordlinger (2009) for justification of the applicative analysis, and discussion of the relationship between the applicative marker and the incorporated body part *–ma* 'hand').

The applicative promotes a source to the function of a direct object as can be seen in examples (18)-(20). (18a) shows a simple verbal complex with an oblique argument specifying the source. In contrast, (18b) shows the applicativized version in which the source has been promoted to the function of a direct object which is now marked on the verbal complex. (19) is a

similar example with a 2nd person direct object marking the source, while (20) shows that the original object can still be expressed as an overtly expressed object$_\theta$.

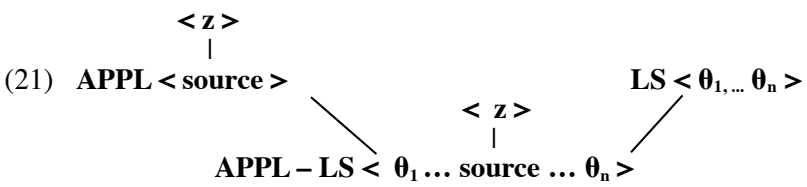
(18a) *Truck darrarart pumangan-art ngarra ngay.*
truck stolen 3plS.SNATCH(9).nFut-get LOC 1sg
'They stole a truck from me.'

(18b) *pumanganngimart*
pumangan-ngi-ma-art
3plS.SNATCH(9).nFut-1sDO-APPL-get
'They took it from me.'

(19) *nganam-nhi-ma-kut*
1sS.BE(4).nFut-2sDO-APPL-collect
'I collected (the money) from you.'

(20) *mangan-nhi-ma-art kura*
1sS.SNATCH(9).nFut-2sDO-APPL-get NC:water
'I got (some) water from you.'

Based on work by Alsina & Mchombo (1993) on Chichewa applicatives, we assume the basic argument structure in (21): the applicative adds an argument to the already existing thematic roles. However, while the Chichewa applicative operates on the verb, the Murrinh-Patha applicative adds a source argument to the thematic roles provided by the lexical stem (LS) and adds an argument variable in addition to those contributed by the classifier stem.

(21)


(22) displays the argument structure for (18b) in which the source argument is added to the argument structure of the lexical stem and another argument slot is made available for the argument structure of the classifier stem.

(22)

SNATCH(9)	<x, y>
art, 'get'	<ag th>
	< z >
=>APPL – *art*	<ag source th>
=>SNATCH(9) – APPL – *art*	<ag source th>

Once the argument structure of the verbal complex is in place, the linking follows the linking principles as put forth in Alsina & Mchombo (1993). Thus, we assume that intrinsic arguments such as themes and applied

arguments receive [-r] and theta roles inherently lower than goal may receive [+o]. We assume that Murrinh-Patha, like Chichewa, carries the constraint that only one [-r] and only one [+o] can be assigned intrinsically. With standard Lexical Mapping Theory (Bresnan & Zaenen 1990) we assume that other theta roles receive [-o] intrinsically, that the highest theta role receives [-r] as default and all others receive [+r] as default.

Applying these principles to the sentence in (18b) renders the linking in (23), when starting with the argument structure of the verbal complex in (22).

(23) SNATCH(9) – APPL – *art*

	<ag	source	th>
	|	|	|
IC:	[-o]	[-r]	[+o]
Default:	[-r]		[+r]
	S	O	O_θ

Source is usually not part of the thematic hierarchies in LFG. In Kiparsky's (1985) hierarchy, however, source is higher than goal. If we follow this hierarchy, source cannot receive [+o] as its intrinsic classification and (23) is the only possible mapping for (18b).

Summing up, this section introduced the applicative construction in Murrinh-Patha by which a source is promoted to the function of a direct object. We presented an analysis in which the applicative adds a source argument to the thematic information of the lexical stem. We will justify this analysis in the following section, which deals with the interaction of the applicativization process with reflexivization/reciprocalization. This interaction provides evidence that the applicative first combines with the lexical stem as has been suggested by our analysis. In fact, taking together applicativization and reflexivization/reciprocalization shows that the argument structure has to be built up from right to left.

5 Reflexivization/ Reciprocalization and its interplay with Applicativization

This section introduces two ways to express reflexivity/reciprocality, discusses the interplay of these processes with applicativization and presents an argument structure analysis of this interaction. To account for the different binding relations, the argument structure has to be composed from right to left in productive cases. This provides evidence for the claim of the last section, namely that applicativization has to operate on the lexical stem first.

5.1. Reflexive/reciprocal classifier stems

One way to encode reflexivity/reciprocality in Murrinh-Patha is using a reflexive/reciprocal (RR) classifier stem. Some transitive classifier stems have corresponding RR classifier stems, i.e. transitive lexical stems which combine with a transitive classifier stem may also combine with the

corresponding RR classifier stem.[5] For example, (24a) shows a transitive combination of classifier and lexical stems. In (24b), the corresponding RR classifier stem is used which triggers a reflexive meaning.

(24a) *mam-kurrk*
1sS.HANDS(8).nFut-scratch
'I scratched something.'

(24b) *mem-kurrk*
1sS.HANDS:RR(10).nFut-scratch
'I scratched myself.'

(25) provides the argument structure of the complex predicate in (24b). We assume that the RR classifier stem provides two coindexed argument slots $<x_i, y_i>$. When combining with a lexical stem, the thematic roles of the lexical stem will be coindexed. These thematic roles may then be linked to one grammatical function (Alsina 1996:116ff).

(25)	HANDS:RR(10)	$<x_i \ y_i>$
	kurrk, 'scratch'	<ag th>
	=>HANDS:RR(10)-*kurrk*	$<ag_i \ th_i>$

RR classifier stems may also trigger a reciprocal meaning when the subject is in non-singular form. An example is given in (26b). We will not be concerned with the semantic difference between reflexives and reciprocals here and treat reflexives and reciprocals alike.

(26a) *ngu-nhi-bat-nu*
1sS.SLASH(23).Fut-2sDO-hit-Fut
'I'm going to hit you.'

(26b) *puy-bat-nu*
1incS.SLASH:RR(24).Fut-hit-Fut
'We are going to hit each other.'

RR classifier stems plus lexical stem combinations may also result in non-reflexive or non-reciprocal meanings. In examples like (27), transitive lexical stems combine with RR classifier stems. However, the combination does not result in a coindexation of the thematic roles involved. Rather, the combination denotes a resultant state, e.g. in (27a), the speaker reports of a state of 'being confused', in which the speaker is not necessarily the source of the confusion himself. Similarly, in (27b), the source of the amazement are fish, not the men themselves, which would be the case if we treat the RR classifier as coindexing the thematic roles of the lexical stem.

(27a) *ngurdampengkawuy*
ngurdam-wengkawuy
1sS.30:RR.nFut-confuse
'I'm confused' (Street 1989)

[5] For a detailed discussion of RR classifier stems and the RR marker, especially which combinations are possible, see Nordlinger (2008).

(27b) *kardu* *ngamere-ka* *pumem-mardat*
NC:hum few-FOC 3plS.HANDS:RR(10).nFut-amaze

ku *ngurlmirl nhini-nu-yu*
NC:anim fish Dem-DAT-DM
'and the few men were amazed at all those fish.' (Street 1989)

For the examples in (27), corresponding non-RR classifier stem combinations exist which help us to determine the thematic roles of the lexical stem. Thus, in (28a) *wengkawuy*, 'confuse' is used with the non-RR classifier stem 23 and results in a combination with an agent and a theme. Similarly, (28b) involves *mardat*, 'amaze' in combination with HANDS(8), a transitive classifier prototypically used to describe actions carried out with one's hands.

(28a) *pan-ngi-wengkawuy*
3sS.SLASH(23).nFut-1sDO-confuse
'He confused me.' (Street 1989)

(28b) *ma-nhi-mardat-nu*
1sS.HANDS(8).Fut-2sDO-amaze-Fut
'I'll amaze you.' (Street 1989)

More difficult cases exist in which the corpus contains no examples with a corresponding non-RR classifier stem combining with the relevant lexical stems. This is the case with the examples in (29). The lexical stems *nham*, 'fear' and *ngkabat,* 'surprise' cannot combine with other classifier stems (as far as we are aware).

(29a) *nhem-nham*
1sS.POKE:RR(21).nFut-fear
'I'm afraid.'

(29b) *be-ngkabat-nu*
1sS.15:RR.Fut-surprise-Fut
'I'll be surprised.' (Street 1989)

We thus treat cases like (29), and by analogy also (27), as providing evidence for lexicalized combinations with non-compositional argument structures. Thus, we consider these combinations to have a monovalent argument structure despite the presence of the RR classifier stem. These combinations are not formed according to the principles outlined in section 3, but rather are lexicalised complex predicates stored as a whole and requiring only an experiencer argument.

That RR markers are used in non-RR constructions like in the examples above is quite common cross-linguistically. The Murrinh-Patha examples resemble what Steinbach (2002) calls German "inherent reflexive constructions" (30) in which the reflexive pronoun is not a semantic argument of the verb, but is needed syntactically.

(30) Er fürchtet sich.
He be.afraid reflexive-pronoun-ACC
'He is afraid.'

Similarly, Kemmer (1993) treats reflexive markers in constructions like the

German and Murrinh-Patha examples as middle markers which should be given a semantic analysis distinct from reflexives. She considers several subclasses of verbs in which reflexive markers are often used as middle markers cross-linguistically. Besides body care verbs and different verbs of motion events, emotion verbs like the Murrinh-Patha examples above are named as prototypical verb classes in which reflexive markers are used as middle markers.

Thus, while we treat the Murrinh-Patha examples in (27) and (29) as lexicalized combinations of classifier and lexical stems, we acknowledge the fact that there may be crosslinguistic tendencies which allow reflexive markers to be used in intransitive, stative events.

To sum up the discussion on RR classifier stems, in productive uses these stems coindex the two thematic roles provided by the lexical stem. Lexicalized combinations of RR classifiers and lexical stems, however, are intransitive and usually denote a resultant state.

5.2 Reflexive/reciprocal marker *–nu*

Reflexivization/reciprocalization can also be achieved by a special reflexive/reciprocal morpheme *–nu* which is positioned after the optional marker for subject number in the verbal template. The marker *–nu* (or *–nunggu* for paucal subjects) can combine with RR classifier stems with little change in meaning (as in 32). It is also used, however, to encode a reflexive/reciprocal meaning for classifier plus lexical stem combinations for which no corresponding RR classifiers exists. An example of the latter type is given in (31b) for the non-reflexive/reciprocal combination (31a).

(31a) *nungarntirda*
nungam-rirda
3sS.FEET(7).nFut-push
'He kicked him.'

(31b) *nungam-ngintha-**nu**-rirda*
3sS.FEET(7).nFut-du.f-**RR**-push
'They kicked each other.'

The RR morphological marker only has the RR function. In terms of argument structure this means that *-nu* always coindexes the two arguments of the lexical stem.

5.3. Interaction with the Applicative

The different behaviours of the RR classifier stem and the RR marker can explain the contrast in (32) and (33). In the productive RR combination in (32), the source is coindexed with the agent in both sentences, independent of whether *–nu* is present; in other words, in both cases the reciprocal relation holds between the 'tearers' and those the clothes were torn from (cf. 'they tore each other from the tree.'). In contrast, in the lexicalized (33b), without

-nu, there is no reflexive/reciprocal relation holding between the subject and applied object arguments. In order to express such a relation, the RR marker *–nu* needs to be added, as in (33c).

(32a) *pam-ngintha-**ma**-rartal*
3sS.SLASH:RR(24).nFut-duf-**APPL**-cut.off(RDP)
'They tore the clothes from each other.'

(32b) *pam-ngintha-**nu-ma**-rartal*
3sS.SLASH:RR(24).nFut-duf-**RR-APPL**-cut.off(RDP)
'They tore the clothes from each other.'

(33a) *nhem-nham*
1sS.POKE:RR(21).nFut-fear
'I'm afraid.'

(33b) *nhem-**nhi**-**ma**-nham*
1sS.POKE:RR(21).nFut-**2sO**-**Appl**-fear
'I'm afraid of you.'

(33c) *them-**nu-ma**-nham*
1incS.POKE:**RR**(21).nFut-**RR-APPL**-fear.
'We're (inclusive) frightened of each other.'

The argument structure of (32) is presented in (34). The RR classifier coindexes two arguments of the stem it combines with and thus there is no difference between (32a) and (32b). We get the same result irrespective of whether it is the classifier stem alone that binds the two arguments (as in 32a, shown in 34a), or whether the RR marker *-nu* binds them first (as in 32b, shown in 34b). To receive the correct binding relations, namely that it is the source (rather than the theme) which is coindexed with the agent, argument composition has to proceed strictly from right to left. If the classifier and lexical stem combined first (before applicativization), the agent and theme would necessarily be coindexed. However, this is not the case in the examples in (32). Thus, the applicative has to combine with the lexical stem first before the reflexivization/reciprocalization process coindexes the two arguments. Lexical mapping theory will ensure that it is the source which is coindexed with the agent in the combined structure, and not the theme, as we show in (35) below.

(34a) SLASH:RR(24)	$<x_i \ y_i>$
rartal, 'cut off'	<ag th>
=> APPL – *rartal*	<ag source th>
=> SLASH:RR(24)-APPL-*rartal*	$<ag_i \ source_i$ th>

(34b) SLASH:RR(24)	$<x_i \ y_i>$
rartal, 'cut off'	<ag th>
=> APPL – *rartal*	<ag source th>
=> *nu* – APPL – *rartal*	$<ag_i \ source_i$ th>
=>SLASH:RR(24)-*nu*-APPL-*rartal*	$<ag_{ij} \ source_{ij}$ th>

The coindexed arguments are mapped onto one grammatical relation as outlined in Alsina (1996: 115ff). In principle, two different coindexations would be possible, one which coindexes the agent with the source and another which coindexes it with the theme, as illustrated in (35).

(35) SLASH:RR(24)-*(nu)*-APPL-*rartal*

	<ag_i	$source_i$	th>	or	<ag_i	source	th_i>
	|	|	|		|	|	|
IC:	[-o]	[-r]	[+o]		[-o]	[-r]	[+o]
Default:			[+r]				
	S		O_θ				

Following the linking principles as put forth in the previous section, the source must be assigned [-r], which therefore requires the theme to be linked to [+o]. This then makes it impossible for the agent and theme to be coindexed and thus it follows that it is the source that enters into the reflexive/reciprocal relationship in (32).

In contrast to the productive use of the RR classifier stem in (32), (33) involves a lexicalized combination of classifier and lexical stem in which there is only a single argument slot. (36a) shows the argument structure of (33a). (36b) is the argument structure of (33b) which is applicativized and thus a source is added. Adding *–nu* then coindexes the source and the experiencer (36c).

(36)	a.	POKE:RR(21)-*nham*, 'fear'	< ex >
	b.	POKE:RR(21)-APPL-*nham*	< ex source >
	c.	POKE:RR(21)-*nu*-APPL-*nham*	< ex_i $source_i$ >

To sum up, the RR classifier stems either coindex two thematic roles of the (possibly complex) stem they combine with or form an intransitive lexicalized combination with a lexical stem. The RR marker *–nu* on the other hand always coindexes two thematic roles. This difference explains the different behaviour of classifier plus lexical stem combinations when they are combined with an applicative, presuming the morphological processes proceed from right to left.

6 Conclusion

In this paper we have provided an analysis of Murrinh-Patha verbs as morphological complex predicates, in which the argument structure of the whole is composed of different types of information coming from each of the component parts. We have argued that the classifier stems determine the *number* of arguments a verbal complex takes while the lexical stems contribute the *thematic* information for those arguments. We further extended our analysis to the interaction of argument structure composition with valency-changing processes such as applicativization and reflexivization/ reciprocalization, thus bringing new data into the discussion of complex

predicate formation. This work thus adds a new perspective to the different levels of argument structure and thematic structure and their interplay, and extends the discussion of complex predicate formation into a new typological domain.

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