Agreement in Murrinh-Patha Serial Verbs

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Abstract. Murrinh-Patha (non-Pama-Nyungan, Australia) has a serial verb construction that is used to encode imperfective aspect. In this construction, one of a set of seven intransitive verbs is serialised to the end of the polysynthetic main verb. Previous descriptions of Murrinh-Patha (e.g. Walsh 1976, Street 1987) state that the serial verb in the imperfective aspect construction must agree with the main verb in terms of subject person and number, and tense/aspect/mood. While this is generally true, in fact the situation is not as straightforward as this would suggest and apparent agreement mismatches arise in a number of ways. In this paper I present the full range of these agreement puzzles in Murrinh-Patha serial verb constructions and discuss the challenges they pose for linguistic analysis. I argue that when viewed within the context of the Murrinh-Patha agreement system more generally their analysis becomes more straightforward and show how they can be accounted for using the formal theoretical framework of Lexical-Functional Grammar.

Keywords: Murrinh-Patha, agreement, Lexical-Functional Grammar, imperfective, serial verb

1. Introduction

Murrinh-Patha (non-Pama-Nyungan, Australia) has a "serial verb" construction that is used to encode imperfective aspect, as shown in the contrasts between the (a) and (b) examples below.[1] In this construction, one of a set of seven intransitive verbs is serialised to the end of the main verb, as shown in the examples below in which the serial verb is given in bold font. In Murrinh-Patha main verbs are generally formed by combining one of 38 bound classifier stems (traditionally glossed with a number) with a bound lexical stem; these are both underlined in the following examples.[2]

(1a) *dirran-nintha-nu-bath*
    3sS.28.nFut-du.m-RR-watch
    'They (two) looked at each other.' (RN, fieldnotes 11/7/05)

(1b) *dirran-nintha-nu-bath*=**pirrim**
    3sS.28.nFut-du.m-RR-watch=3sS.STAND(3).nFut
    'They two are looking at each other (while standing).' (RN, fieldnotes 11/7/05)

(2a) *dirrangan-ngi-bath*
    3sS.28.nFut-1sgO-watch
    'He looked at me.' (RN, fieldnotes 11/7/05)

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[1] It is not clear that characterising this construction as a serial verb construction (as opposed to an auxiliary construction or light verb construction, for example) is the best analysis. See Seiss (2009) for discussion of some of the issues. However, since this is how it is generally referred to in previous work on Murrinh-Patha (e.g. Blythe 2009) and other languages of the region (e.g. Green 1989, Reid 2002), I will stick to this terminology for the purposes of this paper.

[2] As mentioned above, the classifier paradigms have traditionally been labelled with numbers, in lieu of a proper analysis of their semantics. In some cases it is relatively straightforward to provide a classifier paradigm with a semantic gloss, in which case I have done so and additionally provided the traditional number label in brackets. In other cases, I have just stuck with the number identifier.

(2b) *dirrangan-ngi-bath* = **dim**

    3sS.28.nFut-1sgO-watch = 3sS.SIT(1).nFut

    'He is looking at me.' (RN, fieldnotes 11/7/05)

Previous descriptions of Murrinh-Patha (e.g. Walsh 1976, Street 1987) state that the serial verb in the imperfective aspect construction must agree with the main verb in terms of subject person and number, and tense/aspect/mood. This agreement is shown in (1b) and (2b), where the serial verbs encode third singular subject and non-future tense, as does the classifier stem in the main verb *dirran-/dirrangan-*.[3]

However, the agreement between the serial verb and the main predicate is not always as transparent as these previous descriptions suggest, and it is not hard to find examples that appear to violate these generalisations. In this paper I discuss such agreement phenomena and show that the agreement of serial verbs can be accounted for within a broader picture of agreement in Murrinh-Patha more generally. Further, in the interests of explicitness, I provide an account of this agreement system within the framework of Lexical-Functional Grammar (LFG).

To illustrate the issues, consider the following example:

(3)   *pakpak-mam-nganku-be-ngintha* = **ngurran**

    cramp-3sS.HANDS(8).nFut-1du/pauc.excl.O-arm-du.f = 1sS.GO(6).nFut

    'Our (du.excl.f.) arms are cramped.' (Walsh 1996:242)

In this example we have a main predicate *pakpak-mam-nganku-be-ngintha* which contains the adjectival stem *pakpak* and the classifier stem *mam-*. Included within this main predicate is a first person non-singular exclusive object marker *-nganku-* which is explicitly marked as having dual number by the dual number marker *-ngintha*. Crucially, this predicate is of the experiencer object type (e.g. Evans 2004),

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[3]   Note that *dirran-* in (1) and *dirrangan-* in (2) are alternative forms of the same classifier. I have no explanation for why they are used as such in these examples; one possibility is that the shorter form *dirran-* is used before the dual marker *-ngintha-*, but this needs to be verified with speakers.

in which the experiencer is encoded as an (externally-possessed) object, and the clause appears to have a third singular subject; literally 'it cramps us (in the) arms'.

To this predicate is serialized a second verbal predicate 'GO(6)', which is used to mark imperfective aspect (as well as other event semantics). However, this serialised verb is inflected for first person singular subject, and therefore appears to be fully agreeing with neither of the arguments of the main predicate. In fact, it is straightforward to show that the serial verb is agreeing with the object-marked argument, as varying the object marker requires a change in the agreement of the serial verb, as examples such as (3') demonstrate:

(3') *pakpak-mam-nan-be*=**numpan**
    cramp-3sS.HANDS(8).nFut-2plO-arm=2plS.GO(6).nFut
    'Your (pl) arms are cramped.' (RN, fieldnotes, 5/6/09)

However, such agreement is problematic for two reasons. Firstly, the serial verb in (3) is agreeing with the object-marked argument, and not the subject-marked argument as in other serial verb constructions (cf. (2b) above). Secondly, in (3) the agreement between the serial verb and the object-marked argument appears to be in terms of person only, and not number, since the serial verb is inflected for a singular subject but the object-marked argument is dual.[4] In fact, as I will argue, within the context of the broader Murrinh-Patha system the agreement of serial verbs is fairly straightforward. However, it operates differently from more familiar systems of agreement cross-linguistically, making its analysis slightly more complex. In this paper I will show how the Murrinh-Patha agreement system can be accounted for without needing to complicate the rules of agreement in serialised constructions. In the interests of providing a fully explicit analysis, I present my analysis using the formal framework of Lexical-Functional Grammar, but the essence of the analysis itself is independent of any theoretical perspective. I begin first with an overview of

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[4]   Examples like (3') show that it is not as simple as suggesting that number is frozen as singular in serial verb constructions since here we have plural number agreement on the serial verb, as expected.

the relevant parts of the Murrinh-Patha verbal system (§2); then discuss the agreement in number marking in serial verb constructions (§3), and finally the agreement with object-marked arguments illustrated in (3) (§4).

2. Overview of the Murrinh-Patha system

Murrinh-Patha is a polysynthetic language spoken in and around Wadeye in the Northern Territory of Australia. As mentioned above, it is one of many northern Australian languages in which main verbs are usually complex predicates (see McGregor 2002 for general discussion). In Murrinh-Patha verbs are generally bipartite containing (a form from) one of 38 paradigms of classifiers (functionally equivalent to what have been referred to as "finite verbs", "auxiliaries" or "generic verbs" in descriptions of such systems in other languages, e.g. Green 1989, Reid 1990, Schultze-Berndt 2000, Wilson 1999 among others) combined with a lexical verb stem (functionally equivalent to a "coverb"). Unlike many other northern Australian languages in which these two verbal elements constitute distinct syntactic classes (e.g. Jaminjung, Schultze-Berndt 2000) in Murrinh-Patha the two parts of the predicate are tightly bound into a single morphological word. The combination of the semantics of the classifier and the lexical verb stem determines the clausal predicate as a whole. The following examples are taken from Street & Street (1989).

(4a) *ba-warnta-nu*
　　 1sS.BASH(14).Fut-split_open-Fut
　　 'I'll split it open (with an axe).'

(4b) *bu-warnta-nu*
　　 1sS.17.Fut-split_open-Fut
　　 'I'll split it open (by hitting hard).'

(4c) *nga-warnta-nu*
　　 1sS.POKE(19).Fut-split_open-Fut
　　 'I'll split it open (with a gun).'

(4d) *ngu-warnta-nu*
　　 1sS.SLASH(23).Fut-split_open-Fut
　　 'I'll split it open (with a stick).'

The basic verbal template is given in Table 1. The two parts of the bipartite predicate are found in slot 1 (classifier) and slot 5 (lexical stem).

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

Table 1. Murrinh-Patha verbal template[5]

The overwhelming majority of classifier stems and lexical stems are only ever found in complex predicates. However, a minority of classifier stems can function as predicates on their own, as shown in bold in the following examples:[6]

(5) *kardu*   *terert*   ***ngunni-dha***
     NC:person   many   1plS.FOOT(7).PImp-PImp
     'A big group of us went (travelled).' (RN, CP-drowning, line 3)

(6) *dedi ngay-ka*   ***mam***   ***"purru-nu-warda-ngime"***
     dad   I-FOC   3sS.SAY(8/34).nFut   1inclS.GO(6).Fut-Fut-now-pauc.f
     'My dad said "we'll go (across the river) now."' (RN, CP-drowning, line 9)

(7) *thamunh ngay-yu Pulthen-yu*   ***ngani-ngintha-dha***
     MF   I-DM   P.-DM   1sS.BE(4).PImp-du.f-PImp
     'My Grandfather Pulthen and I were on the other side.'
     (RN, CP-drowning, line 41)

In the imperfective serial verb construction one of the set of seven basic intransitive classifier stems (see footnote 5) is serialised to the end of the main verb, to signal imperfective aspect (Table 2). These classifier stems are all ones that can appear as independent main verbs (e.g. (5-7) above) although their morphosyntactic behaviour

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[5] CS.SUBJ.TENSE: portmanteau encoding classifier stem, subject agreement and tense – SUBJ.NUM: subject number marker – OBJ: object agreement marker – RR: reflexive/reciprocal marker – IBP: incorporated body part – LEXS: lexical stem – TNS: tense marker – ADV: adverbial element – OBJ.NUM: object number marker.

[6] These include the set of basic intransitive classifiers – SIT(1), LIE(2), STAND(3), BE(4), PERCH(5), GO(6), TRAVEL(7) – as well as HANDS(8) and its RR counterpart HANDS:RR(10), TAKE(22) and SAY/DO(34).

as serial verbs is distinct from their main verb use, as we will see below. The choice of serial verb modifies the description of the semantics of the event and may also encode subtle distinctions in situational aspect.[7]

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

Table 2. Serial verb construction

The following examples illustrate the basic aspectual contrast encoded by the serial verb construction. In (8), where there is no serial verb, and the main predicate is inflected with non-future tense, the interpretation is necessarily (past) perfective. In (9) and (10), the serial verb (also inflected with non-future tense), marks the construction as imperfective allowing for the present imperfective interpretation.[8]

(8)   *dirraninthanubath*
      dirran-nintha-nu-bath
      3sS.28.nFut-du.m-RR-watch
      'They (two) looked at each other.' (RN, fieldnotes 11/7/05)

(9)   *dirraninthanubath = dim*
      dirran-nintha-nu-bath = dim
      3sS.28.nFut-du.m-RR-watch = 3sS.SIT(1).nFut
      'They (two) are looking at each other.' (RN, fieldnotes 11/7/05)

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[7]   See Nordlinger (2009) for some preliminary discussion of this aspect of the system, although there is much that is yet to be fully described.

[8]   Note that the translation shows the serial verb to be contributing stance information in (10), but not in (9). This is due to the fact that SIT(1) is used more generally than the other serial verbs, and does not necessarily encode stance information.

(10) *dirraninthanubath = pirrim*

    dirran-nintha-nu-bath = pirrim

    3sS.28.nFut-du.m-RR-watch = 3sS.STAND(3).nFut

    'They (two) are standing looking at each other.' (RN, fieldnotes 11/7/05)

Thus, this set of seven classifier stems is found with three distinct functions: (i) they may function as predicates in their own right (as in 5-7 above); (ii) they may combine with a lexical stem to form a complex predicate (as is the regular use for all classifier stems except for SAY/DO(34) which can't combine with lexical stems); and (iii) they may function as a serial verb to encode imperfective aspect. The following examples (all taken from the same text) illustrate the same classifier stem (*parni-*) with these three functions respectively.

(11a) *i*   *da*   *le patha-nu*   **parni***-nu*

      and NC:time happy-Fut   3plS.BE(4).Fut-Fut

      'and then they'll be happy' (RN, TN-School)

(11b) *da*   *berematha wangu-nu* **parni***-rdurdi-nu,*   *thipinhire*   *terert*

      NC:time always-DAT   3plS.BE(4).Fut-enter-Fut morning   many

      'They'll go (to school) every day.' (RN, TN-School)

(11c) *reading* *puyema-nu = **parni***   *ngarra*   *da*

      read   3plS.DO(34).Fut-Fut = 3plS.BE(4).Fut LOC   NC:place

      school-nu-yu

      school-DAT-DM

      'They'll read it at the school.' (RN, TN-School)

3. Number agreement

According to previous descriptions of the Murrinh-Patha system, the serial verb must agree with the main verb in subject person, number and tense. This is also how the systems are described for neighbouring languages such as Marrithiyel (Green 1989) and Ngan'gityemerri (Reid 1990). This agreement is illustrated in the following examples: in each example the tense/aspect of the main verb is matched on the serial

verb (e.g. future, non-future and past-imperfective respectively), as are the person and number features of the subject.

(12) *ngay-ka   marda   me-marda-purl-nu=ngu*
     I-FOC   belly   1sS.HANDS:RR(10).Fut-belly-wash-Fut=1sS.LIE(2).Fut
     'I will wash my belly while I'm lying down.' (Walsh 1976:239)

(13) *ku   were   ngurdan-thukthuk=ngem   ngarra   da*
     NC:animate   dog   1sS.29.nFut-send=1sS.SIT(1).nFut LOC   NC:place
     'I'm sending the dogs home.' (RN, fieldnotes 8/6/07)

(14) *bath   pume-ngka-dha=pirrini*
     watch   3plS.HANDS(8).PImp-look-PImp=3plS.SIT(1).PImp
     'They were waiting for him.' (Kulamburut/Walsh story, line 13)[9]

However, note that the serial "verb" is not a complete verb in the sense that it consists only of the first slot in the main verbal template (i.e. the slot containing the classifier stem). In (12) and (14) above, for example, the main verb carries additional tense/aspect marking (*-nu* and *-dha* respectively), but this is not repeated on the serial verb despite the tense/aspect agreement.[10] It would not be grammatical for this additional tense/aspect marking to be absent from the main verb. Thus, serial verbs like *ngu* in (12) and *pirrini* in (14) are not grammatical as main verbs: the grammatical forms would be *ngu-nu* and *pirrini-dha*.[11]

Additional number markers are also not repeated on the serial verb, as the following examples illustrate. In the contrast between (15a) and (15b) we see that the dual

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[9] This example is taken from a story published in Hercus & Sutton (1986). The morphological analysis and glosses are mine, and I have retranscribed some of the Murrinh-Patha in accordance with the current spelling system.

[10] Non-future forms do not include additional tense marking, which is why there is no such marker in (13).

[11] In this respect, Murrinh-Patha differs from other Daly languages such as Marrithiyel, where the main verb tense marker in fact comes **after** the serial verb (Green 1989:175).

(non-sibling) category is marked on the main verb by the additional of a dual number marker -*nintha* (or -*ngintha* for groups that are not exclusively male).[12] In the imperfective equivalents (15c) and (15d), however, the serial verb remains in the same form despite the change in subject number: the dual number marker -*nintha* is not repeated on the serial verb (15d).[13] (15e) is provided to show that it is possible to vary subject number on the serial verb – we cannot simply account for (15d) by assuming that =*dim* is a fixed form used in serial constructions irrespective of the number of the subject.

(15a) *manganta*
        mangan-rta
        3sS.SNATCH(9).nFut-hug
        'He hugged her.' (RN, fieldnotes 11/7/05)

(15b) *manganintharta*
        mangan-nintha-rta
        3sS.SNATCH(9).nFut-du.m-hug
        'They two (boys, non-siblings) hugged her.' (RN, fieldnotes 11/7/05)

(15c) *manganta*=**dim**
        mangan-rta=**dim**
        3sS.SNATCH(9).nFut-hug=3sS.SIT(1).nFut
        'He's hugging her.' (RN, fieldnotes 11/7/05)

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[12] Murrinh-Patha has a complex set of pronominal and verbal agreement categories, distinguishing four numbers (singular, dual, paucal and plural) as well as making a distinction in the dual and paucal categories between groups of siblings and groups of non-siblings. This is illustrated in more detail in Table 3.

[13] Once again, Murrinh-Patha differs from its neighbours in this respect. In both Marrithiyel (Green 1989) and Ngan'gityemerri (Reid 1990), the number markers are repeated on the serial verbs in such contexts.

(15d) *manganintharta=**dim***

mangan-nintha-rta=**dim**

3sS.SNATCH(9).nFut-du.m-hug=3sS.SIT(1).nFut

'They two (boys, non-siblings) are hugging her.' (RN, fieldnotes 11/7/05)

(15e) *pumanganta=**pirrim***

pumangan-rta=**pirrim**

3plS.SNATCH(9).nFut-hug=3plS.SIT(1).nFut

'They are hugging her.' (RN, fieldnotes 11/7/05)

Consequently, the serial verb has a different range of grammatical meanings than it would if it was functioning as a main verb. As the examples in (16) illustrate, *dim* can only ever have a singular subject interpretation as a main verb (16a); a dual (non-sibling) subject interpretation requires the additional of the dual number marker (16b). This is in direct contrast to (15d), where *dim* functions as the serial verb "agreeing" with dual non-sibling subject in the main verb.[14]

(16a) *dim*

3sS.SIT(1).nFut

'He's sitting.' (can't mean 'they two are sitting')

(16b) *dim-nintha*

3sS.SIT(1).nFut-du.m

'They two (male, non-siblings) are sitting.'

Such number "mismatch" is also found with the dual sibling and paucal, where once again, the absence of the additional number marker on the serial verb (in this case the paucal number marker *-ngime* (f) / *-neme* (m)) leads to a situation where we appear to have a serial verb inflected for dual (sibling) subject "agreeing" with a paucal non-sibling subject in the main verb. The examples in (17) show the main verb uses,

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[14] This difference between main verb and serial verb uses demonstrates clearly that these serial verb constructions are single predicates, rather than sequences of main verbs.

in which the paucal non-sibling subject is distinguished from the dual sibling subject by the addition of the number marker *-neme* (17b). In (18), however, we see that the same serial verb form – namely the dual sibling subject form – is used to "agree" with both dual sibling subjects in the main verb (18a) and paucal non-sibling subjects (18b). In this latter case, the additional paucal number marker is not repeated on the serial verb.

(17a)   *pirrimka*
        3dS.SIT(1).nFut
        'They (two siblings) are sitting.'

(17b)   *pirrimka-neme*
        3dS.SIT(1).nFut-pauc.m
        'They (paucal male non-siblings) are sitting.'

(17c)   *pirrim*
        3plS.SIT(1).nFut
        'They (plural) are sitting.' / 'They (paucal sibling) are sitting.'

(18a)   *pangan-nunggu-bath＝pirrim(ka)*[15]
        3dS.28.nFut-RR:pauc-watch＝3dS.SIT(1).nFut
        'They (dual sibling) are watching each other.'

(18b)   *pangan-nunggu-bath-neme＝pirrim(ka)*
        3dS.28.nFut-RR:pauc-watch-pauc.m＝3dS.SIT(1).nFut
        'They (paucal non-sibling) are watching each other.'

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[15]   *-ka* is a subject number marker found on dual sibling and paucal non-sibling classifier forms in the non-future tense. It occurs in the second verbal slot and so is omitted when there is an object marker or the RR marker present (as in (18)). Some speakers omit *-ka* in the serial verbs, using the plural form *pirrim* in all three cases (dual sibling, paucal non-sibling and plural). However, this syncretism is only found in the non-future tense – other tense categories maintain a distinction between dual sibling/paucal and plural in serial verbs – which is why I don't collapse the two categories in my analysis.

It's clear that there is some sort of number agreement here: the serial verb must be in its plural subject form when the main verb has a plural subject, and in its singular form when the main verb as a singular subject. However, the number agreement that we find in the dual and paucal number categories does not seem to be identical to what we find in main verbs, since categories that are distinguished in the main verb via the additional number markers are not distinguished in the serial verbs.

There are a number of logically possible ways in which we might approach this problem analytically. One possibility would be to argue that serial verbs operate according to a different set of number categories than main verbs. Note however, that while the serial verb is not agreeing fully with the main verb, in the sense that it is not in the form that it would have to be if it was functioning as a main verb with the same number features, it is agreeing in the sense that it must use the same classifier form that it would as a main verb with the same number features. To simply treat the main verbs and serial verbs as operating according to different systems with different sets of categories, risks missing this generalisation that the agreement is in the form of the classifier, rather than in number features themselves.

Thus, this generalisation is best captured by situating an analysis of number agreement in serial verb constructions within an analysis of the subject number system in Murrinh-Patha verbs more generally.

Table 3 presents the subject number marking system in Murrinh-Patha (main) verbs. Note that other logically possible combinations are ungrammatical. Examination of the table reveals the following about the subject number marking system:

1. There are five distinct categories which mark number/sibling combinations: singular, dual non-sibling, dual sibling, paucal non-sibling, and plural (also paucal sibling). These are shown in bold in the rightmost column of the table.

2. These five categories are realised through the interaction of a three-way contrast in the classifier form (loosely referred to as SINGULAR, DUAL, PLURAL) and a three way contrast in the number marker (unmarked vs. dual non-sibling vs. paucal non-sibling).

3. The system exhibits some unusual skewing in that the non-sibling dual and paucal categories are formed by taking the classifier of the next lower

number value as the base. So dual non-sibling has SINGULAR as its classifier form, and paucal non-sibling has DUAL as its classifier form.

Classifier form	Number marker	Subject properties
SINGULAR	unmarked	Singular
SINGULAR	dual (*ngintha* (f) / *nintha* (m))	Dual non-sibling
DUAL (+ -*ka* nFut)	unmarked	Dual sibling
DUAL (+ -*ka* nFut)	paucal (*ngime* (f)/ *neme* (m))	Paucal non-sibling
PLURAL	unmarked	Paucal sibling / Plural

Table 3. The encoding of subject number in the Murrinh-Patha verb

Although I have used the labels SINGULAR, DUAL and PLURAL for the three classifier forms, it is clear that they can't be analysed as contributing simply singular, dual and plural number features for the subject, respectively. If this were so, then the singular number feature contributed by the classifier form would clash with the dual number marker in dual non-sibling subject constructions, for example. Furthermore, we would have no account for why the singular form is compatible with dual non-sibling subjects in serial verb constructions.

However, in the context of this system, the number agreement in serial verbs is fairly straightforward: the serial verb is simply agreeing with the classifier stem in the main verb, appearing in the SINGULAR form for singular and dual non-sibling categories, the DUAL form for dual sibling and paucal non-sibling categories, and the PLURAL form in all other cases. While this generalisation is reasonably intuitive and easy to state descriptively, it is not at all straightforward analytically. This is due to the fact that we do not usually think of agreement as existing between the forms of (parts of) words, but rather between the categories that these items instantiate.

While it is clear that an analysis of number agreement in serial verbs will follow from an analysis of the verbal subject number system more generally, there are various options as to what such an analysis might look like. One option would be to assume "rampant homonymy" throughout the classifier paradigms so that all classifiers (whether functioning within main verbs or serial verbs) would in fact be analysed as marking a six-way number/sibling contrast as follows:

dim	Singular
dim	Dual non-sibling
pirrimka	Dual sibling
pirrimka	Paucal non-sibling
pirrim	Paucal sibling
pirrim	Plural

Table 4. SIT(1) paradigm (nFut tense) assuming "rampant homonymy"

While this analysis has the advantage of allowing the agreement facts in serial verb constructions to follow automatically, it treats as "accidental" a systematic pattern that exists across all 38 classifier paradigms in all six tense/aspect/mood categories and even among most of the pronouns as well (see Street 1987, Blythe 2009 for detailed discussion). If there really were six distinct number/sibling categories in Murrinh-Patha classifier paradigms, it would be rather surprising not to find them distinguished in at least some places. On the contrary, the system sketched out in Table 3 is found across the board, in all classifier paradigms and in all tense/aspect/mood categories. For this reason, I reject this first option as undesirable since it cannot account for the generalisations shown in Table 3 and causes unnecessary duplication in the classifier paradigms.

An alternative option would be to analyse the system as consisting of three broad number categories reflecting the three-way contrast in form exemplified in Table 4. This would result in three categories encompassing the following meanings:

Sample form	Category	"Meanings" encompassed
dim	"Dingular"	Singular and dual non-sibling
pirrimka	"Daucal"	Dual sibling and paucal non-sibling
pirrim	"Plucal"	Paucal sibling and plural

Table 5. SIT(1) paradigm assuming "three broad number categories"

This is analytically more appealing, since it allows us to treat each formal distinction as corresponding to a categorical distinction and therefore accounts for why we seem to have "singular" serial verb forms agreeing with dual non-sibling main verbs, for example.

However, this approach brings with it some additional problems. Firstly, these categories are extremely unnatural and do not clearly correspond to any other number categories found in the typological literature (e.g. Corbett 2000). More importantly, however, we would still need to account for the fact that each of the forms in Table 5 has only one of its two possible meanings when it occurs on its own as a main verb: *dim* in (16a), for example, can only ever be interpreted as referring to a singular subject. If it were encoding a "dingular" category, however, we might expect it to be truly ambiguous in this context between a singular subject and a dual non-sibling subject.[16]

A third option, which is the one I advocate here, is somewhat of a compromise between these two. I propose that each of the three formal distinctions (i.e. SINGULAR, DUAL and PLURAL in Table 3) is associated with two possible subject number values: one is fully specified, while the other is underspecified and requires extra information from elsewhere in the verb. In the interests of maximal explicitness, I will illustrate this analysis using the framework of Lexical-Functional Grammar (LFG, see Bresnan 2001, Dalrymple 2001 for general overview). LFG is a unification-based framework which treats grammatical structure as being made up of interacting parallel structures, each with their own form and set of constraints. This multidimensional architecture allows for the separation of grammatical function information from phrase structure, for example, and thus LFG has been shown to be particularly useful in the analysis of non-configurational languages, of which there are many in Australia (see, for example Simpson 1991, Austin & Bresnan 1996, Nordlinger 1998). Although I present the analysis within the LFG framework, the essence of the analysis is independent of any theoretical perspective.

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[16] If we wanted to save this analysis, we could assume that there is a zero singular number marker in (16a) in contrast with the dual non-sibling marker -*ngintha* in (16b). However, this would require also assuming that there is a zero dual sibling marker in *pirrimka* (17a), and zero paucal sibling and plural forms to account for *pirrim*. On my view, such a proliferation of zeros makes this approach even more undesirable.

Within the LFG framework, a distinction between fully specified and underspecified feature values can be achieved straightforwardly by using a combination of disjunctive features and constraining equations as shown in the following partial lexical entries (to be explained more fully below):[17]

(19)

SINGULAR: $(\uparrow \text{SUBJ NUM}) = \text{SG}$ V $(\uparrow \text{SUBJ NUM}) =_c \text{DU}$

DUAL: $\left\{ \begin{array}{l} (\uparrow \text{SUBJ NUM}) = \text{DU} \\ (\uparrow \text{SUBJ SIB}) = + \end{array} \right\}$ V $(\uparrow \text{SUBJ NUM}) =_c \text{PAUC}$

PLURAL: $(\uparrow \text{SUBJ NUM}) = \text{PL}$ V $\left\{ \begin{array}{l} (\uparrow \text{SUBJ NUM}) = \text{PAUC} \\ (\uparrow \text{SUBJ SIB}) = + \end{array} \right\}$

These lexical entries contain disjunctive equations meaning that only one of the alternatives need be unifiable in order for the resulting structure to be grammatical. The SINGULAR form (e.g. *dim*), for example, carries two alternative types of equations: a defining equation and a constraining equation. The defining equation $((\uparrow \text{SUBJ NUM}) = \text{SG})$ specifies the subject of the verb as having singular number. The second option $((\uparrow \text{SUBJ NUM}) =_c \text{DU})$ is a constraining equation (as indicated by the subscript c), which effectively places a constraint on the clausal f-structure (i.e. the structure which contains the grammatical function information associated with the whole clause) that the subject's number value must be dual, but doesn't provide the dual number feature itself. This therefore ensures that the dual number feature is provided by something else in the clause (e.g. a dual number marker) in order for the constraining equation to be satisfied, and for the clause to be grammatical.

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[17] For simplicity, I am abstracting away from all but number agreement features here – these are partial lexical entries only. For readers unfamiliar with the LFG formalism, the arrows in these lexical entries refer to the constituent itself, and can usually be informally read as "my". Thus, $(\uparrow \text{SUBJ NUM}) = \text{SG}$ can be read as "my SUBJect's NUMber is Singular" for example.

The additional number markers have straightforward lexical entries, as in (20), specifying that the subject of the clause have a particular number value (DU and PAUC respectively) and that it is not a group of siblings (SIB = -):

(20) *-nintha/-ngintha*:   ($\uparrow$ SUBJ NUM) = DU

$\qquad\qquad\qquad$ ($\uparrow$ SUBJ SIB) = −

$\qquad$ *-ngime/-neme*:   ($\uparrow$ SUBJ NUM) = PAUC

$\qquad\qquad\qquad$ ($\uparrow$ SUBJ SIB) = −

As an illustration of how the analysis works, consider the following:

(15a') *manganta*

$\qquad$ mangan-rta

$\qquad$ 3sS.SNATCH(9).nFut-hug

$\qquad$ 'He hugged her.' (RN, fieldnotes 11/7/05: 11)

(15b') *manganintharta*

$\qquad$ mangan-nintha-rta

$\qquad$ 3sS.SNATCH(9).nFut-du.m-hug

$\qquad$ 'They two (boys, non-siblings) hugged her.'

(15d') *manganintharta=dim*

$\qquad$ mangan-nintha-rta=dim

$\qquad$ 3sS.SNATCH(9).nFut-du.m-hug=3sS.SIT(1).nFut

$\qquad$ 'They two (boys, non-siblings) are hugging her.'

Mangan-, like *dim*, is a SINGULAR form and therefore carries the information ($\uparrow$ SUBJ NUM) = SG V ($\uparrow$ SUBJ NUM) =$_c$ DU.[18] In (15a') there is nothing else in the verb to contribute a DU value and satisfy the constraint equation ($\uparrow$ SUBJ NUM)

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[18] To be interpreted as "either my subject's number is singular OR my subject's number is constrained to be dual (where the dual value is coming from somewhere else)".

$=_c$ DU, so in order for *mangan-* to be grammatical here, it must be interpreted as specifying a singular subject by virtue of ($\uparrow$ SUBJ NUM) = SG.

In (15b') the *-nintha-* marker in the verb brings with it the dual number value and non-sibling information as given in (20). This information cannot unify with ($\uparrow$ SUBJ NUM) = SG coming from *mangan-*. It does, however, satisfy the constraint equation ($\uparrow$ SUBJ NUM) $=_c$ DU by providing a dual number value for the SUBJ. Thus, the construction is grammatical with a dual non-sibling subject reading.

This account also extends straightforwardly to the serial verbs, as in (15d'). The serial verb and the main verb are part of a single predicate. Thus, the information about subject number that comes from the main verb will need to unify with information about the subject number coming from the serial verb in order for the clause to be grammatical. *Dim* (in either its main verb or serial verb functions), as a SINGULAR form, carries these same number marking options:

(21) *dim*:   ($\uparrow$ SUBJ NUM) = SG V ($\uparrow$ SUBJ NUM) $=_c$ DU

Since the main verb in (15d') contains the dual number marker, then the subject is clearly specified as having dual number. The singular number feature associated with *dim* can't unify, therefore, with the subject number feature of the main verb (since the subject cannot have two values for the NUM feature). The constraining equation ($\uparrow$ SUBJ NUM) $=_c$ DU is satisfied however, by virtue of the dual number marker in the main verb. This explains why the dual subject number does not need to be repeated on *dim* itself when functioning as a serial verb.[19]

This analysis, while not necessarily providing us with an explanation for this unusual number marking system, has a number of advantages over the other options considered above. Firstly, the agreement patterns in serial verb constructions follow automatically from the verbal subject number system more generally; secondly, it

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[19]   Note that the incompatibility of the DUAL serial verb here (i.e. *pirrimka*) is accounted for by the fact that it carries the specification ($\uparrow$ SUBJ SIB) = +, which cannot unify with the ($\uparrow$ SUBJ SIB) = – feature coming from *-nintha-* in the main verb.

allows a for unified analysis of the subject number system of classifiers in both main and serial verb functions; thirdly, the distinction between definitional and constraining equations accounts for the fact that the SINGULAR and DUAL classifiers each have a primary number value, with the secondary number value arising only through the addition of additional morphological marking; and finally, it accounts for why such additional number marking morphology is omitted when the classifier is functioning as a serial verb.

4. Agreement with the "object"

As discussed in §1 above, further apparent agreement "mismatches" arise in serial verb constructions with deponent verbs (i.e. "impersonal" verbs (Walsh 1987) or "experiencer object" verbs (Evans 2004)), since the serialised verb often shows agreement with the experiencer, not the apparent grammatical subject:

(22) *dem-ngi-ralal=ngurran*
    3sS.POKE:RR(21).nFut-1sgO-thirsty=1sS.GO(6).nFut
    'I'm thirsty.' (RN, fieldnotes 7/6/07)

In this respect, Murrinh-Patha differs from Ngan'gityemerri where agreement is always third singular in these cases, thus agreeing with the dummy third singular subject (Reid 2002):[20]

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[20] Note that it is common to find third singular agreement in such constructions in Murrinh-Patha also (Joe Blythe, pers. comm.), so there may be a change in progress in Murrinh-Patha, or alternatively the agreement pattern may depend on the type of main verb. Walsh (1987) describes three categories of verbs with fixed third singular subjects: impersonal, implicit agent, and inanimate agent, each with different argument structure properties. It is plausible (and in fact, predicated by the analysis I provide below), that the serial verb agrees with the object-marked argument with some of these verb categories, but not all. Further data is required before this issue can be resolved.

(23) *deme-nyi-mi-dit-tye-dini*   *kuru-nimbi*
    3sgS.Hands.PI-2sgO-eye-ache-Past-3sgS.Sit.PI   liquid-CAUS[21]
    'You still had a headache from the beer (lit. it was making your face ache).'

It is notable that we also find apparent object agreement when serial verb constructions co-occur with "vouns" (Walsh 1996), in which the logical subject is likewise encoded with the object marker:

(24) *pakpak-mam-ngi-be=ngurran*
    cramp-3sS.HANDS(8).nFut-1sgO-arm=1sS.GO(6).nFut
    My arm is [habitually] cramped.' (Walsh 1996:241)

The analysis of number marking presented in §3 assumes that serial verbs will always agree with the subject of the main verb. These examples of apparent object agreement challenge such an account, since they suggest that serial verbs may also agree sometimes with the object of the main verb. On the contrary, I argue that the serial verbs are agreeing with the subjects in examples such as (22) and (24), but that the mismatch lies with the argument encoding in the main verb, not in the agreement of the serial verb. In other words, I take the agreement of the serial verb to indicate that the argument encoded with the object marker in these cases is the subject after all, and that the presence of the "object" marker here is a morphological phenomenon rather than a syntactic one.

Why would a language use an object marker to encode the subject? In the case of Murrinh-Patha, I believe this arises from the fact that there is no independent subject marker in the Murrinh-Patha verb. Subjects are marked as part of the complex portmanteau that encodes the classifier stem. In the "impersonal verb" and "voun" constructions presented above, the classifier stem is fixed as third person singular. Thus, I argue that it has been reanalysed as a dummy form, and no longer encodes the subject. Instead, the object marker has been co-opted to encode the subject, since there is no other subject marker available. Further evidence for this analysis comes

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[21]   PI: past imperfective

from the fact that the object marker is also used to express the single argument of the non-verbal constructions Walsh (1996) terms "nerbs", in which there is no verbal element at all:

(25) *wardi-ma-**nhi***

   thin-hand-**2sgO**

   'You have thin hand(s) / fingers; you are thin-fingered.' (Walsh 1996:238)

(26) *lurruwith-**ngi***

   quick-**1sgO**

   'I'm quick.' (Walsh 1996:239)

Thus, there are three different construction types (impersonal verbs (22), "vouns" (24) and "nerbs" (25, 26)) in which the object marker is used to encode an argument that is not clearly an object (see Walsh 1996:238 for similar observations). In at least two of these cases (impersonal verbs and "vouns") a serial verb agrees anomalously with the argument marked as "object". In the third case ("nerbs") the object marker encodes the single argument of an adjectival predicate – an argument that would be considered a subject by all standard assumptions. This evidence points strongly towards the conclusion that the object marker in these three construction types is not encoding an object, but is in fact encoding the grammatical subject instead.

My proposal, therefore, is that the "object" marker in Murrinh-Patha does not realise the OBJ grammatical function, but rather marks a core grammatical function that may be either SUBJ or OBJ, depending on the particular grammatical context in which it occurs. Following Dalrymple (2001), I use TERM as a variable for a core grammatical function (in this case, TERM may be realised as either SUBJ or OBJ).

In the large majority of verbs, the classifier stem contributes the SUBJ argument.[22] Due to the Principle of Uniqueness, which states that an attribute (e.g. SUBJ) may

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[22] This is achieved in LFG by allowing the classifier stem to contribute a PRED feature for the SUBJ by virtue of the equation ($\uparrow$ SUBJ PRED) = PRO.

have only one value,[23] in these cases the "object" marker cannot also contribute the SUBJ, and so can only be interpreted as encoding the OBJ. This is illustrated for the regular transitive verb *bam…ngkardu* 'see/look' below:[24]

(27) *bam-nhi-ngkardu*

3sS.13.nFut-2sgO-see

'He saw you.'

bam … ngkardu: ($\uparrow$ PRED) = 'see $<$($\uparrow$ SUBJ) ($\uparrow$ OBJ)$>$'
($\uparrow$ SUBJ PRED) = PRO
($\uparrow$ SUBJ PERS) = 3
($\uparrow$ SUBJ NUM) = SG
($\uparrow$ TENSE) = NFUT

This lexical entry for the verbal predicate defines the following f-structure, in which the SUBJ is fully instantiated, but the OBJ still unspecified:

(28)
$$\begin{bmatrix} \text{PRED 'see <SUBJ, OBJ>'} \\ \text{TENSE NFUT} \\ \text{SUBJ} \begin{bmatrix} \text{PRED PRO} \\ \text{PERS 3} \\ \text{NUM SG} \end{bmatrix} \\ \text{OBJ } [\ ] \end{bmatrix}$$

The information associated with the "object" marker is provided in (29). The TERM attribute allows for two alternative f-structures, as shown in (a) and (b):

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[23] Uniqueness Condition: every attribute has a unique value (Bresnan 2001:47).

[24] I am treating the combined classifier + lexical stem as a single lexical entry here and below for ease of exposition and in lieu of a detailed analysis of the compositionality of the system.

(29) *-nhi-:* ($\uparrow$ TERM PRED) = PRO

              ($\uparrow$ TERM PERS) = 2

              ($\uparrow$ TERM NUM) = SG

(a) $\left[\text{SUBJ}\begin{bmatrix}\text{PRED PRO}\\\text{PERS 2}\\\text{NUM SG}\end{bmatrix}\right]$ OR   (b) $\left[\text{OBJ}\begin{bmatrix}\text{PRED PRO}\\\text{PERS 2}\\\text{NUM SG}\end{bmatrix}\right]$

The option shown in (a), in which the "object marker" encodes information about the SUBJ will cause unification to fail since the Uniqueness condition states that SUBJ can only have one value, and this is provided by the classifier stem. Thus only the option in which the *-nhi-* marker contributes the OBJ function will yield a grammatical result.

When there is no verb, as with "nerbs" (25), there is no classifier stem to contribute the SUBJ. In this case, the "object" marker can be used for this purpose. Consider the following:

(25') *lurruwith-**ngi***

    quick-**1sgO**
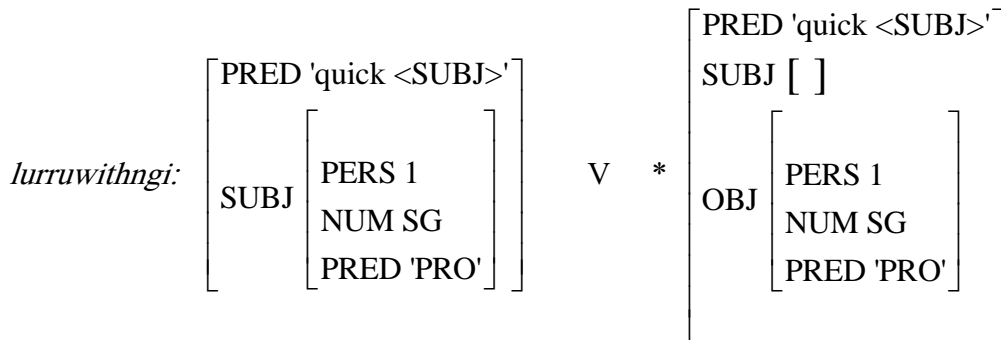
    'I'm quick.' (Walsh 1996:239)

  lurruwith: ($\uparrow$ PRED) = 'quick $<$($\uparrow$ SUBJ)$>$'

  -ngi-: ($\uparrow$ TERM PERS) = 1

          ($\uparrow$ TERM NUM) = SG

          ($\uparrow$ TERM PRED) = PRO

The lexical entry associated with *lurruwith* defines the f-structure in (30). When combined with the "object" marker, this results in the two possible f-structures in (31).

(30) *lurruwith*: $\left[\begin{matrix}\text{PRED 'quick} <\text{SUBJ}>'\\\text{SUBJ}\begin{bmatrix}\ \ \end{bmatrix}\end{matrix}\right]$

(31)

$$\textit{lurruwithngi:} \quad \begin{bmatrix} \text{PRED 'quick <SUBJ>'} \\ \\ \text{SUBJ} \begin{bmatrix} \text{PERS 1} \\ \text{NUM SG} \\ \text{PRED 'PRO'} \end{bmatrix} \end{bmatrix} \quad V \quad * \quad \begin{bmatrix} \text{PRED 'quick <SUBJ>'} \\ \text{SUBJ} [\;] \\ \\ \text{OBJ} \begin{bmatrix} \text{PERS 1} \\ \text{NUM SG} \\ \text{PRED 'PRO'} \end{bmatrix} \end{bmatrix}$$

Of these two possibilities, only the first – in which the "object marker" actually instantiates the SUBJ function – is grammatical. The second option, in which the object marker is interpreted as realising an OBJ violates the central LFG principles of Completeness and Coherence respectively, since the SUBJ grammatical function is subcategorised for but not instantiated, and the OBJ function is instantiated but not subcategorised for.[25]

This account then extends to the "vouns" and the lexicalised impersonal verbs if we assume that the classifier in these cases is also not expressing the SUBJ, but is in fact a fixed, lexicalised form that has been bleached of its grammatical function information. This analysis is exemplified here for the impersonal verb *dem … ralal* 'be thirsty':

(22')   *dem-ngi-ralal = ngurran*
  3sS.POKE:RR(21).nFut-1sgO-thirsty = 1sS.GO(6).nFut
  'I'm thirsty.'   (RN, fieldnotes, 7/6/07)

  dem…ralal: ($\uparrow$ PRED) = 'be thirsty <($\uparrow$ SUBJ)>'
       ($\uparrow$ TENSE) = NFUT

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[25]   The Completeness condition requires that every function designated by a PRED be present in the f-structure of that PRED (Bresnan 2001:63). The Coherence condition requires that every argument function in an f-structure be designated by a PRED (Bresnan 2001:63).

The lexical entry for *dem … ralal* given above defines the following f-structure. Note that there is no information provided about the SUBJ.

(32)
$$\begin{bmatrix} \text{PRED 'be thirsty} <\text{SUBJ}>' \\ \text{TENSE NFUT} \\ \text{SUBJ } [\ ] \end{bmatrix}$$

Since the verb stem itself does not provide information about the SUBJ, the analysis proceeds in the same way as for the "nerb" *lurruwithngi* above. Since the verb subcategorizes for a SUBJ, the Completeness condition ensures that the "object marker" be interpreted as realizing the SUBJ since otherwise the structure would be ungrammatical. The f-structure for the whole verb is therefore as in (33):

(33)
$$\begin{bmatrix} \text{PRED 'be thirsty} <\text{SUBJ}>' \\ \text{TENSE NFUT} \\ \text{SUBJ } \begin{bmatrix} \text{PRED PRO} \\ \text{PERS 1} \\ \text{NUM SG} \end{bmatrix} \end{bmatrix}$$

Since the "object" marker is actually providing information about the SUBJ in the f-structure, the clause as a whole is specified as having a first person singular subject. The first person singular subject agreement on the serial verb in (22') therefore follows naturally.
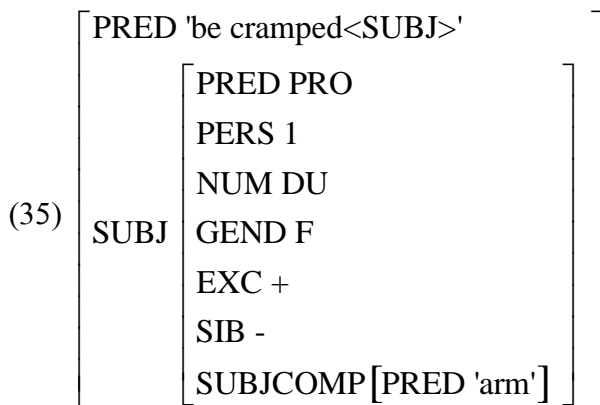
5. Conclusion

I have presented an analysis of agreement in Murrinh-Patha verbs that provides for a unified analysis of agreement patterns within main verbs and serial verb constructions. Recall example (3), repeated here as (34), in which the serial verb construction appears to agree with neither the subject nor the object of the main verb:

(34) *pakpak-mam-nganku-be-ngintha = ngurran*
     cramp-3sS.HANDS(8).nFut-1du.exclO-arm-du.f = 1sS.GO(6).nFut
     'Our (du.excl.f) arms are cramped.' (Walsh 1996:242)

In this example, the serial verb *ngurran* is a first person singular form, while the subject is third singular and the object is first person dual exclusive. While such "agreement" appears anomalous, it follows naturally from the analysis presented above, as we shall now see.[26]

Firstly, as in the experiencer object construction in (32), I assume that *pakpak-mam* here is a lexicalised combination which provides no information about the SUBJ. As a result, the "object marker" *-nganku-* is unified with the SUBJ grammatical function in order for the clause to be grammatical (i.e. satisfying the Completeness condition), in exactly the same way as we saw for *dem-ngi-ralal* in (33) above. Once the information from the dual marker *-ngintha-* has been unified, the f-structure associated with the main predicate *pakpak-mam-nganku-be-ngintha* is that given in (35):[27]

$$(35) \begin{bmatrix} \text{PRED 'be cramped<SUBJ>'} \\ \text{SUBJ} \begin{bmatrix} \text{PRED PRO} \\ \text{PERS 1} \\ \text{NUM DU} \\ \text{GEND F} \\ \text{EXC +} \\ \text{SIB -} \\ \text{SUBJCOMP} \begin{bmatrix} \text{PRED 'arm'} \end{bmatrix} \end{bmatrix} \end{bmatrix}$$

The first person agreement in the serial verb follows straightforwardly from the fact that the SUBJ is first person, by virtue of the fact that it is encoded by *-nganku-* and

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[26] Note that I am abstracting away from the issue of how best to account for external possession in the part-whole construction represented by *-nganku-be-* (lit. 'our arms'). I am simply treating *-nganku-* as an argument in this construction, without consideration of how such argument structure arises.

[27] I am using the label "SUBJect COMPlement" to account for the body part 'arm' here, in lieu of a proper analysis of external possession. See Schrock (2007) and Lødrup (2009) for discussion of the treatment of external possession within LFG.

not the classifier stem. The "singular" form of the serial verb follows from the fact that this form carries the disjunctive feature specifications in (36), similarly to all other SINGULAR classifier forms:

(36) *ngurran*: $(\uparrow$ SUBJ NUM$) =$ SG V $(\uparrow$ SUBJ NUM$) =_c$ DU

Since the main predicate has already specified the SUBJ as having dual number (by virtue of the dual number marker *-ngintha*), the constraining equation $(\uparrow$ SUBJ NUM$) =_c$ DU is satisfied and so this form can unify with the f-structure of the main predicate, resulting in a grammatical structure for the clause as a whole.

Acknowledgements

Abbreviations

I have used the Leipzig glossing rules wherever possible. Additional abbreviations (not covered by the Leipzig glossing rules) are:

d: dual sibling/paucal non-sibling classifier form – DM: discourse marker (exact function not yet determined!) – f: feminine and mixed groups – MF: mother's father – NC: noun class marker – O: object – pauc: paucal number – PImp: past imperfective – RR: reflexive/reciprocal – s: singular and dual non-sibling classifier form – S: subject

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