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Number in Meryam Mir

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Abbreviations

$\wedge$	logical conjunction	$\cap$	intersection of sets
$\vee$	logical disjunction	$\cup$	union of sets
$\neg$	negation		

A	subject of transitive verb	NP	noun phrase
ABL	ablative	NPCT	non-punctiliar
ALL	allative	NPL	non-plural
conj.	conjugation	NPRS	non-present
CONJ	conjunction	O	object of transitive verb
DEIX	deictic marker	OBJ	object
DET	determiner	PC	paucal
DU	dual	PFV	perfective
ERG	ergative	PL	plural
EXCL	exclusive	PRS	present
FUT	future	RESTR	restrictive
GEN	genitive	S	subject of intransitive verb
INCL	inclusive	S_a	subject of unergative intransitive verb
INST	instrumental	S_o	subject of unaccusative intransitive verb
INTENS	intensifier	SBJ	subject
INTR	intransitive	SG	singular
IPFV	imperfective	SMBL	symbolic
GenPL	generic plural	TAM	tense-aspect-mood
LgPL	large plural	VPL	verbally plural
LimPL	limited plural	VSG	verbally non-plural
LOC	locative		

Chapter 1

Introduction

1.1 Aim and structure of the thesis

This thesis examines the role of number in the syntax and semantics of Meryam Mir. It aims to provide evidence to support the claim that verbal number is a grammatical category in the language and can provide a more complete account of various syntactic phenomena than that of Piper (1989/2013) based solely on argument number. It also considers the number feature set within the syntax of the language and provides evidence to challenge Arka's (2012) assumption that the same feature set is used for argument and verbal number. This has wider implications for understanding the syntax of other languages with grammaticalised verbal number.

The thesis is divided into six chapters:

Chapter 1 introduces Meryam Mir, and gives a brief overview of the grammar of the language. It includes a literature review and notes on the creation of the text corpus used for this thesis, including orthographic and glossing conventions. It also sets out

methodological challenges and constraints and defines the number theoretical concepts that will be used throughout the analysis.

Chapter 2 provides a systematic review of number marking in the grammar of Meryam Mir, which motivates a focus on number in the language and presents the data which are used in the subsequent analyses and accounts.

Chapter 3 proposes an account of argument number in Meryam Mir, considering the availability of categories through constructive number and relating these to Corbett's (2000) number hierarchy.

Chapter 4 proposes an account of verbal number in Meryam Mir. It examines in more detail those patterns that are not explained by argument number, and reanalyses them assuming verbal number categories developed in the light of Wood's (2007) semantic typology of pluractionality and Moens and Steedman's (1988) work on verbal plurality and aspect.

Chapter 5 proposes an account of the number feature system, drawing on work within the Lexical Functional Grammar framework (Bresnan, 2001) and in particular extending Arka's (2012) work on Marori to account for the oppositions seen in Meryam Mir.

Chapter 6 draws together these three accounts, identifies outstanding issues, and proposes questions that can be tested through targeted data collection with native speakers.

1.2 Overview of Meryam Mir

Meryam Mir (ISO 639-3:ulk) is spoken on Mer, Udar and Dauar islands in the eastern Torres Straits. It is a member of the small Eastern Trans-Fly family of Papuan languages. The other three languages in the family are spoken in Papua New Guinea.

The language is categorised by Ethnologue[1] as 'threatened', with 210 speakers in 2006. However, this masks a rapid decline. Piper (2013, p.1) cites Wurm's estimate (1977, p.328) of approximately 700 speakers, but recently has reported a population of around only 20 fluent speakers (Piper 2014, personal communication). It appears that Meryam Mir is being outcompeted by English and Torres Strait Creole, which is used administratively in the regional government.

The basic word order of Meryam Mir is SV/AOV, though this is not fixed. Analysis of the available corpus shows that locative adjuncts are frequently placed after the verb. The following word classes have been identified: nouns, pronouns, verbs, determiners, quantifiers, adjectives and adverbs.

Nouns and pronouns inflect for case, and there are both abstract cases (nominative, ergative, accusative, genitive) and semantic cases (ablative, allative, comitative, instrumental, locative and privative). The pronoun set is 1p, 2p and 3p, each distinguishing singular and non-singular, and with a further inclusive-exclusive distinction in 1p non-singular pronouns. There is no grammatical gender, nor a gender distinction in pronouns.

Meryam Mir displays partial morphological ergativity (Dixon, 1994). Different case alignment systems are seen for common nouns, pronouns and proper nouns.

Common nouns follow an ergative-absolutive pattern, with the agent of a transitive verb marked for ergative case, whereas the subject of an intransitive verb or the object of a transitive verb are unmarked. Thus in (1) below, *ur* 'firewood', whether as the subject of the copular verb *dike* 'be' or the object of the transitive verb *deraymer* 'look for', and *lu* 'thing', the complement of *dike* 'be', are unmarked. However, in (2), *wag* 'wind'

[1] http://www.ethnologue.com/language/ulk, last accessed 14 November 2014

is marked with the ergative suffix *-ide* as the agent of the verb *etkamriki* 'make drift' while that verb's object, *nar* 'their boat' is again unmarked.

(1) ***ur*** *kikem lu pe dike,* *ma* ***ur***
fire(wood).S first thing.S DEIX be.NPL.S, 2SG.NOM **firewood.O**
deraymer- ø
look.for- FUT.2/3
'The first thing is firewood, look for firewood' (Piper 1989, p.218)

(2) *able* ***wag-*** ***ide*** *no* *ad-* *em* *yába* ***nar*** *etkamrik-* *i*
DET **wind-** **ERG** RESTR ad- ALL 3NSG.GEN **boat.O** make.drift- PFV
'The wind only made their boat drift further away' (*ibid.* p.203)

Pronouns, however, follow a nominative-accusative pattern, with the object of a transitive verb taking a different form to the subject of an intransitive verb / agent of a transitive verb. For example, in (3) and (4), the 3.NSG pronoun is '(w)i' when it appears as the subject of the intransitive verb *akarikley* 'land' or the agent of the transitive verb *wáysaperda* 'cook', and *yábi* as the object of the transitive verb *nardari* 'see'.

(3) ***i*** *sikak* *we-* *ge* *akarik-* *ley* *nole* *le-* *lut* ***yábi***
3NSG.S okay beach- LOC land- PST.DU NEG person- SG.ERG **3NSG.O**
na- *rdar-* *i*
3NSG.O- see- PFV
'They landed all right on the beach without anyone seeing them' (*ibid.* p.204)

(4) ***wi*** *wá-* *ysaper-* *da* *tabara* *lewer*
3NSG.A REM.PST- cook- PFV.PL 3.GEN food.O
'They cook their food' (*ibid.* p.213)

Proper nouns are unmarked as the subject of an intransitive verb, but are differentially marked when they function as either the agent or the object of a transitive verb. Compare the unmarked form of the name *Iruam* functioning as intransitive subject in (5), the ergatively-marked form of the name *Iriemuris* as the transitive subject of (6) and the accusatively-marked form of the name *Malo* as the object of the transitive verb in (7).

(5) *Abele* ***Iruam*** *ne padege emiri*
this **Iruam** water in.hole dwells
'This Iruam lives in a water hole' (Ray 1907, p.240)

(6) ***Irimuris- de*** *daraisudarare*
Iriemuris- ERG made.(them).leave.off
'Iriemuris made them leave off' (*ibid.* p.231)

(7) ***Malo- i*** *kebi keperege emariklu*
Malo- ACC little in.lagoon let.go
'(She) let Malo loose in a little pool' (*ibid.* p.235)

There is a small set of determiners which includes deictic particles and a very small set of number words including only two numerals and two non-numeric quantifiers. Deictic particles play a large role in the language and may also be involved in the syntax of subordination.

Meryam Mir is a multiple agreement language: verbs inflect with agglutinative prefixes and suffixes. There are two classes of verbs distinguished by the available suffix marking. Group I verbs are all intransitive and unaccusative and mark a limited set of tenses, but do not mark aspect. Group II verbs may be transitive or intransitive. They carry suffix inflections that mark subject number, tense, aspect and mood, and may also carry prefixes and infixes that mark object number, tense mood and deixis.

There are four number categories: single, dual, paucal (three or more, less than 'many') and plural. Piper (2014, personal communication) reports that paucal marking is restricted to human arguments, but the other numbers are available to all noun classes. There is a large set of verb pairs, which appear to be selected depending on argument number, although there is no single pattern of argument number alternation that can account for the variation.

Adverbs and adjectives are also small word classes, with nouns able to directly modify other nouns, and some adjectives formed by reduplication.

Other than that, Meryam Mir shows few features that are typologically rare. From the information presented in the World Atlas of Language Structures[2], Meryam Mir is listed in 25 categories, but in only two of these does the language not show either the first or second most common type. For the category '144L: Position of negative morphemes in SOV languages', Meryam Mir falls into the 'other' type, which is 3rd of 23. The rarest phenomenon is the language's verb morphology, where the "mixed" pattern of prefixes and suffixes marking tense and aspect seen in Meryam Mir is the second least common type in category '69A: Position of tense-aspect affixes'.

1.3 Literature on Meryam Mir

A small body of literature is available on Meryam Mir. The earliest linguistically useful publication is from Ray (1907), who collected data in 1898 as part of the Cambridge University Anthropological Expedition to the Torres Straits and subsequently published a grammar, lexicon and series of texts describing 'The Language of the Eastern Torres Straits'. The grammar is not detailed, but sets out the morphology of word classes which broadly corresponds to later accounts. The lexicon and texts are of greater interest, although the gap of nearly 90 years between the collection of Ray's data and subsequent texts must be borne in mind when analysing and I have used more recent texts as the source of examples where possible.

Piper carried out extensive fieldwork in the 1980s for her MA Thesis which was later published as Piper (2013). This includes a detailed account of the phonology of the

[2]http://wals.info/languoid/lect/wals_code_mer, accessed 14 November 2014)

language, and morphological data for the various word classes. The texts provided have also been morphologically analysed, which is extremely helpful for later researchers. There is a short section on the syntax of the language, together with some suggested questions for further work.

Piper further collaborated with Passy to construct a Meryam Mir lexicon (Passy and Piper, 1994) containing approximately 750 words, which was published in a collection of lexicons from 16 Australian aboriginal languages. This has been helpful in the comparison of texts from Ray (1907) and Piper (1989).

Other than these three principal sources, Hunter (2010; Hunter et al., 2011) has considered the impact of language contact from Torres Strait Creole on Meryam Mir. These papers cover the Meryam Mir lexicon but do not touch on number or syntax. Piper cites McConvell (1983) as a study of ergativity and verb agreement in Meryam Mir, but it has not been possible to access the manuscript: in any case, Piper reports that she elaborates on and enhances his findings, rather than contradicting them.

An earlier grammar by Schulenburg (1891) uses a missionary translation of the Bible into Meryam Mir as its source text and so has been discounted for this thesis.

1.4 Sources of text

Text sources for Meryam Mir are extremely limited, with only Ray (1907) and Piper (2013) having significant passages available. Between these sources, the corpus totals around 4,200 words and comprises 12 traditional stories and one recipe. Piper's texts are morphologically analysed and glossed morpheme-by-morpheme, whereas Ray's texts

show unanalysed Meryam Mir text with a word-by-word English gloss. Both sources also provide English translations.

Piper's three texts, and five of Ray's ten texts were dictated by native speakers and transcribed, with each author using their own standard orthography. The remaining five of Ray's texts were written down by a native speaker named as Pasi and are presented with the original orthography. All of Ray's texts have different orthographic conventions to those of Piper. However, comparison of the texts and glosses has shown a number of systematic differences which, when resolved, provide assurance that the variation between the texts is only orthographic, rather than lexical or syntactic. For example, Ray uses 'u' in diphthongs with a labial glide, whereas Piper uses 'w' in the same context: compare Ray's *neur* with Piper's *newr* 'girl' or Ray's *uerem* with Piper's *werem* 'child'. Accordingly, both sources are used for this thesis.

Ray mentions notebooks containing further texts written by Pasi, which he did not include in his account, but these notebooks were not in Ray's archive at SOAS Library when this was searched in March 2014. Piper also cites a number of Meryam Mir texts that were published in the periodical *Ngali* in the 1980s, but it was not possible to access these either through the Australian Institute of Aboriginal and Torres Strait Islander Studies, or the Batchelor Institute, the original publisher.

1.4.1 The corpus

None of the texts were available electronically, so the corpus was built from scratch using optical character recognition software with manual proofreading and correction. Tokens were tagged for part of speech and case, where appropriate. Morphological analysis of the verbs is time-consuming and so has been carried out only for a fraction of the verbs

from Ray's source texts when further evidence was required to consider phenomena where Piper's data is inconclusive.

Table 1.1 shows the frequency of word classes and lexical items in the corpus.

TABLE 1.1: Breakdown of the corpus

Word class	Tokens	Lexical items
Verbs	1150	596
Nouns	1412	323
Pronouns	733	7
Determiners & Quantifiers	271	9
Adverbs	261	34
Adjectives	122	37
Conjunction	103	5
Deictic particles	84	13
Unidentified	51	42
Interjection	8	4
Total	4195	1070

1.5 Methodological challenges and constraints

The principal constraint on the research has been the lack of access to native speakers, which makes it impossible to increase the available data or test emerging hypotheses. It is also not possible to identify syntactic structures or morphological patterns that are impossible or ungrammatical, unless these have been specifically highlighted by the authors.

A secondary constraint is the limited scope of the source materials, which mean that not all possible variants are evidenced. Ray (1907, pp.71-72) provides a full paradigm of the present and past tense inflections of two verbs, but otherwise it is only possible to construct partial paradigms. Furthermore, any errors or ambiguities in glossing by the original authors are difficult to resolve.

Analysis of number requires assessment of the semantics of nouns and verbs, which again is difficult from written sources. As Wood identifies (2007, p.26)

> *"Making semantic generalisations based on information in grammars is highly problematic. The comparison of meanings is dependent on descriptions, glosses and example sentences in context. Different grammar-writers use different terminology and have different assumptions, and provide varying amounts of data for the items in any given semantic domain. Moreover, based on the small number of examples of any particular phenomenon available in a typical reference grammar, it is difficult to make claims about meanings with any degree of certainty."*

Notwithstanding this, there is sufficient material and detail to build and test hypotheses, and the conclusion of the thesis includes questions to be tested with native speakers in due course.

1.6 Conventions and definitions

1.6.1 Orthography

In the Meryam Mir examples, I have maintained the orthography used by the authors. Ray acknowledges the inconsistent orthography in his sources. Piper has consistent orthography but has occasionally included phonologically deleted elements of morphemes in her analysed forms. Given the importance of the source text in constructing my arguments, I do not wish to make things more opaque by introducing further variation. Where I believe there is ambiguity because of different orthography, this is clarified in a footnote.

1.6.2 Glosses

Piper glosses nominal arguments with reference to their thematic role (S, A or O) rather than the case marking. I have kept this use for pronouns and inflected forms of common and proper nouns, but removed the O marking for common nouns and S marking for proper nouns to reduce clutter in the glosses.

Other abbreviations have been amended to bring them in line with the Leipzig Glossing Rules. Any amendments or re-glossing beyond these changes is explicitly noted in the text.

1.6.3 Key concepts and terminology

Dalrymple (2012, p.1) describes number marking thus,

> *"Broadly speaking, number marking is morphological marking which indicates the number of verbal dependents or events involved in a situation."*

There are many different terms in use by different authors for the elements of the situation in Dalrymple's description. "Verbal dependents" are captured by terms such as 'nominal number' or 'argument number'. "Events" are captured by terms such as 'pluractionality', 'event number', and 'verbal number'. Wood (2007) reserves the term pluractionality for cases of grammaticalised verbal number: that is, where repetition or prolongation of events is obligatorily and systematically indicated in the grammar. She treats this phenomenon as separate to the obligatory marking of the number of a verb's arguments, which she argues cannot force a pluractional reading. To avoid confusion, I will use the terms *argument number* and *verbal number*, with further clarification where I quote an author who uses different terminology.

Other terms used in the thesis that are relevant to number are defined below.

- **Categories**, following Corbett (2000), are the number values that are grammaticalised in a language. For example, English has the number categories singular and plural, whereas Slovenian has the number categories singular, dual and plural. As described above, Meryam Mir has four categories: singular, dual, paucal and plural.

- **Distinctions** are the groups of categories that can be identified by a particular morphological or lexical alternation. For example, Meryam Mir pronouns obligatorily mark a SG vs NSG distinction, with the NSG form used for the number categories DU, PC and PL. In languages like English, with only two number categories, these distinctions are masked.

- The **availability** of number categories, again following Corbett, describes the ability of particular semantic classes of words to be allocated to particular number categories, and the extent to which this is obligatory in order to produce a grammatical utterance. For example, in Korean, number is described as facultative: no number marking on nouns or verbs is required for a sentence to be grammatical, although nouns can optionally be specified for plural number if this reduces ambiguity. In Slovenian, the dual number is accessible only for human subjects: non-human arguments with semantic value '2' being marked as plural rather than dual. In English, the mass-count distinction for nouns can be regarded as a restriction on the availability of number categories to mass nouns.

- Number **features** describe how the grammaticalised number categories then contribute to a semantic representation. For example, English might be conceived of as having a number feature with potential values SG and PL, or alternatively a single feature [±SG] or [±PL]. In other languages with a larger set of categories,

binary number features of [±SG] and [±PL] might be proposed. Ideally all languages would be described using number features drawn from a universal feature set, rather than proposing individual feature sets for each language. Individual morphemes might carry more than one feature, or have an ambiguous value, or even not carry a particular feature and so be underspecified. In unification-based theories of number, clashes of feature values within a sentence leads to ungrammaticality. This will be discussed further in Chapter 5.

- **Constructive number** is the phenomenon where different number features combine to produce a semantic value. Following Sadler (2011), it is proposed to use combinations of binary features to reach an eventual number value, rather than have a single 'number' feature that may have multiple values. Again, this will be discussed in more detail in Chapter 5.

Chapter 2

Number marking in Meryam Mir

This chapter gives an overview of the various ways in which number is marked in Meryam Mir, drawn principally from Piper (2013), but with some examples from Ray (1907). This presents the data from the grammars and text sources that will be used for analysis in subsequent chapters. The various word classes of the language will be discussed in turn, in the following order:

- nouns
- pronouns
- determiners and quantifiers
- verbs
- adjectives and adverbs

2.1 Nouns

2.1.1 General number marking

There is no general marking of number for common nouns or proper nouns. The same form of a common noun can denote any number. Thus in examples (8) and (9) below, the word *te* 'door' is used as both singular and nonsingular, with the different meaning obtained from the verbal morphology.

(8) *ka* ***te*** *dími-* *da(ri)*
1SG.A door close.SG/DU.O- PFV.SG
'I closed **the door**.' (Piper, 2013, p.131)

(9) *ka* ***te*** *dím-* *i*
1SG.A door close.PC/PL.O- PFV
'I closed **the doors**.' (*ibid.*, p.131)

2.1.2 Number marking in ergative case

Nouns marked with ergative case mark a SG-NSG opposition, with the suffix *-(i)de* (10) used for singular nouns in ergative case and the suffix *-gize* (11) for plural nouns.

(10) *Able* ***sarup-*** ***ide*** *karor-* *ira* *érer* *d-* *asr-* *i*
DET **castaway-** **SG.ERG** sandpiper- GEN cry 3.GEN- hear- PFV
"The castaway heard the sandpipers' squawks" (*ibid.* p.209)

(11) ***Toli-*** ***gize*** *ábi* *erdar-* *da*
sandpiper- **PL.ERG** 3SG.O see- PFV.PL
'The sandpipers saw him' (*ibid.* p.207)

2.1.3 Dual marking

Dual number is optionally marked at the end of a noun phrase with two members with the suffix *-ey*, as in (12).

(12) ***Able bab taba newr- ey*** *akay- ley*
DET father 3.GEN unmarried.female- DU SG/DU.S.do- PST.DU
nab wag ti- disard- ey ged- im
unsuccessfully wind DEIX- go.against- PST.DU land- ALL
'The father and his daughter tried in vain to go against the wind' (*ibid.*, p.203)

However, (13) shows that a sentence can also be grammatical without this suffix on a dual noun.

(13) ***Able neys le*** *akay- ley* ***sarup*** *ga*
DET two person SG/DU.S.do- PST.DU **castaway** DEIX
da<r(a)>a- ley
NPL.S.be<3.NSG.S>- NPR.IPFV.DU
'The two people became castaways' (*ibid.* p.204)

Where the second member of a dual noun phrase is marked with *-ey*, the first member can optionally be marked with the suffix *-iba*, which is glossed by Piper as 'non-singular' and appears to indicate group membership, as seen in (14). However, as already seen in (12) above, marking with *-iba* is not obligatory.

(14) *Nawar able sarup ga asi- ge ba- zr- er* ***Dawgiri-***
While DET castaway DEIX pain- LOC INTR- writhe- NPR.IPFV **Dawgiri-**
(i)ba Wayda- ey *korider emri- ley abra gaba+gaba-*
NSG Wayda- DU speed SG/DU.S.sit- PST.DU 3SG.GEN club-
u kerim desk- ey a ipit- ey
INST head split- PST.DU CONJ hit- PST.DU
'While the castaway was then writhing in pain, Dawgiri and Wayda ran, split his head open with a club and killed him.' (*ibid.* p.210)

Marking with *-iba* is also not obligatory in noun phrases denoting larger groups, as shown by its absence in (15), where the subject NPis a group of three people.

(15) ***Dáwgiri Wáyda a Pitari*** *nogab- ise t- adarem- le*
Dawgiri Wayda CONJ Pitari invisible?- SMBL DEIX- crawl- NPR.PC
máyk- em able mekir- em
close- ALL DET almond- ALL
'Dawgiri, Wayda and Pitari crawled stealthily close up to the almond tree'
(*ibid.*p.209)

2.1.4 Summary

In summary, nouns in Meryam Mir do not generally mark number. Where number marking is seen, it marks either the opposition between SG and NSG number, or facultatively marks DU number.

2.2 Pronouns

In contrast to nouns, pronouns obligatorily mark singular or non-singular number. Pronouns are available for first, second and third person with no gender distinction, and there is also a clusivity distinction between 1PL.INCL and 1PL.EXCL. No examples of mismatch between pronoun number and semantic number were found in the data. Piper (2013, p.67) gives the pronominal paradigm shown in table 2.1.

There is no evidence of further number marking on pronouns, such as a dual suffix. Accordingly, in line with the data available it is concluded that pronouns show a systematic distinction between singular and non-singular.

Table 2.1: Personal pronouns

	NOM	ACC	GEN
1SG	*ka*	*kari*	*kara*
1.NSG.EXCL	*ki*	*kerbi*	*keriba*
1.NSG.INCL	*mi*	*merbi*	*meriba*
2SG	*ma*	*mari*	*mara*
2.NSG	*wa*	*wabi*	*waba*
3.SG	*e*	*abi*	*abra*
3.NSG	*(w)i*	*wiyabi ∼yabi*	*wiyaba ∼yaba*

2.3 Determiners and Quantifiers

The word *able* functions as a determiner for nouns regardless of number. There are also spatio-temporal deictic markers *ga, ge, pa,* and *pe,* which follow nouns and which do not vary for number.

The language also has a restricted set of number words (Passy and Piper, 1994):

netat *neys* *kepkep* *gayr*

'one' 'two' 'several' 'many'

This restriction does not prevent speakers accurately describing higher number values, which are formed by compounding or coordination. Examples taken from Ray (1907) include *neys netat* 'three', (p.231) *neys a neys* 'four', (p.245) and *neys neys neys, neys neys neys* 'twelve', (p.250). In all these cases, the referents are human. It is not immediately clear whether *kepkep* 'several' selects paucal number marking on verbs as it occurs only rarely in the corpus. However, *gayr* 'many' is associated with plural verb marking.

2.4 Verbs

Thus far, there has been no consideration of verbal number in Meryam Mir: all examples given have considered argument number. Piper's description of number marking on verbs is also given in terms of argument number. However, I argue later that it is necessary to consider verbal number as well as argument number, in order to give a full account of the phenomena observed in Meryam Mir.

The initial presentation of the data uses Piper's argument number descriptions, and highlights the anomalies and ambiguities that such descriptions are unable to explain.

2.4.1 Verb morphology

I will begin with an overview of Meryam Mir verbal morphology before discussing the individual variants in more detail. Because of space constraints, I will only briefly touch on phenomena that do not relate to argument or verbal number.

Meryam Mir verbs host a range of affixes – prefixes, suffixes, an infix – and also show suppletive verb stem alternations.

2.4.2 Overview of verb affixes

Not all possible affixes are available to all verbs, being constrained by factors such as transitivity, telicity, and the semantics of the verb. The meaning carried by affixes can include tense, aspect, mood, person, number and deixis, and may also be a portmanteau combination of these categories. Where number is marked, there is a range of number distinctions that govern the alternations that appear.

There is also a considerable degree of syncretism, with most of the affix morphemes carrying more than one possible meaning. Prefixes and suffixes may agglutinate, and where this occurs, there is a fixed order in which the morphemes appear. Some morphemes are also subject to phonological conditioning, depending on the position they appear.

Within this complex picture, it is possible to identify three broad categories of affix sites, corresponding to different types of information. Information about tense, mood, and deixis is provided at the first three possible prefix sites (Prefixes 4, 3, and 2), with some meanings only available to particular person values. The prefix site closest to the verb stem (Prefix 1) and the infix site can host affixes that provide information about the person and number of the object or unaccusative intransitive subject, where these arguments are available to the verb. Suffix sites 1 and 2 can provide information about the person and number of the transitive subject or unergative intransitive subject, as well as tense and aspect.

The following table shows the affixes that are available at each site and the information that may be carried (adapted from Piper p.87)[1]

TABLE 2.2: Affixation sites, affixes and information carried

PREFIX POSITIONS				VERB STEM	SUFFIX POSITIONS	
Prefix 4	Prefix 3	Prefix 2	Prefix 1	Infix	Suffix 1	Suffix 2
wa-(1)	*ta-*(1)	*na-*(1)	*-a-*(1) *ba-*(1) *d-*(2) *na-*(2)	*<na>*(2)	*-dar*(3)	*see table 2.4*
Tense, Mood, Deixis			O / S_o Argument Number & Person		A / S_a Argument Number, Tense & Aspect	

For morpheme glosses, see: (1) §2.4.4.2; (2) §2.4.4.1, (3) §2.4.3.1

[1]Piper identifies only one suffix position. However, her description of the suffix *-dar-* as a derivational suffix available to some verbs dependent on their semantics is similar to her description of the prefix *ba-*, which she has included with the inflectional affixes. Accordingly, I have chosen to include *-dar-* in the presentation of the data at this point.

2.4.3 Suffixes

All Meryam Mir verbs can be morphologically suffixed, although there are different patterns for Group I (Piper's 'atelic stative') and Group II (Piper's 'telic active') verbs.

2.4.3.1 Suffix site 2: Group I verbs

Group I verbs are all intransitive and unaccusative. There is a two-way number opposition: SG/DU subjects carry either the suffix *-(re)di* in present tense or the suffix *-(re)der* in non-present tense. The suffixes carry no aspectual marking: Piper argues that these verbs are inherently imperfective. Verbs with PC/PL subjects have no suffix in either tense.

TABLE 2.3: Group I verb suffixes, from Piper (2013, p.97)

	SG/DU	PC/PL
PRS	*-(re)di*	ø
NPRS	*-(re)der*	

2.4.3.2 Suffix site 2: Group II verbs

Group II verbs are all either transitive or unergative-intransitive. Their suffixes obligatorily mark a four-way distinction (SG-DU-PC-PL), which Piper describes as agreeing with the number of the subject. These suffixes also carry information about tense, aspect and mood. The tense-aspect-mood categories follow Piper's analysis, which uses various combinations of the following four distinctions:

- tense: present-nonpresent
- tense: future-nonfuture

- tense: past-nonpast
- aspect: perfective-imperfective
- mood: realis-irrealis

to identify six tense-aspect-mood categories:

(A) present imperfective - PR.IPFV

(B) non-present imperfective - NPR.IPFV

(C) non-future perfective - NFUT.PFV

(D) non-present (future) perfective - NPR.FUT.PFV

(E) non-present (past) - NPR-PAST

(F) irrealis - IRR

Piper also identifies two conjugations for the non-imperfective categories C-F. Within these conjugations, category D (NPR.FUT.PFV) distinguishes 1st person and 2nd/3rd person for SG and DU number.

The full pattern of Group II verb suffixes is given in Table 2.4, extracted from Piper (2013, Table 3.8.1, p.97). Where no person value is given, the suffix is used for 1, 2 and 3p.

Considering the whole table, it is clear that the four-way SG-DU-PC-PL distinction is maintained across all available variations of tense, aspect, mood, person and number. There is also considerable syncretism within each of the conjugations for tense-aspect-mood categories C, D and E, which becomes apparent if the data are presented grouped first by conjugation, as in Table 2.5.

It appears that there are interactions between SG/DU number and tense-aspect distinctions in these categories, which do not appear for PC/PL number. Paucal number has

Table 2.4: Group II verb suffixes grouped by TAM category

			SG	DU	PC	PL
(A) PRS.IPFV			*-li*	*-e(y)ey*	*-le*	*-eda*
(B) NPRS.IPFV			*-er*	*-ley*	*-le*	*-lare*
(C) NFUT.PFV	Conj. 1		*-da(ri)*	*-daryey*	*-dare*	*-da(rda)*
	Conj. 2		*-i*	*-iyey*	*-idare*	
(D) NPRS.FUT.PFV	Conj. 1	1p	*-lu*	*-ley*	*-dare*	*-(r)are*
		2/3p	*-ø*	*-lam*		
	Conj. 2	1p	*-e*	*-ey*	*-idare*	*-are*
		2/3p	*-ø*	*-am*		
(E) NPRS-PAST	Conj. 1		*-lu*	*-ley*	*-dare*	*-(r)are*
	Conj. 2		*ø*	*-ey*	*-idare*	*-are*
(F) IRR	Conj. 1		*-wa*	*-wam*	*-derwem*	*-awem*
	Conj. 2				*-(i)derwem*	

Table 2.5: Group II TAM category C-E verb suffixes grouped by conjugation

			SG	DU	PC	PL
Conj. 1	(C) NFUT.PFV		*-dari*	*-daryey*	*-dare*	*-da(rda)*
	(D) NPRS.FUT.PFV	1p	*-lu*	*-ley*		*-(r)are*
		2/3p	*-ø*	*-lam*		
	(E) NPRS-PAST		*-lu*	*-ley*		
Conj. 2	(C) NFUT.PFV		*-i*	*-iyey*	*-idare*	*-da(rda)*
	(D) NPRS.FUT.PFV	1p	*-e*	*-ey*		*-are*
		2/3p	*-ø*	*-am*		
	(E) NPRS-PAST		*-ø*	*-ey*		

only one suffix for each conjugation, which is syncretic across the tense-aspect-mood categories C, D and E. Also, the two paucal conjugations differ only in the presence or absence of the segment *i*, which is often elided or deleted in the language. Plural number has one suffix for each conjugation which is syncretic across tense-aspect-mood categories D and E. The two conjugations differ only in the presence or absence of the segment *r*. However, the two conjugations share a syncretic suffix for the tense-aspect-mood category C, NPRS.FUT.PFV.

For SG/DU number, however, the suffix morphology is much richer. There is some syncretism, but the tense-aspect-mood categories can be more easily distinguished, as well as the person distinctions in some TAM categories.

There is a further complication in that Piper notes frequent cases where the suffixes

show agreement with the object argument number, rather than the subject number. She postulates a number hierarchy in which the highest numbered argument is marked on the suffix thus, PL > PC > DU > SG. If this is a grammatical requirement, it has significant implications for the interpretation of the morphology.

2.4.3.3 Suffix site 1: The tense-aspect suffix *-dar-*

Besides the inflectional suffixes at site 2, Piper has also identified a non-productive affix marker *-dar-*, which suffixes to the verb stem before any number/time/aspect inflectional suffixes. She describes it as derivational rather than inflectional, with the meaning "non-punctiliar" (p.139). It is not always licensed: where it is possible it is obligatory in some cases, and optional in others. This suggests that it may have a facultative role.

For example, it is obligatory with imperfective aspect inflected forms of the verb *baw* 'go in (SG/DU.S)' (*ibid.* p.139):

(16) *bá-* ***da(r)-*** *li* BUT **bá-* *li*
go.in.SG/DU.S- **NPCT**- PRS.IPFV *go.in.SG/DU.S- PRS.IPFV

(17) *bá-* ***da(r)-*** *er* BUT **bá-* *(r)er*
go.in.SG/DU.S- **NPCT**- NPRS.IPFV *go.in.SG/DU.S- NPRS.IPFV

whereas for the verbs *eykam* 'wake up' and *éwsmer* 'come out.SG/DU.S' it is optional. Example (18) shows the possible alternation for *eykam* and for *éwsmer* compare (19) and (20), without and with *-dar-* respectively (*ibid.* p.139, exx. 3.241-3.243).

(18) *gayr idim- ge wi o- ba- kyam-* ***(dar)-*** *er*
many morning- LOC 3NSG.S FUT3- PL.S- wake.up- **(NPCT)**- NPRS.IPFV
idim kakar- ge
morning INTENS- LOC
'Most mornings they will get up very early'

(19) *ka* *ta-* *ra-* *wsmer-* *er* *da-* *ge* *siga*
1SG.S DEIX- FUT1- come.out.SG/DU.S- NPRS.IPFV outside- LOC ciggie
ary- *em*
drink- ALL

'I will keep going outside to smoke'

(20) *Lez* *no* *w-* *éwsme-* ***dar-*** *er* *lokot* *te-*
Les RESTR FUT.3- come.out.SG/DU.S- **NPCT-** NPRS.IPFV bush opening-
lam
ABL

'Les will always only come out from the back door'

Although *-dar* does not itself vary with number, it is available only with SG/DU number, for verbs from the semantic category described by Piper as "punctiliar", and with certain tense-aspect categories. Accordingly, it makes sense to consider the morpheme alongside other element of the number-tense-aspect-mood marking system.

2.4.3.4 Summary

Interactions between number and tense-aspect-mood will be discussed in more detail in Chapter 4. For the moment, it is noted that for Group II verbs, a four-way SG-DU-PC-PL subject number distinction is always marked by the suffix. However, for Group I verbs, the suffix only marks the distinction SG/DU vs PC/PL.

2.4.4 Prefixes and infixes

All verbs in Meryam Mir, whether from Group I or Group II, have four potential prefix sites and a potential infix after the initial syllable. Only affixes at the infix and prefix site 1, closest to the verb stem, can mark number. Prefix sites 4, 3 and 2 at the front of the verb carry information about tense, mood and deixis. There are also prefixes available at prefix site 1 that do not carry number information.

2.4.4.1 Number-marking prefixes and infixes

The prefixes *d-* and *na-* at prefix site 1, and the infix <*na*> mark person and number. For Group I verbs, there is agreement with the subject and for Group II, there is agreement with the object. As Group I verbs are intransitive and unaccusative, the subject could be described as the 'undergoer' or 'experiencer' thematic role of the verb, S_o (Dixon, 1994, p.71), a thematic role often shared with the object of a transitive verb. This pattern is congruent with Dixon's description of a semantically-conditioned Split-S case system, although there is no evidence of this system in the case marking of nouns or pronouns.

The person distinction marked by these affixes is between 1st/2nd person on the one hand and 3rd person on the other. The number distinction for Group II verbs (transitive objects) is SG-NSG. However, for Group I verbs, (intransitive subjects, S_o), the number distinction varies with the animacy of the subject. Inanimate and low animacy subjects maintain the same SG-NSG number distinction as the objects of Group II verbs. Higher-animacy subjects, described by Piper (2013, p.122) as "typically human or high animate beings like dogs", distinguish between SG/PL number on the one hand and PC/PL number on the other. This is unusual as it the only case where only DU and PC number pattern together in opposition to the other two number categories.

Table 2.6 below shows the affix patterns according to the two number distinctions.

Table 2.6: Affix number patterns for different degrees of animacy

	d-	*na-*	<*na*>	ø
High animacy S	1/2p DU/PC	1/2p SG/PL	3p DU/PC	3p SG/PL
O, low animacy S	1/2p NSG	1/2p SG	3p NSG	3p SG

2.4.4.2 Other prefixes

The prefix *-ba-* can appear in prefix site 1. It is a valency-changing affix that forms an intransitive verb from a transitive verb, sometimes giving the verb a reflexive meaning. Piper describes this morpheme as an "intransitiviser" that is used productively, although it may perhaps also be considered as an antipassive marker or a reflexive marker. It does not carry number marking, but can license dual marking of the subject of Group II intransitive verbs, that is, with a number-marking prefix as well as the usual suffix.

Piper describes prefixes *-na-* in prefix site 2 and *-a-* in prefix site 1 as marking future tense for 1st person subjects. The alternation is governed by transitivity: intransitive verbs take *-na* at site 2 and transitive verbs take *-a* at site 1. This can cause some difficulties with morphological analysis where a 2p object would also be expected to be marked at site 1 with the prefix *-na*. Piper's solution is to assume that one of the possible prefixes is not expressed, but hearers infer the information from both.

The prefix *-ta-* in prefix site 3 is a deictic marker indicating that the action of the verb is taking place at some distance from the deictic centre, or is moving towards the deictic centre. It does not vary with number.

The prefix *wa-*, at prefix site 4, which can be phonologically conditioned to *o-*, conveys one of three possible meanings related to tense and aspect. These are 3rd person future, remote past (for all person values), and past irrealis (again, for all person values). The exact meaning is determined in conjunction with the verb's tense-aspect-mood suffix. Again, the morpheme does not vary with number.

2.4.4.3 Summary

Two possible number distinctions are marked with prefixes: SG/PL vs DU/PC for human and high animate intransitive subject, and SG vs NSG for low/no animacy intransitive subjects and all objects. This will be discussed further in Chapter 3.

2.4.5 Bringing together affix morphology

Ray's (1907) grammar includes full subject and object number paradigms for two verbs (pp.71-72). The paradigm for *detager* 'talk' is reproduced here in table form to help give a clear overview of the interactions between prefix and suffix morphology, and the impact of Piper's postulated number hierarchy. Table 2.7 shows the whole paradigm, table 2.9 highlights the pattern for suffix agreement, and table 2.10 highlights the pattern for prefix/infix agreement.

TABLE 2.7: Verb paradigm of *detager* 'talk' and *emarik* 'send'

OBJ		1	2	3	1.E	1.I	2	3	1.E	1.I	2	3	1.E	1.I	2	3
SBJ		SG			DU				PC				PL			
1	SG		α	β			γ	δ			ε	ζ			η	θ
2		α		β	γ			δ	ε			ζ	η			θ
3		α	α	β	γ	γ	γ	δ	ε	ε	ε	ζ	η	η	η	θ
1.E	DU		ι	κ			λ	μ			ε	ζ			η	θ
1.I				κ				μ				ζ				θ
2		ι		κ	λ			μ	ε			ζ	η			θ
3		ι	ι	κ	λ	λ	λ	μ	ε	ε	ε	ζ	η	η	η	θ
1.E	PC		ν	ξ			ε	ζ			ε	ζ			η	θ
1.I				ξ				ζ				ζ				θ
2		ν		ξ	ε			ζ	ε			ζ	η			θ
3		ν	ν	ξ	ε	ε	ε	ζ	ε	ε	ε	ζ	η	η	η	θ
1.E	PL		o	π			η	θ			η	θ			η	θ
1.I				π				θ				θ				θ
2		o		π	η			θ	η			θ	η			θ
3		o	o	π	η	η	η	θ	η	η	η	θ	η	η	η	θ

TABLE 2.8: Key to table 2.7

α	*natagerer/namariklu*	ζ	*daratagrile/namarkile*	λ	*detagrilei/demariklei*
β	*detagerer/emariklu*	η	*detagerare/demarkare*	μ	*daratagrilei/namariklei*
γ	*detagerer/demariklu*	θ	*daratagerare/namarkare*	ν	*natagrile/namarkile*
δ	*daratagerer/namariklu*	ι	*natagrilei/namariklei*	ξ	*detagrile/emarkile*
ε	*detagrile/demarkile*	κ	*detagrilei/emariklei*	o	*natagerare/namarkare*
				π	*detagerare/emarkare*

Abstracting the morphology patterns in this way helps expose patterns that are masked by phonological alterations. Thus in *detager*, because the verb starts with 'd', the verb

TABLE 2.9: Prefix/infix paradigms: *detager* 'talk' and *emarik* 'send'

OBJ / SBJ		1	2	3	1.E	1.I	2	3	1.E	1.I	2	3	1.E	1.I	2	3
		SG			DU				PC				PL			
1	SG		α	β			γ	δ			ε	ζ			η	θ
2	SG	α		β	γ			δ	ε			ζ	η			θ
3	SG	α	α	β	γ	γ	γ	δ	ε	ε	ε	ζ	η	η	η	θ
1.E	DU		ι	κ			λ	μ			ε	ζ			η	θ
1.I	DU			κ				μ				ζ				θ
2	DU	ι		κ	λ			μ	ε			ζ	η			θ
3	DU	ι	ι	κ	λ	λ	λ	μ	ε	ε	ε	ζ	η	η	η	θ
1.E	PC		ν	ξ			ε	ζ			ε	ζ			η	θ
1.I	PC			ξ				ζ				ζ				θ
2	PC	ν		ξ	ε			ζ	ε			ζ	η			θ
3	PC	ν	ν	ξ	ε	ε	ε	ζ	ε	ε	ε	ζ	η	η	η	θ
1.E	PL		o	π			η	θ			η	θ			η	θ
1.I	PL			π				θ				θ				θ
2	PL	o		π	η			θ	η			θ	η			θ
3	PL	o	o	π	η	η	η	θ	η	η	η	θ	η	η	η	θ

TABLE 2.10: Suffix paradigm of *detager* 'talk' and *emarik* 'send'

OBJ / SBJ		1	2	3	1.E	1.I	2	3	1.E	1.I	2	3	1.E	1.I	2	3
		SG			DU				PC				PL			
1	SG		α	β			γ	δ			ε	ζ			η	θ
2	SG	α		β	γ			δ	ε			ζ	η			θ
3	SG	α	α	β	γ	γ	γ	δ	ε	ε	ε	ζ	η	η	η	θ
1.E	DU		ι	κ			λ	μ			ε	ζ			η	θ
1.I	DU			κ				μ				ζ				θ
2	DU	ι		κ	λ			μ	ε			ζ	η			θ
3	DU	ι	ι	κ	λ	λ	λ	μ	ε	ε	ε	ζ	η	η	η	θ
1.E	PC		ν	ξ			ε	ζ			ε	ζ			η	θ
1.I	PC			ξ				ζ				ζ				θ
2	PC	ν		ξ	ε			ζ	ε			ζ	η			θ
3	PC	ν	ν	ξ	ε	ε	ε	ζ	ε	ε	ε	ζ	η	η	η	θ
1.E	PL		o	π			η	θ			η	θ			η	θ
1.I	PL			π				θ				θ				θ
2	PL	o		π	η			θ	η			θ	η			θ
3	PL	o	o	π	η	η	η	θ	η	η	η	θ	η	η	η	θ

TABLE 2.11: Key to table 2.9

Prefix	Meaning
na-	1/2p SG.OBJ
ø	3p SG.OBJ
d-	1/2p NSG.OBJ
<na>	3p NSG.OBJ

TABLE 2.12: Key to table 2.10

Suffix	Meaning
-er / -lu	SG.SBJ
-(i)lei	3p DU.SBJ
-ile	PC.SBJ/OBJ
-are	PL.SBJ/OBJ

form inflected with the 1/2p.NSG.OBJ prefix *d-* is not distinguishable from the uninflected 3p.SG.OBJ form *detager*. Conversely, in *emarik*, as there is no initial consonant, the prefix *na-* (1/2p.SG.OBJ) and infix <*na*> (3p.NSG.OBJ) produce the same surface form *namariklu*. For prefixes and infixes, it is interesting to see a three-way marking opposition between 1/2.SG object, 3.NSG object and all other objects.

Table 2.10 shows the impact of the number hierarchy on suffix marking, which suggests that defining suffixes as agreeing with subject number is satisfactory only for SG and DU number, and that PC and PL number are treated differently.

2.4.6 Verb stem alternations

Some verbs in Meryam Mir have two forms of the stem, which Piper argues are selected in line with argument number. The two forms may be morphologically related – Piper describes several processes of deletion or affixation – or may be suppletive pairs. The relevant verbs include examples from Group I and Group II verbs, and may be transitive or intransitive.

Turning first to the variants of number distinction: some verbs have a single root form for all number categories. These verbs do not fall into a single category.

Table 2.13: Verb stems with no alteration for number

Group I		Group II	
ikasir	'be going along'	*detager*	'tell'
emer	'nonhuman be sitting'	*ero*	'eat'
og	'climb'	*iri*	'drink'

A second type of distinction is between NPL and PL argument number. All verbs showing this distinction are intransitive, and so Piper describes this alternation as reflecting the number of the subject. Many of these verbs are from Group I, though there are also Group II verbs that follow this pattern.

Table 2.14: Verb stems with alternation for NPL vs PL subject

	Group I verbs		
ike	'be(thing).NPL'	*Vgri*	'be(thing).PL'
demarge	'be-resting-on-ground.NPL'	*dVmar*	'be-resting-on-ground.PL'
emri	'sit-down.NPL'	*Vmer*	'sit-down.PL'
	Group II verbs		
akawaret	'climb-onto.NPL'	*etir*	'climb-onto.PL'
baraygi	'dive-close-to-surface.NPL'	*barag*	'dive-close-to-surface.PL'

A third type of distinction is between SG or DU argument number on the one hand, and PC or PL argument number on the other. The verbs showing this distinction all come from Group II, and include intransitive and intransitive verbs. Table 2.15 gives examples.

Table 2.15: Verb stems with alternation for SG/DU vs PC/PL argument

	Intransitive verbs		
ekwey	'stand up.SG/DU.S'	*eko*	'stand up.PC/PL.S'
bakyamu	'go.SG/DU.S'	*bakyaw*	'go.PC/PL.S'
baw	'enter.SG/DU.S'	*barot*	'enter.SG/DU.S'
	Transitive verbs		
ep	'carry.SG/DU.O'	*ays*	'carry.PC/PL.O'
diskemer	'chase.SG/DU.O'	*dikes*	'chase.PC/PL.O'
dígwatmu	'pull in from sea.SG/DU.A/O'	*dígwat*	'pull in from sea.PC/PL.A/O'

Piper identifies the number agreement as being in the main with the subject of intransitive verbs and the object of transitive verbs, in other words showing ergative alignment. However, she notes the verb pair *dígwatmu* – *dígwat*, shown in table 2.15, where the PC/PL verb stem is selected if the either subject or the object has PC/PL number.

Similar behaviour is seen with the verb 'to show' (*ibid.* p.81, exx. 3.6-3.9). Where the subject is singular, the PC/PL verb stem co-occurs with PC/PL object.

(21) *ka* *abi* *able* *u* *etomer(e)t-* *i*
1SG.A 3SG.O DET coconut.tree show.PC/PL- NFUT.SG
'I showed him the palm trees.'

(22) *ka abi able lu etome(r)- da*
1SG.A 3SG.O DET thing show.SG/DU- NFUT.PFV.SG/PL
'I showed him the thing.'

However, when the subject is plural, the PC/PL verb stem is selected regardless of object argument number.

(23) *ki abi able meta etomeret- (d)a*
1NSG.EXCL.A 3SG.O DET house show.PC/PL- NFUT.PFV.SG/PL
'We showed him the house.'

(24) *ki abi able u etomeret- (d)a*
1NSG.EXCL.A 3SG.O DET coconut.tree show.PC/PL- NFUT.PFV.SG/PL
'We showed him the palm trees.'

A fourth type of distinction is seen with the verb 'to turn over', for which Piper identifies three verb stem variants, conditioned by the number of the subject and/or the object argument: *dipigimer* 'SG/DU.A turn over SG/DU.O', *dipigemeret* 'PC/PL.A turn over SG/DU.O' and *dipiger* 'turn over PC/PL.O' (*ibid.* pp.81-82, exx. 3.10-3.14).

Table 2.16: Verb stem alternations for 'turn over'

		Object number	
		SG/DU	PC/PL
Subject number	SG/DU	*dipigemer*	*dipiger*
	PC/PL	*dipigemeret*	

(25) *ka nam dipigeme(r)- dari*
1SG.A turtle turn.over.SG/DU- PFV.SG
'I turned over a turtle.'

(26) *ka nam da<ra>pigeme(r)- da*
1SG.A turtle <3NSG.O>turn.over.SG/DU- PFV.SG
'I turned over two turtles.'

(27) *ki* *nam* *dipigemeret-* *(d)a*
1NSG.EXCL.A turtle PC/PL.A.turn.over.SG/DU.O- PFV.PL
'We turned over a turtle.'

(28) *ki* *nam* *dipiger-* *da*
1NSG.EXCL.A turtle turn.over.PC/PL.O- PFV.PL
'We turned over lots of turtles.'

(29) *ka* *nam* *dipig(e)r-* *i*
1SG.A turtle turn.over.PC/PL.O- PFV
'I turned over turtles.'

2.4.7 Anomalies

In the corpus there are examples where the verb marking does not fit exactly with argument number. Besides the complexities of the number hierarchy and some idiosyncratic mismatches between verb stem and argument number, there is a systematic mismatch for some Group II verbs with imperfective aspect marking.

2.4.7.1 Imperfective aspect

Piper reports that "the present imperfective marker is used to indicate repetition / iterativity" (p.102), giving examples reproduced below as (30) and (31), adding "forms in the imperfective often involve the paucal/plural form of the verb even when there is no paucal or plural S, A or O".

For the intransitive verb 'jump', the PC/PL form of the verb stem is required with a singular subject in imperfective aspect.

(30) *ka* *éwpameret-* *li*
1SG.S jump.**PC/PL.S**- PRS.IPFV
'I am jumping' (*ibid.* p.102, ex. 3.78)

Similarly, with the intransitive verb 'haul in fish', the PC/PL stem must be used in imperfective aspect as in (31) (both from *ibid.* p.102, ex. 3.79).

(31) *ka* *dígwat-* *li*
1SG.A haul.in.**PC/PL**.fish- PRS.IPFV
'I am hauling in fish'

(32) **ka* *dígwatmu-* *li*
1SG.A haul.in.**SG/DU**.fish- PRS.IPFV
(Intended) 'I am hauling in a couple of fish'

These data suggest that the verb stem alternation is affected by aspect as well as argument number.

2.4.7.2 Piper's two "conjugations"

A second anomaly arises from the behaviour of the two "conjugations" identified by Piper. These are not verb conjugations the sense of an Indo-European language, where a particular verb always patterns in a particular way. Rather, the two conjugations seem to provide options for inflection, which are differentially available depending not only on the particular verb, but also on the object number.

Some transitive verbs, such as *emarik* 'to send' and *itrum* 'to take down' have only one root form for all numbers, but alternate freely between the two conjugations for all subject argument numbers, depending on the number of the object argument. For these two verbs, conjugation 1 is used for SG/DU object number (33, 35) whereas conjugation 2 is used for PC/PL object number (34, 36). Note that these two verbs have a single stem form for all argument numbers (*ibid.* p. 131, ex 3.220-3.223).

(33) *ka able* ***netat*** *zyáwali emarik-* ***dari***
1SG.A DET **one** book send- **PFV.SG(conj.1)**
'I sent the **one book**.'

(34) *ka able zyáwali emark-* ***i***
1SG.A DET book send- **PFV(conj.2)**
'I sent the **letters**.'

(35) *ka wáli itrum-* ***da***
1SG.A clothing take.down- **PFV.SG(conj.1)**
'I took down my **dress**.'

(36) *ka kára wáli itrum-* ***i***
1SG.A 1SG.GEN clothing take.down- **PFV(conj.2)**
'I took down my **clothes**.'

Verbs that have two stem forms, Piper describes as more frequently showing conjugation 1 inflection consistently with SG/DU object, but conjugation 2 inflection with PC/PL object. Examples below include *irmi/irim* 'swallow' (37, 38), *dími/dim* 'close' (39, 40), and *erapey/erap* 'buy' (41, 42). Note that the sole difference between sentences (39) and 40) is the inflectional marker: the other sentences also differ in the presence or absence of a quantifier or possessive in the object NP (*ibid.* p135, exx. 3.224-3.229).

(37) *ka* ***netat*** *pil irmi-* ***da(ri)***
1SG.A **one** pill swallow.SG/DU.O- **PFV.SG(conj.1)**
'I swallowed **the pill**.'

(38) *ka pil irmi-* ***i***
1SG.A pill swallow.PC/PL.O- **PFV(conj.2)**
'I swallowed **the pills**.'

(39) *ka te dími-* ***da(ri)***
1SG.A door close.SG/DU.O- **PFV.SG(conj.1)**
'I closed **the door**.'

(40) *ka te dím-* ***i***
1SG.A door close.PC/PL.O- **PFV(conj.2)**
'I closed **the doors**.'

(41) *ka* ***netat*** *lu* *erapey-* ***da(ri)***
1SG.A **one** thing buy.SG/DU.O- **PFV.SG(conj.1)**
'I bought **one thing**.'

(42) *ka* *lu* *erap-* ***i***
1SG.A thing buy.PC/PL.O- **PFV(conj.2)**
'I bought **things**.'

She also notes that some intransitive verbs, those formed from transitive verbs with the *ba-* prefix, have a "mixed" conjugation, selecting conjugation 1 suffixes for SG/DU subject and conjugation 2 for PC/PL. Examples given include *badmirik* 'run away', *bar* 'be broken' and *barbor* 'be broken by tearing', though there are no example sentences given.

However, Piper also identifies verbs that show inflections only from conjugation 2, even with SG/DU argumenents for example *i ezo* 'shed tears' (43) and (44) *ewer* 'weave' (*ibid.* p.132, exx. 3.230-3.231).

(43) *newr i* *izw-* *i*
girl tear shed- **PFV(conj.2)**
'The girl cried.'

(44) *ka* *papek* *iwr-* *i*
1SG.A mat weave- **PFV(conj.2)**
'I wove a mat.'

Some transitive verbs pattern with conjugation 1 for some A argument numbers and conjugation 2 for other A argument numbers. Piper believes this may be phonologically conditioned, but more work is required .

Piper was unable to identify phonological or syntactic factors to motivate the distinction between the two conjugations where verbs show suffixes from either conjugation for a given subject number. She speculates that the "mixed" conjugations may have a

phonological motivation depending on whether the verb stem ends in a consonant or a vowel. She notes the close association between conjugation 1 and SG/DU object number, but does not find this explanation satisfactory as it cannot account for the phenomenon appearing with intransitive verbs, which have no object argument.

2.4.7.3 Idiosyncratic mismatches

Piper also highlights the use of a PC/PL transitive verb form with singular subject and object, shown in (45). She speculates that this could be an idiomatic use (p.193) but it may also be due to the verb *ker* 'do' being used to mean 'fuck' which arguably has a semantically pluractional meaning.

(45) *ka* *mári* *na-* *ker-* *e*
1SG.A **2SG**.O FUT.1+1/2.SG.O- do.**PC/PL**- FUT.1
"I will fuck you" (*ibid.* p.193, ex 5.92)

Analysis of the data from Ray (1907) was carried out, but no further idiosyncratic mismatches were identified in the corpus.

2.4.8 Summary of verb marking

It is clear that there is no single or coherent pattern of number marking with a total of six possible distinctions identified across the various marking sites. Describing these in terms of argument number:

1. Verb roots mark either no number, a NPL vs PL distinction or a SG/DU vs PC/PL distinction. In the majority of transitive verbs, the alternation reflects object number, but the stem can also vary with subject number for some transitive as

well as intransitive verbs. There is at least one verb whose stem has variant forms for both subject and object number, and there are cases where there is a clear lack of agreement between argument number and number marked on the verb stem.

2. Verb prefixes and infixes mark either no number, a SG vs NSG distinction or a SG/PL vs DU/PC distinction. This agrees with the number of the verb argument with 'undergoer' role, S_o, or O.

3. Verb suffixes mark either a SG/DU vs PC/PL distinction, agreeing with the subject of intransitive verbs, or a four-way SG-DU-PC-PL distinction in transitive verbs. For transitive verbs, the presence of a PL object often triggers plural marking even when no PL subject argument is present. Similarly, a PC object will often trigger PC suffix marking when the subject argument is either SG or DU.

However, an account based solely on argument number cannot easily account for the observed interactions between verb stem number and aspect, or for the selection of verb suffix conjugations. We will return to this in Chapter 3.

2.5 Adjectives and adverbs

There is no evidence of adjectives showing number agreement with nouns or with verbal argument number. Many words that function as adjectives to modify nouns, can themselves be independent nouns, and in some cases there is reduplication of a noun to form an adjective.

2.5.1 Reduplication

Adjectives can also be reduplicated. However, it appears that this intensifies the meaning, rather than having any number references. Thus in example (46), the unreduplicated adjective refers to a semantically plural noun,

(46) *...a ba- ker- i nar- lam* ***beber lu*** *erep-*
CONJ PL.S- do.PC/PL.S- PFV boat- ABL heavy thing grab.PC/PL.O-
da ad- em dikri- da
PFV.PL out- ALL throw.PC/PL.O- PFV.PL
"...and they started grabbing the **heavy things** and throwing them overboard."

(*ibid.* p.76, ex. 2.288)

whereas in (47) the reduplicated adjective modifies a semantically singular noun.

(47) *aw* ***beber+beber*** ***werem*** *dá- li*
big heavy child be.NPL.S- PR.IPFV
"He is a very **heavy child**." (*ibid.* p.76, ex. 2.289)

2.6 Conclusion

Meryam Mir marks four number categories for argument number which, with very few exceptions, are marked only on verbs. For Group II verbs, all four number categories are distinguished by suffixes. However, it is not immediately apparent whether all categories can be recovered from verb morphology for the subject of Group I verbs and the object of Group II verbs. This will be explored further in Chapter 3.

An account based solely on argument number is unsatisfactory, as it presents several anomalies including a systematic interaction between number marked on verb stems

and imperfective aspect, and unexplained alternations in verb suffix morphology. The role of verbal number in explaining these anomalies will be explored further in Chapter 4.

The range of number distinctions marked by alternations in Meryam Mir is impressive, and is summarised in table 2.17.

Table 2.17: Available number distinctions and the sites which mark them

Site / Distinction	Nouns	Pronouns	Verb Prefix/ Infix	Verb Root	Verb Suffix
None	+	–	–	+	–
SG-NSG	–	+	+	–	–
NPL-PL	–	–	–	+	–
SG/DU-PC/PL	–	–	–	+	+
SG/PL-DU/PC	–	–	+	–	–
SG-DU-PC-PL	–	–	–	–	+

Where a grammaticalised number distinction (between groups of categories) is observed, this will ideally be matched by a simple feature alternation: if a number of features must vary together in order to produce the distinction, the question arises as to why a more simple distinction is not observed. Accordingly, accounting for these distinctions by means of semantic feature alternations will be explored further in Chapter 5.

Chapter 3

Argument number

We have seen that there are four argument number categories, SG, DU, PC and PL in Meryam Mir, with three of these (SG, DU, PL) available to all nouns and PC additionally available to humans. However, this is not clear from considering nouns or noun phrases in isolation. Nouns may mark dual number, but are not obliged to, and pronouns distinguish singular from non-singular number. Where a noun phrase is the subject or object of a verbal predicate, its number is also marked through a complex pattern of verb affixation, and potentially by verb stem alternation. A number of questions remain:

- Can the four number categories always be derived from this verb marking, or are there restrictions on the categories distinguishable by derivation?
- What verb marking is necessary to distinguish the number categories which are available: can this be done using affixation alone or is verb stem marking also necessary?
- How does the pattern of categories available through derivation from verb marking conform with the number hierarchy proposed by Corbett (2000)?

I will begin by systematically considering affix marking. Apart from the SG-DU-PC-PL distinction, where each number category is individually marked, the other affix number distinctions create subsets of the number categories, i.e. SG/DU vs PC/PL. I assume that where different subsets are marked at different affix sites, the number category that is derived is the intersection of these different subsets.

3.1 Group I verbs

Group I verbs are all unaccusative-intransitive, and mark the number of their subject argument with a prefix and a suffix. The suffix number distinction is SG/DU vs PC/PL. The prefix number distinction varies with animacy: for humans and high animates the distinction is SG/PL vs DU/PC, whereas for low animates and inanimates the distinction is SG vs NSG. Remember also that the PC category is only available for humans. Tables 3.1 and 3.2 show the values that are derived from the affixes for subjects across the different number categories.

Table 3.1: Group I Human/high-animate number marking

Subject number category	Pre-/infix marking		Suffix marking	Derived number category
SG	{SG, PL}	∩	{SG, DU}	{SG}
DU	{DU, PC}	∩	{SG, DU}	{DU}
PC	{DU, PC}	∩	{PC, PL}	{PC}
PL	{SG, PL}	∩	{PC, PL}	{PL}

Thus for the subjects of Group I verbs, the number categories that are available to the subject can all be derived from verb affixes, without any reference to verb stem alternations.

TABLE 3.2: Group I Low animate / inanimate number marking

Subject number category	Pre-/infix marking		Suffix marking	Derived number category
SG	{SG}	∩	{SG, DU}	{SG}
DU	{DU, PL}	∩	{SG, DU}	{DU}
PL	{DU, PL}	∩	{PC, PL}	{PL}

3.2 Group II verbs

Group II verbs may be transitive or intransitive. Prefixes/infixes agree with transitive objects: only intransitive verbs formed with the *ba-* prefix mark the subject number with a prefix or infix. Suffixes typically mark the subject number and always maintain a four-way number distinction. However, there are occasions described by Piper as the operation of a number hierarchy where PC or PL number is shown by the suffix in agreement with a PC/PL object, rather than a SG/DU subject.

3.2.1 Intransitive Group II verbs

There is no possibility of conflict between subject and object for intransitive verbs. For *ba-* intransitive verbs with dual marking, there can also be no conflict between the number sites. Therefore, trivially, all four number categories are identified by verb affixation.

3.2.2 Transitive Group II verbs

For transitive verbs, the situation is less clear-cut. In particular, Piper's number hierarchy has significant implications for the information about argument number that can be derived from affixation.

3.2.2.1 No number hierarchy effect

Where there is no number hierarchy effect, again, trivially, all four number categories for the transitive subject are identified by verb affixation. Transitive objects with SG number can be identified unambiguously. However, DU, PC and PL objects are all marked together as NSG and so cannot be identified.

3.2.2.2 Number hierarchy effect

Where there is a number hierarchy effect, the number of a PC or PL object will be marked on the suffix in preference to a SG or DU subject. This produces the pattern seen in table 3.3, where the subject number value is not derivable in the shaded cells.

TABLE 3.3: Impact of number hierarchy on suffix marking

		Object number			
		SG	DU	PC	PL
Subject number	SG	*SG*	*SG*	*PC*	*PL*
	DU	*DU*	*DU*	*PC*	*PL*
	PC	*PC*	*PC*	*PC*	*PL*
	PL	*PL*	*PL*	*PL*	*PL*

Formally, let us consider the subject and object as the pair $\langle s, o \rangle$, each drawn from the set $\{\text{SG}, \text{DU}, \text{PC}, \text{PL}\}$, and the affixes as the pair $\langle a, b \rangle$, where the prefix/infix a is drawn from the set $\{\text{SG}, \text{NSG}\}$ and the suffix b is drawn from the set $\{\text{SG}, \text{DU}, \text{PC}, \text{PL}\}$. With the number hierarchy, we see the following entailments:

(48) $a = \text{SG} \rightarrow o = \text{SG}$

(49) $a = \text{NSG} \rightarrow o \in \{\text{DU}, \text{PC}, \text{PL}\}$

(50) $b = \text{SG} \rightarrow (s = \text{SG}) \wedge (o \in \{\text{SG}, \text{DU}\})$

(51) $b = \text{DU} \rightarrow (s = \text{DU}) \wedge (o \in \{\text{SG}, \text{DU}\})$

(52) $b = \text{PC} \rightarrow (s = \text{PC} \wedge o \neq \text{PL}) \vee (s \neq \text{PL} \wedge o = \text{PC})$

(53) $b = \text{PL} \rightarrow s = \text{PL} \vee o = \text{PL}$

Assuming again that the verbs marked with prefixes and suffixes require both entailments to be true, and that where there are entailments drawn from sets of number values, the final set is obtained from the intersection of these sets, we see the following:

When $a = \text{SG}$, the value of o is constrained to be SG. Under this constraint, the ambiguity in the entailments of the various values of b disappears:

(54) $$a = \text{SG} \rightarrow o = \text{SG} \Rightarrow \left\{ \begin{array}{l} b = \text{SG} \rightarrow s = \text{SG} \\ b = \text{DU} \rightarrow s = \text{DU} \\ b = \text{PC} \rightarrow s = \text{PC} \\ b = \text{PL} \rightarrow s = \text{PL} \end{array} \right\}$$

However, when $a = \text{NSG}$, ambiguity is not eliminated for all values of b:

(55) $a = \text{NSG} \wedge b = \text{SG} \rightarrow s = \text{SG} \wedge o \in \{\text{DU, PC, PL}\} \cap \{\text{SG, DU}\} \Rightarrow s = \text{SG} \wedge o = \text{DU}$

(56) $a = \text{NSG} \wedge b = \text{DU} \rightarrow s = \text{DU} \wedge o \in \{\text{DU, PC, PL}\} \cap \{\text{SG, DU}\} \Rightarrow s = \text{DU} \wedge o = \text{DU}$

(57) $$\begin{aligned} a = \text{NSG} \wedge b = \text{PC} \rightarrow (s = \text{PC} \wedge o \in \{\text{SG, DU, PC}\} \cap \{\text{DU, PC, PL}\}) \vee \\ (s \in \{\text{SG, DU, PC}\} \wedge o \in \{\text{PC}\} \cap \{\text{DU, PC, PL}\}) \\ \Rightarrow (s = \text{PC} \wedge o \in \{\text{DU, PC}\}) \vee (s \in \{\text{SG, DU, PC}\} \wedge o = \text{PC}\}) \end{aligned}$$

(58) $a = \text{NSG} \wedge b = \text{PL} \rightarrow (s = \text{PL} \wedge o \in \{\text{DU, PC, PL}\}) \vee (o = \text{PL})$

It is clear that, while (55) and (56) give unambiguous values for s and o, ambiguity remains for affixation patterns in (57) and (58).

Table 3.4 brings together the results of entailments (54 - 58) and shows that only six of the sixteen possible combinations of subject and object number values can be derived unambiguously from affix marking on verbs.

TABLE 3.4: Availability of argument number value for Group II verbs

		Object number			
		SG	DU	PC	PL
Subject number	SG	✓	✓	×	×
	DU	✓	✓	×	×
	PC	✓	×	×	×
	PL	✓	×	×	×

3.2.2.3 The possible contribution of verb stem alternations

Thus far we have attempted to derive unambiguous number values using only verb affixation. However, this has proved impossible. Piper also uses argument number to account for the verb stem alternations that are present in Meryam Mir. Accordingly it is worth investigating whether the ambiguity in argument number value might be eliminated if verb stem alternations give additional information about this.

The opposition seen in Group II verb stems is SG/DU vs PC/PL. Piper describes this as usually showing agreement with the verb's object, though she also gives examples of agreement with the subject, or of free agreement with either subject or object. This implies there are four further possible entailments arising from verb stem alternations:

(59) SG/DU verb stem agreeing with SBJ $\rightarrow s \in \{\text{SG, DU}\}$

(60) PC/PL verb stem agreeing with SBJ $\rightarrow s \in \{\text{PC, PL}\}$

(61) SG/DU verb stem agreeing with OBJ $\rightarrow o \in \{\text{SG, DU}\}$

(62) PC/PL verb stem agreeing with OBJ $\rightarrow o \in \{\text{PC, PL}\}$

If we combine these entailments with the ambiguous number values derived from the affix patterns in (57) and (58), we see the following:

(63) Combination (57) ∧ (59), verb stem SBJ agreement:

$$(s = \text{PC} \wedge o \in \{\text{DU}, \text{PC}\}) \vee (s \in \{\text{SG}, \text{DU}, \text{PC}\} \wedge o = \text{PC}\}) \wedge s \in \{\text{SG}, \text{DU}\}$$

$$\Rightarrow s \in \{\text{SG}, \text{DU}\} \wedge o = \text{PC}$$

(64) Combination (57) ∧ (60), verb stem SBJ agreement:

$$(s = \text{PC} \wedge o \in \{\text{DU}, \text{PC}\}) \vee (s \in \{\text{SG}, \text{DU}, \text{PC}\} \wedge o = \text{PC}\}) \wedge s \in \{\text{PC}, \text{PL}\}$$

$$\Rightarrow (s = \text{PC} \wedge o \in \{\text{DU}, \text{PC}\}) \vee (s = \text{PC} \wedge o = \text{PC})$$

$$\Rightarrow s = \text{PC} \wedge o \in \{\text{DU}, \text{PC}\}$$

(65) Combination (57) ∧ (61), verb stem OBJ agreement:

$$(s = \text{PC} \wedge o \in \{\text{DU}, \text{PC}\}) \vee (s \in \{\text{SG}, \text{DU}, \text{PC}\} \wedge o = \text{PC}\}) \wedge o \in \{\text{SG}, \text{DU}\}$$

$$\Rightarrow s = \text{PC} \wedge o = \text{DU}$$

(66) Combination (57) ∧ (62), verb stem OBJ agreement:

$$(s = \text{PC} \wedge o \in \{\text{DU}, \text{PC}\}) \vee (s \in \{\text{SG}, \text{DU}, \text{PC}\} \wedge o = \text{PC}\}) \wedge o \in \{\text{PC}, \text{PL}\}$$

$$(s = \text{PC} \wedge o = \text{PC}) \vee s \in \{\text{SG}, \text{DU}, \text{PC}\} \wedge o = \text{PC}$$

$$s \in \{\text{SG}, \text{DU}, \text{PC}\} \wedge o = \text{PC}$$

(67) Combination (58) ∧ (59), verb stem SBJ agreement:

$$(s = \text{PL} \wedge o \in \{\text{DU}, \text{PC}, \text{PL}\}) \vee (o = \text{PL}) \wedge s \in \{\text{SG}, \text{DU}\}$$

$$\Rightarrow s \in \{\text{SG}, \text{DU}\} \wedge o = \text{PL}$$

(68) Combination (58) ∧ (60), verb stem SBJ agreement:

$$(s = \text{PL} \wedge o \in \{\text{DU}, \text{PC}, \text{PL}\}) \vee (o = \text{PL}) \wedge s \in \{\text{PC}, \text{PL}\}$$

$$\Rightarrow s = \text{PL} \wedge o \in \{\text{DU}, \text{PC}, \text{PL}\}$$

(69) Combination (58) ∧ (61), verb stem OBJ agreement:

$$(s = \text{PL} \wedge o \in \{\text{DU}, \text{PC}, \text{PL}\}) \vee (o = \text{PL}) \wedge o \in \{\text{SG}, \text{DU}\}$$

$$\Rightarrow s = \text{PL} \wedge o = \text{DU}$$

(70) Combination (58) ∧ (62), verb stem OBJ agreement:

$$(s = \text{PL} \wedge o \in \{\text{DU}, \text{PC}, \text{PL}\}) \vee (o = \text{PL}) \wedge o \in \{\text{PC}, \text{PL}\}$$

$$\Rightarrow s \in \{\text{SG}, \text{DU}, \text{PC}, \text{PL}\} \wedge o = \text{PL}$$

Where a verb stem alternation adds the further constraint $o \in \{\text{SG}, \text{DU}\}$ (65, 69), it is possible to derive unambiguous number values for both the subject and object. However, in the remaining combinations, ambiguity remains, as shown in table 3.5, where the cell values that have changed from table 3.4 are highlighted.

TABLE 3.5: Argument number availability from verb affixes and stem alternations

		Object number			
		SG	DU	PC	PL
Subject number	SG	✓	✓	×	×
	DU	✓	✓	×	×
	PC	✓	✓	×	×
	PL	✓	✓	×	×

Accordingly, bringing verb stem alternations into the analysis of argument number does not allow all number values to be derived unambiguously for both arguments. Eight of the sixteen possible number combinations are still ambiguous.

Furthermore, assuming that verb stem alternations carry information about argument number complicates the account of Piper's many examples where verb stem number agrees with neither subject or object, which were discussed in sections 2.4.7.1 and 2.4.7.3. If we are to assume that verb stems contribute information about the argument number, we introduce significant ambiguity here, for the sake of a small reduction in ambiguity elsewhere.

I therefore conclude that verb stem alternations do not provide information about argument number, because:

- they do not significantly improve the account of argument number that is available using information from verb affixes; and
- there are numerous examples showing a systematic lack of agreement between verb affixes and verb stems, which are very difficult to explain if verb stem alternations are relevant to argument number.

A conclusion that verb stems do not provide information about argument number leaves us without an account of their alternations, which although complex, do not seem to be arbitrary. This will be considered further in Chapter 4.

3.3 Asymmetries

To recap, the analysis has sought to identify whether the four number categories in Meryam Mir — SG, DU, PC, PL — can always be derived from number marking on verbs, given that there is no mandatory number marking on nouns and only a SG vs NSG number distinction on pronouns. The resulting picture is not clear cut, as shown in table 3.6.

Table 3.6: Asymmetries in argument number availability

		INTR verb	Object number			
			SG	DU	PC	PL
Subject number	SG	✓	✓	✓	×	×
	DU	✓	✓	✓	×	×
	PC	✓	✓	×	×	×
	PL	✓	✓	×	×	×

The exact subject number of intransitive verbs in both Group I and Group II can always be identified. However, for transitive verbs, unambiguous number values can be identified only in two groups of cases: *either* where a subject of any number value has a SG object, *or* where both subject and object are both either SG or DU.

The observed pattern raises further questions about the nature of PC and PL suffix number marking. In transitive verbs, it seems to be adding the information that either paucality or plurality is present in one of the arguments of the verb, with the implication that this in itself is more important than singularity or duality of the arguments. Only a prefix/infix allows singular objects to be identified.

On this analysis, the data suggest that argument number in Meryam Mir is facultative, rather than obligatory, and that SG and DU number marking behaves differently from PC and PL number marking.

3.4 Relation to Corbett's typologies

Corbett (2000) discusses typological hierarchies for the presence of number categories in a language and their availability. In this section I assess Meryam Mir number patterns against these hierarchies.

3.4.1 Number categories

For the presence of categories, he introduces a four-element hierarchy,

(71) $singular > plural > dual > trial$

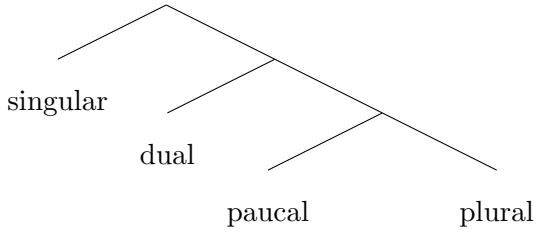
which he elaborates from a typological universal proposed by Greenberg (1966):

> "No language has a trial number unless it has a dual. No language has a dual unless it has a plural." (Universal 34, p.94)

This hierarchy operates such that the presence of a number category in the hierarchy requires the presence of all the categories to its left.

Recognising that there are languages that have "indeterminate" number values which may described as, e.g. "paucal" or "limited plural", and that there is variation in the number and range of these, Corbett describes a range of possible hierarchies including that shown in (72) (Corbett, 2000, Fig 2.6, p.41) for Yimas.

(72)



This is the number category system seen in Meryam Mir, and so I conclude that the pattern of number categories in Meryam Mir is in accordance with Corbett's proposals.

3.4.2 Category availability

Corbett also builds on the work of Smith-Stark (1974) and Comrie (1989) to relate the Animacy Hierarchy to differences in the availability and obligatory use of particular number categories within and across languages. The version of the hierarchy used by Corbett (2000, p.56) is:

speaker		*speaker*	
(*1st person*	>	(*2nd person*	*>3rd person > kin > human > animate > inanimate*
pronouns)		*pronouns*)	

This interacts with availability in two ways: in respect of the categories that are available to semantic classes of nouns, and in respect of the category marking observed on different word classes. Looking first at the semantic classes of nouns mapped against Meryam Mir's four number categories, we see the pattern in table 3.7, which conforms to Corbett's predictions.

TABLE 3.7: Availability of argument number categories to semantic classes of nouns

	1p	2p	3p	kin	human	animate	inanimate
SG	✓	✓	✓	✓	✓	✓	✓
PL	✓	✓	✓	✓	✓	✓	✓
DU	✓	✓	✓	✓	✓	✓	✓
PC	✓	✓	✓	✓	✓	✓ (high animates)	×

The expression of the full range of argument number categories on verbs only, and a restricted range of categories on pronouns and nominals is identified by Corbett as typologically unusual, but is not unknown. When we compare the patterns of morphological expression of argument number across word classes against the animacy hierarchy, we see the pattern in table 3.8.

TABLE 3.8: Availability of morphological marking sites to semantic classes of nouns

	1p	2p	3p	kin	human	animate	inanimate
Verb suffixes	✓	✓	✓	✓	✓	✓	✓
Verb prefixes	✓	✓	✓	✓	✓	✓	✓
Nominals	✓ SG-NSG obligatory	✓ SG-NSG obligatory	✓ SG-NSG obligatory	✓ DU/Grp facultative	✓ DU/Grp facultative	×	×

Again, we see a pattern that conforms to Corbett's predictions: there is no animacy hierarchy category that marks number at a particular site, where a hierarchy category to the left does not also mark that category. For nominals, we see obligatory marking of

pronouns on the left of the hierarchy, then facultative suffixing of kin terms and proper nouns.

Accordingly, the argument number categories and expression patterns seen in Meryam Mir are typologically unusual, but not theoretically problematic to Corbett's model.

3.5 Conclusion

In conclusion, analysis of number marking suggests that argument number alone does not account for the Meryam Mir number system. Furthermore, the value of category distinctions other than SG-NSG is not always retrievable and therefore the specific categories DU, PC, and PL (as opposed to NSG) appear to be facultative rather than obligatory.

The relationship between argument number and verb stem alternations is more of a loose association than obligatory agreement, and the next chapter will examine how the concept of verbal number can provide a theoretically more satisfactory account.

Chapter 4

Verbal Number

Thus far, we have seen a number of examples where argument number does not adequately explain the patterns of number marking seen in Meryam Mir. These are:

- the agreement patterns of suppletive verb-stem pairs, including mismatches between argument number and number marked on the verb, and inconsistencies in which argument triggers agreement (e.g. subject or object);
- the number hierarchy in verb suffixes;
- alternations in perfective aspect verb suffixes between two 'conjugations'.

In this chapter, I argue that a more consistent account of these patterns is given by assuming that verbal number - the nature of the action - plays a systematic role in the alternations. I explore how verbal number in Meryam Mir can be described using the frameworks developed by Cusic (1981), Moens and Steedman (1988), and Wood (2007), and the extent to which it is expressed morphosyntactically as well as lexically. I also identify other areas of the grammar where verbal number provides a more satisfactory

explanation of observed phenomena than Piper's account using argument number. However, before this typological discussion, it is necessary first to define verbal number and demonstrate that introducing it as a category is a valid assumption.

4.1 Defining verbal number

At its simplest, verbal number describes the difference which is essentially due to a multiplicity of actions, rather than a multiplicity of the participants in those actions. However, capturing this essential difference is not straightforward because of the ways in which multiple actions take place, and because of the relationship between verbal number and argument number. For example, if we consider the intransitive verb 'to clap', the action of bringing the palms and fingers of two hands together, one person can clap once, or repeatedly over a period of time. Similarly, a number of people can each clap once, simultaneously or in turn. A number of people can also clap repeatedly, and these individual clapping events can be synchronous or asynchronous. An individual clapping event might involve one hand each from two people, and this type of event may be repeated by the same two people or by others. The common element of repeated action may be masked by different lexical descriptions: compare 'slow hand clap' with 'round of applause' or the children's game 'pat-a-cake, pat-a-cake, baker's man'.

For transitive verbs, semantic roles other than the agent may be affected by plural action, and this creates a further overlap between verbal and argument number. The verbs 'massacre' and 'scatter' each require a theme argument that is semantically plural compared to 'kill' and 'throw', which can be used with a singular theme argument. 'Scatter' also requires that the elements of the theme argument, whether syntactically singular (e.g. 'gravel') or plural (e.g. 'stones') travel in different directions and have different

destinations, whereas a massacre can occur at a single site. However, semantically plural arguments are not a requirement. Thus, 'batter' can be used with a semantically singular agent and theme, the difference from 'hit' being that 'batter' requires repeated action.

Durie (1986) looks specifically at suppletive verb pairs that are selected by number alternation. He concludes firstly that these should be recognised as a semantic rather than a syntactic category, and secondly that the semantic category that is encoded by the differences between the pairs is that of verbal number, rather than argument number.

His conclusions are based on comparing the behaviour of these verb pairs with other syntactic and semantic phenomena, where he identifies a number of differences. He describes the strong tendency for verb pairs to mark "plurality of affect", that is, the argument of the verb which is most affected by the fact that the action is plural. Durie identifies this argument as either the subject of an intransitive verb or the object of a transitive verb, which he describes as an absolutive pattern, regardless of the case alignment of the language in question. He recognises that argument number marking does not necessarily coincide with the use of the suppletive pairs. For example where there are differences between syntactic and semantic number, the suppletive pair will signal the semantic number. Furthermore, even where a language does not mark a number distinction on nouns or pronouns, the suppletion will still be seen. Finally, the suppletive pairs are seen in contexts where agreement is not present, such as derivational morphology, or within XCOMP arguments.

Notwithstanding this, argument number and verbal number will never be wholly independent. As Durie concludes, "This provides the potential for concord between verbal

number and NP Number, but this concord shows the expected properties of semantic selection rather than agreement." (p.365).

In English, verbs that describe plural action sound awkward, or require a particular context, to be used to describe a single action or with a singular theme argument. There is, however, an asymmetry, as the forms for single action may be used with plural arguments or modified with adverbials (e.g. 'repeatedly', 'over and over again') to describe plural action. It may not be an elegant use of language, but it is not ungrammatical in English to 'hit something many times' rather than 'batter something', to 'throw gravel all over the place' rather than 'scatter gravel', or to 'kill all the soldiers' rather than 'massacre the soldiers'.

In other languages, however, verbs may form lexical pairs which are mutually exclusive. For example, some verbs of motion in Czech have durative and iterative forms, that distinguish "between motion along a route at a given time (expressed with the determined stem, which signals unidirectionality and unitemporality) and motion that is random or habitual (expressed with the non-determined stem, which signals non-unidirectionality and non-unitemporality)" (Janda and Townsend, 2000, p.39): compare *jít* 'to go by foot once' and *chodit* 'to go by foot repeatedly or habitually'. It is ungrammatical (73) to use the durative form for repeated action.

(73) *Chodí* /(**jde*) *každý den do školy.*
go.by.foot.ITER.3SG /(*go.by.foot.DUR.3SG) every day to school.GEN
'(S/he) walks to school every day.'

Cross-linguistically, marking of plural action is not limited to adverbials, or to lexical pairs that are etymologically unrelated. There may be more or less regular morphological processes for deriving members of the pair, which may also be freely productive. Wood (2007, p.3) cites examples of reduplication in Hausa (Newman, 2000, pp.423-424) *hàifā*

'give birth', *hàhhaifā* 'give birth many times / to many children', and of suffixation in Yup'ik (Jacobson, 1984, p.535) with the post base morpheme *-qaqe-* in the pair *quuyurni-* 'to smile', *quuyurniqa'aqluni* 'smiling now and then'.

Besides describing the variety of verbal number, attempts have been made to explain its relationship with other grammatical features such as tense and aspect (Cusic, 1981, Moens and Steedman, 1988) and to develop a more structured typology of its semantics (Wood, 2007).

4.1.1 Relationship with tense and aspect

Cusic (1981, p.19) defines plurality as "a multiple function incorporating the representation of (a) multiple, countable single units; (b) multiple parts (the inner structure) of a unity; (c) the uncountable, but quantifiable expansion of a unity, cf. Dressler (1968, p.55)." He also introduces the notion of *boundedness* when considering count and mass nouns in English: "a syntactically plural count noun (e.g. 'books') is unbounded in a sense that resembles the sense in which a syntactically singular mass noun ('water') is unbounded: both lack an outer bound which defines them as a unity, and both have a multiplicity of internal parts." (*ibid.* p.16).

Cusic notes that not only can these syntactically singular mass nouns be regarded as semantically plural in their unboundedness, but that they may themselves be syntactically pluralised when they are bounded by definite reference to a particular type or instance of the mass (e.g. 'The shop stocks over a hundred wines.')

Cusic then considers tense and aspect as temporal constructs that are analogous to spatial constructs, relating to the boundaries of events or actions as argument number relates to the limits with spatial constructs. Tense gives information about the location

of events in time, whereas aspect gives information how the structure of events is realised with respect to time, such as whether an event is complete (perfectivity vs imperfectivity) or the length of time that is required for an event (e.g. durativity vs non-durativity). However, these two constructs are not independent, as Cusic notes: "[I]t is apparent that the locating of events presupposes some information about their temporal structures." (*ibid.* p.20)

In other words, Cusic argues that to specify the tense of an event, whether relative to another event, or absolutely in relation to the moment of speech, a speaker needs knowledge of the start and end points of that event. If one event takes place before another event, the end of the first event must be before the start of the second: there is no need to consider the duration of either event. Conversely, where events occur simultaneously, we must acknowledge the duration of the events, to allow the time boundaries to overlap: "simultaneity requires an internal composite structure" (*ibid.* p.62). This acknowledgement of the internal structure of the event, abstracted from a particular location in time, is aspect.

Aspect, then, in describing the boundedness of events, also provides a "classification with respect to the notion of [event] number as being singular, internally plural, or externally plural - so that they may be ordered by tense" (*ibid.* p.62), which parallels the spatial boundedness inherent in argument number. However, aspect is not the only grammatical feature which contributes this information: Cusic also identifies aktionsart (Agrell, 1908) as contributing information about "bounds and multiplicity" (Cusic, 1981, p.62) being the abstract lexical representation of the properties of the event with respect to time, rather than their realisation.

Comrie (1976), writing on lexical aspect as the specifically aspectual elements of aktionsart, identifies five categories of lexical aspect: accomplishments, achievements, activities, semelfactives and states, which vary according to the presence or absence of action (states vs. the other categories), and for the non-stative categories, by the presence or absence of two independent features: duration and telicity. Accomplishments and activities have duration, whereas achievements and semelfactives occur at a point in time and have (effectively) no duration. Telicity describes whether or not an action has an inherent end point or goal: achievements occur, and accomplishments end, when a goal is realised and are therefore telic. However, the occurrence of a semelfactive or the end point of an activity is arbitrary, determined only by the agent, and accordingly atelic.

Aktionsart goes beyond this categorisation, and can include other dimensions that give specific information about multiplicity of events, such as durativity/iterativity, as seen in the Czech examples in (73) above. Cusic argues that argument number and quantity can be classified within aktionsart, albeit "sometimes uncomfortably" (Cusic, 1981, p.51) because of their impact on the singularity or plurality of events. Cusic argues that telicity is the property of a sentence rather than the verb on its own. In English telicity can be tested by the relative acceptability of the time adverbials 'in an hour' and 'for an hour' with a verb: if 'in an hour' is acceptable, the verb is telic, whereas if 'for an hour' is acceptable, the verb is atelic. However, as Cusic notes, changes in the nature of the subject of an intransitive verb, or the object of a transitive verb, can alter the acceptability of the verb and its arguments with the adverbials 'in an hour' and 'for an hour'. This can be seen by comparing 'I ate doughnuts for/*in an hour' with 'I ate six doughnuts *for/in an hour'.

The relationship between lexical categories of verbs, tense, and aspect, is examined

by Moens and Steedman (1988), who propose a differentiation based on two dimensions. The temporal nature of the verb is split between atomic events (short duration), extended events (longer duration) and state (no end point). Events are then further categorised according to whether there is a change of state as a consequence of the event (+conseq) or not (–conseq). Their categorisation is shown in table 4.1 (reproduced from Figure 1, p.17). They note that lexical items often do not fit neatly into one of the categories, and instead refer to "verbs which *typically* yield propositions of the relevant types". Note the pairwise similarities between Moens and Steedman's event categories and Comrie's lexical aspect categories: point/semelfactive; process/activity; culmination/achievement; and culminated process/accomplishment.

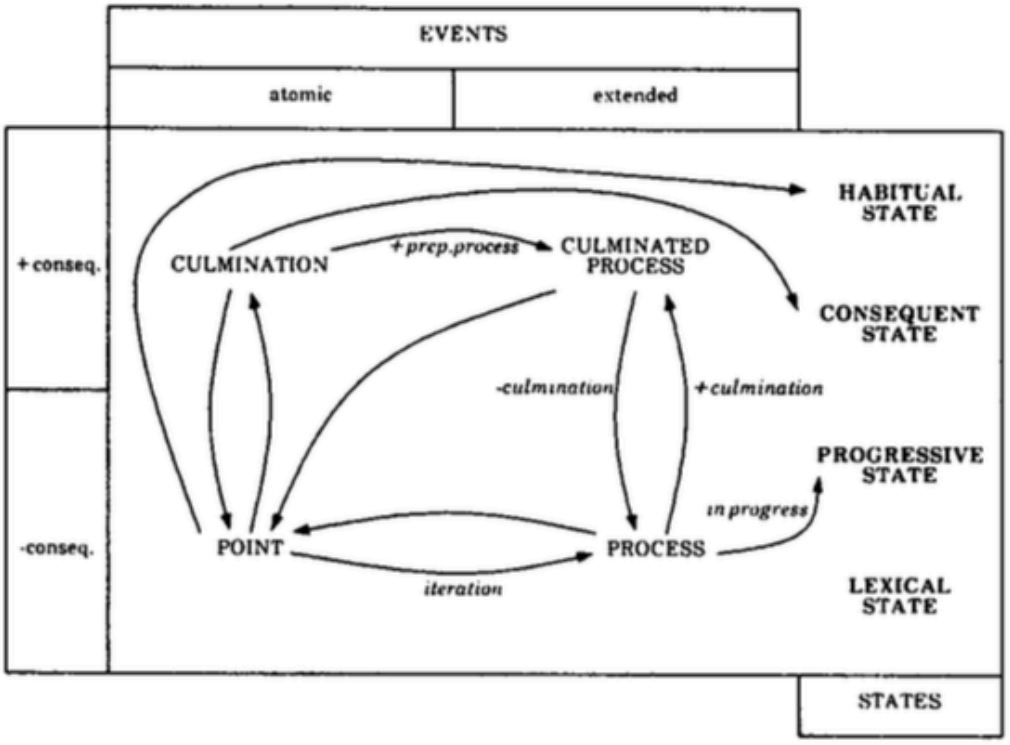
Table 4.1: Moens & Steedman's subcategorisation of events

	Events		States
	atomic	extended	
+conseq	CULMINATION *recognise, spot, win the race*	CULMINATED PROCESS *build a house eat a sandwich*	*understand love, know resemble*
–conseq	POINT *hiccup tap, wink*	PROCESS *run, swim, walk play the piano*	

Moens and Steedman proceed to describe how the nature of an event denoted by a particular verb may shift categories by sentential context such as the use of a particular combination of tense and aspect, or a change in the nature of a predicate. They develop their category matrix into a transformation matrix, which states the preconditions necessary for such a shift to take place, which is shown in table 4.2 (reproduced from Figure 2, p.18).

Returning to Cusic, he also uses the relationship between verbal number, aspect, aktionsart and argument number to provide a more fine-grained analysis of verbal number

Table 4.2: Moens & Steedman's transition matrix



into plurality *of* events, plurality *in* events, and plurality *in and of* events (*ibid.* p.62). This distinction is used by Wood (2007) as the basis for her semantic typology of pluractionality.

4.1.2 Typology of plural action

Wood's study focuses on the grammaticised markers of verbal number, rather than lexical expression: the term she uses for this grammaticised category is 'pluractionality', which she defines as "the linguistic expression of event plurality" (p.1). Her study has three elements: a cross-linguistic review of pluractional markers taken from published grammars; the development of a semantically-based typology that Wood claims is compatible with cognitive research findings on perception; and a detailed examination of two languages, Yurok and Chechen, in the light of this typology.

The cross-linguistic review classifies pluractional markers according to a range of descriptive criteria which are not mutually exclusive, including descriptions of aktionsart from Dressler (1968). The basic criteria she considers are:

- single vs multiple occasions;
- continuity vs intermittence of repetition;
- argument plurality, or distribution of repetitions over a plural argument;
- distributive either spatially or across participants;
- the number of phases or repetitions distinguished (once, twice, many); and
- simultaneity or sequentiality.

Other criteria Wood touches on include augmentation or diminution of action, the degree of effort, and the direction of action, although examples of these are too infrequent for her to draw conclusions.

In developing the semantic typology, Wood moves beyond Comrie's theory of aktionsart to include the hierarchy of event structure from Cusic (1981, p.61) built from the distinctions between Cusic's "plurality in events", which she terms 'event-internal', and his "plurality of events", which she terms 'event-external' (Wood, 2007, p.16). Although she bases her typology on Cusic's model, Wood recognises that the criteria for her cross-linguistic review do not explicitly consider event-internal or event-external repetition. However, she identifies pluractional markers in two languages, Yup'ik and Syrian Arabic, where the use of a pluractional with a semelfactive verb restricts the pluractional meaning to taking place during a single time period. (*ibid.* p.74)

The Yup'ik postbase *%ur* 'do purposely by several actions', when applied to the semelfactive verb *alleg-* 'to tear' produces a pluractional event, *allguraa* 'he is tearing it up' (Jacobson, 1984, p.581). Similarly, augmentative gemination in Syrian Arabic can be applied to the semelfactive verb *kasar* 'to break in two', producing pluractional *kassar* 'to break into pieces'; and to the semelfactive *safaʔ* 'to clap, slap (once or more)', producing pluractional *saffaʔ* 'to clap (e.g. in applause or rhythm)'.

Wood then further considers interactions between pluractional markers and various types of aktionsart, such as achievement, activity and accomplishment verbs; as well as the singular or collective nature of the arguments to verbs. Based on this analysis, she derives a set of characteristics of event-internal and event-external plurality, which is reproduced here in tabular format as table 4.3 (*ibid.*, p.87).

Table 4.3: Characteristics of event-internal and event-internal pluractionality

Event-internal	Event-external
high-continuity	continuous *or* intermittent
single occasion	single *or* multiple occasions
semelfactive / achievement	all aktionsarten
plural count	dual *or* multiple count
pluralising nonagentive arguments	pluralising S/A/O arguments
typically / inherently repeated	
common goal / completion	

She notes that there seem to be more constraints on event-internal plurality than event-external plurality, and links this to cognitive processes of group formation, which she claims are similar whether objects or events are being grouped (*ibid.* p.91). The characterisation of event-internal pluractionality includes a restriction to semelfactive / achievement events (in Comrie's terms), which parallel Moens and Steedman's culmination / point events. From table **??** we see that these are the event categories described as "atomic" rather than "extended". However, Wood's event-external pluractionality is available to all aktionsart types.

It should be noted that Wood's cross-linguistic survey explicitly excludes lexical variants (such as argument-numbered verb pairs), aspect and aktionsart, although she recognises that others, such as Corbett (2000) include these areas in their definition of verbal number. However, she does acknowledge that lexical variants, aspect and aktionsart each may indicate event plurality, albeit as the product of an interaction with another grammatical feature rather than a necessary entailment.[1]

Notwithstanding this limitation on the scope of the survey, Wood's theory is fundamentally semantic, rather than syntactic or lexical, and accordingly any generalisations about event plurality should be applicable whether that action is marked lexically, through derivation, or through what Wood describes as 'pure pluractionality': inflection and syntactic patterns.

Wood's study stresses the fundamental importance of the event-internal / event-external distinction in categorising plural action, and I have shown how this is coherent with, although taking a different perspective to, Moens and Steedman's analysis of the relationship between aspect and aktionsart. I now attempt demonstrate the extent to which both of these analyses are helpful in accounting for number patterns in Meryam Mir.

4.2 Verbal number as a category in Meryam Mir

Having considered some of the theory relating to verbal number, it is necessary to motivate the assumption that verbal number is a semantic category in Meryam Mir. This will be done by considering the behaviour of suppletive verb pairs. These are numerous and in many cases the SG/DU form seems to be morphologically derived by

[1] Wood illustrates this by comparing the English sentences 'Your neighbour is knocking on the door', where the present progressive with a semelfactive verb implies repeated knocks, whereas with 'Joe is painting' only one painting event is specified. (p.10)

the deletion of a syllable from the PC/PL form as we saw in some of the examples given in tables 2.14 and 2.15: e.g. *demarge* 'be-resting-on-ground.NPL' - *dVmar* 'be-resting-on-ground.PL', and *etomeret* 'show.SG/DU' - *etomer* 'show.PC/PL'.

Both Piper and Ray identify these alternations as significant: they are the first aspect of verbs that Piper describes in her sketch grammar, and she returns repeatedly to describe how they interact with argument number and with verb affixes. Accordingly, this is a significant enough phenomenon in the grammar to support the introduction of a new category that can provide a more robust account.

As we have seen, verb stem alternations are described by Piper as agreeing with either the subject of an intransitive verb or the object of a transitive verb, an absolutive alignment. This fits with Durie's description of "plurality of affect" for verbal number, as discussed in section 4.1. Durie also proposes that verbal number agrees with semantic, not syntactic number, and that verbal number may mark distinctions not recognised by a language's nouns or pronouns. Meryam Mir in general does not mark argument number on nouns, and there are many examples of mismatch between argument number marked on suffixes and the noun stem. The number distinctions marked by verb stem alternation are described by Piper as SG/DU-PC/PL and NPL-PL, neither of which is a distinction marked on nouns or pronouns. Finally, Durie's other condition is that suppletion is seen in contexts where there is no explicit number agreement. The examples of nominalised verbs found in the corpus are derived from verbs that have a single stem form, so it is not possible to test this condition. However, evidence against the other criteria suggests that there is justification for assuming that the suppletive forms mark verbal number.

Accordingly, I conclude not only that verbal number is a semantic category that can be systematically expressed in Meryam Mir, but also that it enables a coherent account

of number phenomena that Piper treats as anomalies or exceptions to agreement with argument number. In the next section, I demonstrate how this is the case.

From this point forward, where I am assuming verbal number, I will replace the argument number element of Piper's glosses to reflect this, marking verbal plurality (VPL) or its lack (VSG).

4.3 Instances of verbal number

In Meryam Mir, the most frequent type of verbal number by far is the general alternation of verb stems for verbal number described above. The phenomenon is seen in transitive and intransitive verbs, and examples have been found from all five of Comrie's categories of lexical aspect: stative ('be'), semelfactive ('chop'), activity ('be growing'), achievement ('enter') and accomplishment ('go')[2]. In the light of the interactions Wood describes between aktionsart and type of plurality, it is reasonable to assume that there are instances of morphological marking for both event-internal and event-external plural action in the language.

Besides regular verb stem alternation, it is possible that verbal number can provide a stronger account of those phenomena that are not adequately explained by argument number alone, in particular the various mismatches between verb stem and argument number, and the number hierarchy in verb suffixes. In the rest of this chapter, I will also explore phenomena that may be related to verbal number such as the suffix *-dar-*, and alternations between 'conjugations' in perfective aspect suffixes.

[2]The verb pair *bakyamu/bakyaw* 'go' indicates that a destination was reached (Piper, 2013, p.121), in contrast to the Group I verb *ikasir* 'be going along'. Accordingly, I treat 'go' as an accomplishment verb.

The number hierarchy in verb suffix patterns is also not yet adequately explained, and I shall return to this in Chapter 5 when considering the feature systems that underpin the various number distinctions that are observed.

4.3.1 Mismatches between verb stem and argument number

In chapter 2, a number of anomalies were identified where there is lack of agreement between verb stem number and argument number. These include both systematic anomalies associated with particular tense/aspect combinations and idiosyncratic combinations.

4.3.1.1 Systematic mismatches

The major systematic mismatch is the use of the PC/PL verb stem with SG/DU argument in the present imperfective to indicate repeated or iterative action. This is analogous to the case in English where progressive aspect combined with a semelfactive verb produces a reading with plural action (e.g. 'I am knocking at the door' implies repeated knocks.) English does not have suppletive verb pairs marking verbal number, and so the form of the verb remains the same. However, in Meryam Mir, a verbal plural form is available and must be selected when repetitive or iterative action is taking place. Re-glossing example (30) in section 2.4.7.1 to include the assumption of verbal number, the semantic meaning is maintained and the syntactic mismatch identified by Piper disappears.

(74) *ka* *éwpamaret-* *li*
1SG.S jump.VPL- PRS.IPFV
'I am jumping'

In this case, it appears that the verbal plurality is event-internal, with a single jumping event of repeated instances.

Not all of the cases of verb stem alternation show an absolutive pattern of number marking. The verbs 'show' and 'pull in from sea' both vary with either subject or object. Re-glossing examples (21-24) for 'show', we see

(75) *ka abi able u etomer(e)t- i*
1SG.A 3SG.O DET coconut.tree show.VPL- NFUT.SG
'I showed him the palm trees.'

(76) *ka abi able lu etome(r)- da*
1SG.A 3SG.O DET thing show.VSG- NFUT.PFV.SG/PL
'I showed him the thing.'

(77) *ki abi able meta etomeret- (d)a*
1NSG.EXCL.A 3SG.O DET house show.VPL- NFUT.PFV.SG/PL
'We showed him the house.'

(78) *ki abi able u etomeret- (d)a*
1NSG.EXCL.A 3SG.O DET coconut.tree show.VPL- NFUT.PFV.SG/PL
'We showed him the palm trees.'

Considering this pattern, which links event plurality with either or both the agent and theme arguments, in the light of Wood's criteria (table 4.3), leads to the conclusion that here we are seeing the verb stem alternation marking event-external plurality.

4.3.1.2 Idiosyncratic mismatches

In section 2.4.7.3 we have already seen how Piper accounts for a PC/PL transitive verb form being used with SG subject and SG object as an idiomatic use (45), and noted the arguable semantic pluractionality of the verb *ker* when it is used as 'fuck'. Again, re-glossing this as event-internal plural action (79) removes the inconsistency.

(79) *ka* *mári* *na-* *ker-* *e*
1SG.A 2SG.O FUT.1+1/2.SG.O- do.VPL- FUT.1
'I will fuck you'

4.3.2 The suffix *-dar-*

The suffix *-dar-* is shown by Piper in a number of contexts, with a common meaning which she identifies as 'non-punctiliar'. Reviewing again these contexts we see:

- Full lexicalisation into a verb, producing *erdar* 'watch' from a nominalised form *erem* 'see-ALL'
- Association with the VPL form of verbs such as *upi diti* 'help.SG/DU.O' > *upi diti-dar* 'help.PC/PL.O', where in this case the nominalised form *upi ati-dar-em* includes the suffix
- Occurrence in nonpresent imperfective tense, either optionally (e.g. 'come out'.SG/DU.S, 'wake up'.PL.S) or obligatorily (e.g. 'go in'.SG/DU.S, 'suggest.SG/DU.O')

However, it is possible to reframe 'non-punctiliar' as pluralising action for achievement verbs that are inherently of short duration, either by extending the duration (e.g. 'see' > 'watch') or through repetition (e.g. 'come out', 'go in', 'wake up'). The verb *upi diti*, 'help', is composed of a noun and verb (cf. *i ezo*, 'cry, shed tears') and so the object number alternation that Piper identifies is syntactically an indirect object with beneficiary role, rather than the direct object. In this context, the *-dar-* morpheme may be marking either repeated or prolonged action and it is not immediately clear whether this is event-internal or event-external.

4.3.3 Suffix morphology: 'conjugations' in perfective aspect

In section 2.4.3.2, we saw that Group II verbs may select suffixes from one or both of two 'conjugations' in the following for tense-aspect-mood categories as follows:

- Category C: nonfuture-pervective (NFUT.PFV);
- Category D: nonpresent-future-perfective (NPR.FUT.PFV); and
- Category E: nonpresent-past (NPRS-PST).

This is a complex area, with overlaps in the time reference of TAM categories, a high degree of syncretism in the suffix patterns, and a lack of clear patterning between the two conjugations.

The relevant suffixes were presented above in table 2.4 sorted primarily by TAM category and secondarily by conjugation; and in table 2.5 sorted primarily by conjugation and secondarily by TAM category to highlight syncretism across conjugations for PC and PL number. They are now presented again in table 4.4, here sorted primarily by number and secondarily by conjugation, to foreground the similarities and differences between the conjugations for given values of number and TAM category.

Table 4.4: Group II verb suffixes grouped by number

<table>
<tr><th colspan="2" rowspan="2"></th><th rowspan="2">C</th><th colspan="2">D</th><th rowspan="2">E</th></tr>
<tr><th>1p</th><th>2/3p</th></tr>
<tr><td rowspan="2">SG</td><td>Conj. 1</td><td>-da(ri)</td><td>-lu</td><td>ø</td><td>-lu</td></tr>
<tr><td>Conj. 2</td><td>-i</td><td>-e</td><td>ø</td><td>ø</td></tr>
<tr><td rowspan="2">DU</td><td>Conj. 1</td><td>-daryey</td><td>-ley</td><td>-lam</td><td>-ley</td></tr>
<tr><td>Conj. 2</td><td>-iyey</td><td>-ey</td><td>-am</td><td>-ey</td></tr>
<tr><td rowspan="2">PC</td><td>Conj. 1</td><td colspan="4">-dare</td></tr>
<tr><td>Conj. 2</td><td colspan="4">-idare</td></tr>
<tr><td rowspan="2">PL</td><td>Conj. 1</td><td rowspan="2">-(dar)da</td><td colspan="3">-(r)are</td></tr>
<tr><td>Conj. 2</td><td colspan="3">-are</td></tr>
</table>

As can be seen from the table, there are some patterns of similarity or systematic difference between the conjugations.

- For Category C, in SG and DU number, the Conjugation 1 suffixes *-dari, -daryey* are the Conjugation 2 suffixes (*-i, -iyey*) preceded by a morpheme *-dar-*.
- For 1p.SG , there is syncretism between categories D and E in conjugation 1
- For 2/3p.SG ,there is syncretism between categories D and E in conjugation 2
- For DU number, all person values, there is similarity between categories D and E in both conjugations: Conjugation 1 suffixes are formed from Conjugation 2 suffixes with an initial *l-*.
- For PC number, Conjugation 1 and Conjugation 2 are each syncretic across categories C, D and E.
- for PL number, Conjugation 1 and Conjugation 2 are each syncretic across categories D and E.

The differences between the two conjugations are very small for PC and PL number. Piper notes that for PC number, the variation may be phonologically driven, depending on whether the verb stem ends in a vowel or a consonant. This may also be the case for PL number, as the only identified difference is an optional *r* in the conjugation 1 PL suffix.

4.3.3.1 Factors governing the choice of conjugation

Turning now to the factors governing the choice of conjugation, Piper notes the following. Conjugation 1 appears: more often with SG/DU stems; for some verbs without stem

alternation; consistently with SG/DU object; for *ba-* intransitives with SG/DU subject. Conjugation 2 appears: more often with PC/PL stems; for some verbs without stem alternation; consistently with PC/PL object; for *ba-* intransitives with PC/PL subject; for some verbs, transitive or intransitives (examples given are 'shed tears' and 'weave'), for all numbers of S and O.

This patterning, following an absolutive alignment, suggests that conjugation 2 may be marking plurality of action. A number of examples of verbs were given in section 2.4.7.2 that select freely from the two conjugations in line with object number : 'send', 'take down', 'swallow', 'close (e.g. a door)', 'buy'. All of these verbs can be classed as achievement verbs: they are telic in that the end of the action is inherent in the verb, and there is a single phase to their action. I therefore propose that using conjugation 2 for achievement verbs with perfective aspect marks extended duration of action. Considering the examples given of verbs that always select conjugation 2, 'shed tears' has an inherently plural action, and 'weave a mat' requires sustained repeated action, both consistent with verbal plurality.

As the examples given by Piper in the text of her grammar are limited in number, the corpus was searched in the hope of finding examples of conjugation 2 suffixes with SG/DU object or verb stem, and conjugation 1 suffixes with PC/PL object or verb stem.

In the following examples (80) and (81), *deskey* 'cut', which has a single stem form, is seen with DU number suffixes from TAM category E, conjugations 1 and 2 respectively.

(80) *Barate-* *de* *uiabi* *de<ra>tagar-* *are* *kega,* *tedali* *lu*
Barat- ERG 3.NSG.ACC <ra>tell- PST.PL thus, (unglossed) tree
mairmair ***desek-*** ***eili***
red **cut-** **PST.DU.conj.1**
'Barat told them, "cut down the red tree".' (Ray, 1907, p.238, amended gloss)

(81) *Dáwgiri- ba Wáyda- ey kórider emri- ley / abra*
Dawgiri- NSG Wayda- DU speed SG/DU.S.sit- PST.DU.conj.1 / 3SG.GEN
gaba+gaba- u kirim ***desk- ey*** *a ipit- ey*
club+N- INST head **split- PST.DU.conj.2** CONJ hit- PST.DU.conj.2
'Dawgiri and Wayda ran, split his head open with a club and killed him.' (Piper, 2013, p.210)

In both examples the object of the verb is singular, but in (81) it may be that the clubbing action was repeated, which would be consistent with conjugation 2 signalling event-internal verbal plurality. However, it is difficult to generalise on the basis of only one example and further data are needed.

4.4 Conclusion

Applying models from the theories of plural action developed by Durie, by Cusic and by Wood supports the assumption that verbal number is a category that is systematically applied in Meryam Mir, and in particular which accounts for the behaviour of broad set of verbs with suppletive stem forms. These stem alternations include both event-internal and event-external plural action. Other instances of verbal number, such as alternations in verb suffix conjugation, and the derivational morpheme *-dar-* provide further examples of event-internal plural action.

Following Wood's analysis of event-internal plural action, this suggests that the grouping of events into single event with plural action is marked in Meryam Mir. Accordingly, event boundaries can be altered (e.g. extended duration) in the grammar, transforming an "atomic" event in Moens and Steedman's terms to an "extended" event. In Chapter 5,

I explore the semantic feature structure that underpins these alternations, and its relationship to the semantic feature structure that underpins the analogous alternations in argument number.

Chapter 5

Towards a number feature set for Meryam Mir

In this chapter I will propose a feature set for Meryam Mir that accounts for the number marking patterns observed in the data, and identify areas for future data collection which will allow the feature set to be tested further.

The patterns I am seeking to explain include systematic lexical alternations, morphosyntactic marking on nouns, pronouns and verbs, and derivational morphology including the verb suffix morpheme *-dar-*. Patterns of variation in these word classes were described in Chapter 2, and in Chapters 3 and 4 it was shown that both argument number and verbal number are grammatical categories in Meryam Mir.

The sites that show alternation, the type of alternation and the number distinction marked are summarised in table 5.1.

Table 5.1: Summary of number category distinctions

Site of expression	Category	Distinction
(a) Pronouns - All (b) Verb prefix/infix - All	Argument number	SG - NSG
(c) Verb prefix/infix *human arguments only*	Argument number	SG/PL - DU/PC
(d) Verb suffix - Group I	Argument number	SG/DU - PC/PL
(e) Verb suffix - Group II	Argument number *with hierarchy*	SG - DU - PC - PL
(f) Verb stems - Some Group I (*lexically conditioned*)	Verbal number	VSG - VPL (*often aligns NPL - PL* S_o)
(g) Verb stems - Some Group II (*lexically conditioned*)	Verbal number	VSG - VPL (*often aligns SG/DU - PC/PL* S_o/O)
(h) Suffix *-dar-* - Few verbs (*semelfactive/achievement*)	Verbal number	VPL (*prolonged/habitual*)
(i) Verb suffix Group II 'conjugation alternations' (*perfective aspect*)	Verbal number	VPL

5.1 Properties of number feature systems

This discussion of number feature systems follows work by Nordlinger (1997), Dalrymple and Kaplan (2000), Dalrymple et al. (2009), Sadler (2011), Arka (2011, 2012) and others in its treatment of features and agreement, and works within the framework of Lexical Functional Grammar (Bresnan, 2001, Dalrymple, 2001).

In this framework, categories such as case, number, gender, etc are analysed within the f-structure level, rather than the c-structure. Category values are determined by unifying the set of features that are contributed from each lexical item in the c-structure that carries a feature specification. Within the c-structure, an individual lexical item can carry the full feature specification for a particular category, be partially-specified or underspecified for a category or feature, or even carry no specification. The final value of a category within an f-structure is satisfies the constraints on features and values that are contributed by all lexical items that that map to that f-structure. Agreement occurs

where the intersection of feature sets carries no conflicting feature values, so the feature set {[+SG][+PL]} is allowed within the grammar. Conversely, if a feature set carries conflicting values, such as {[+SG][–SG]}, it is ungrammatical because of a 'feature clash'.

Under these assumptions, a number feature system for a language has three elements:

- a set of number categories, each associated with a set of number features and values;
- feature specifications for each lexical item that is marked for number; and
- analyses that generate f-structures with the desired meaning for sentences observed in the language, and which can account for ungrammaticality.

Although each language has its own set of available number categories (Corbett, 2000), I assume that the features that generate these categories are drawn from a universal set available to all languages, and that there is a plausible cognitive and semantic motivation for a particular number feature. Accordingly, it is desirable that the number feature system for Meryam Mir is congruent with feature sets and feature definitions that have been proposed for other languages: where a proposed feature set for Meryam Mir differs from previous proposals for other languages, this new proposal will provide a robust alternative account for those languages.

5.1.1 Criteria for assessing proposed feature sets

In summary, a desirable number feature set for Meryam Mir will meet the following criteria.

(i) Allow the four available argument number categories to be derived.

(ii) Allow the two verbal number categories to be derived.

(iii) Consistent with a possible universal feature set.

(iv) Semantically plausible entailments for each feature.

(v) Single feature alternation for pronouns SG-NSG.

(vi) Single feature alternation for Group I verb suffixes SG/DU - PC/PL.

(vii) Single feature alternation for SG/PL - DU/PC verb prefixes/infixes.

(viii) Account for the number hierarchy for Group II verb suffixes.

(ix) Be consistent with the frequent alignment between verb stem alternation and argument number of the absolutive argument.

(x) Account for the interactions between verbal number and aspect.

(xi) Account for the behaviour of the suffix *-dar*.

I will begin by examining proposals on number agreement systems made by Sadler (2011) for Hopi, and Arka (2012) for Marori, assessing the extent to which they can be applied directly to Meryam Mir, and thus the extent to which a new proposal is necessary.

5.2 Building on previously proposed feature sets

5.2.1 Sadler's (2011) proposal for Hopi

Sadler looks at Hopi, which has three number categories, SG, DU and PL, which are fully specified on common nouns. However, pronouns mark only the distinction SG - NSG and verbs mark only the distinction NPL - PL. Sadler demonstrates how the number

categories are constructed from the combination of features from different lexical items, such that a sentence consisting only of a pronoun and a verb, neither of which explicitly carry DU marking, can unambiguously represent a DU subject. Examples (82-84) are Sadler's examples (p.410, exx 93a.-c.) with amended glosses.

(82) *Pam* *wari*
That.(NUM = SG) run.PFV.(SUBJ NUM = SG ∨ DU)
'S/he ran.'

(83) *Puma* *yúutu*
That.(NUM = DU ∨ PL) run.PFV.(SUBJ NUM = PL)
'They ran.'

(84) *Puma* *wari*
That.(NUM = DU ∨ PL) run.PFV.(SUBJ NUM = SG ∨ DU)
'They (two) ran.'

Sadler's account of Hopi assumes the number features [SG] and [PL]. For a given word, there are three possibilities as to how each number feature is be included in the word's lexical entry. For example, the feature [SG] may be specified as present [+SG], specified as absent [–SG] or unspecified, with a value of neither [+SG] or [–SG]. The details of specification vary between and within word classes. Table 5.2 reproduces Sadler's proposed correspondence between morphosyntactic features and f-structure features (Sadler's example 101, p.412). It can be seen that morphologically singular verbs are underspecified, but morphologically plural verbs are fully specified. Conversely, morphologically singular pronouns are fully specified, whereas morphologically plural pronouns are underspecified. Nouns, however, are fully specified for number, whether singular, dual or plural.

Two elements of Sadler's system are particularly salient to a broader discussion of feature systems: the overlapping entailments of different number features; and asymmetries in the feature specifications of lexical items and word classes.

TABLE 5.2: Feature specification in Hopi (Sadler, 2011, p.412)

MFeatures	F-Structure Features
V:Sg	$(\uparrow \text{SUBJ NUM SG}) = +$
V:Pl	$(\uparrow \text{SUBJ NUM SG}) = -$ $(\uparrow \text{SUBJ NUM PL}) = +$
PrN:Sg	$(\uparrow \text{NUM SG}) = +$ $(\uparrow \text{NUM PL}) = -$
PrN:Pl	$(\uparrow \text{NUM PL}) = +$
N:Sg	$(\uparrow \text{NUM SG}) = +$ $(\uparrow \text{NUM PL}) = -$
N:Pl	$(\uparrow \text{NUM PL}) = +$ $(\uparrow \text{NUM SG}) = -$
N:Du	$(\uparrow \text{NUM SG}) = +$ $(\uparrow \text{NUM PL}) = +$

5.2.1.1 Overlapping entailments

First, her system requires the semantic entailments of the different number features to overlap. Thus in Hopi, $[+\text{SG}] \rightarrow |x| \leq 2$ and $[+\text{PL}] \rightarrow |x| \geq 2$. As we are assuming that semantic features are drawn from a universal set, and that individual features have plausible semantic motivation, we should expect Sadler's features, with the semantic entailments of their values as defined above, to be able to generate number marking patterns in languages with fewer number categories.

In English, for example, only the number categories SG and PL are available, and the number value 2 is classified consistently as PL. Sadler's account offers the feature set $\{[\pm\text{SG}], [\pm\text{PL}]\}$, and the English number categories can be generated using only the feature $[\pm\text{PL}]$ drawn from this set. Singular number carries the feature specification $\{[-\text{PL}]\}$ and plural number the feature specification $\{[+\text{PL}]\}$[1].

[1]The option of leaving the singular category completely unspecified for number would not generate the clash of number features that prevents singular nouns to be used with plural determiners, e.g. *'these car' $\rightarrow \{[+\text{PL}]\} \cup \emptyset \rightarrow \{[+\text{PL}]\}$.

Alternatively, if both [±SG] and [±PL] features are used, the singular number category in English is fully specified, with the feature set {[+SG][–PL]}, whereas the plural number category is underspecified for the feature [±SG], carrying only the feature set {[+PL]}. However, using both features is less satisfactory as it is not a minimal explanation. In section 5.2.2 we see the implications of this for Arka's analysis of Marori.

5.2.1.2 Asymmetries of specification

Second, there are asymmetries in the feature specifications of lexical items, both *between* word classes and *within* word classes. Table 5.3 compares the feature specifications for pronouns and verbs in Hopi.

TABLE 5.3: Asymmetries in Hopi feature speficiations (Sadler, 2011)

	Pronouns	Verbs
Singular	(↑ NUM SG) = + (↑ NUM PL) = −	(↑ SUBJ NUM SG) = +
Plural	(↑ NUM PL) = +	(↑ SUBJ NUM SG) = − (↑ SUBJ NUM PL) = +

Pronouns and verbs both mark a SG-PL distinction, but the singular form of verbs carries the number feature set {[+SG]} for its subject, whereas the singular form of pronouns carries the number feature set {[+SG][–PL]}. In other words, singular verbs are unspecified for the feature [±PL], whereas singular pronouns are fully specified.

A similar asymmetry exists *within* the same word class. Thus the singular form of verbs, which is unspecified for [±PL] contrasts with the plural form of verbs, which is fully specified {[–SG][+PL]}. Conversely, the singular form of pronouns is fully specified, whereas the plural form of pronouns carries only the feature set {[+PL]} and is unspecified for the feature [±SG].

Accordingly we see co-variation not only of the feature values, but also of the number of features that are specified. This co-variation prevents the model from over-generating forms that are not observed, but also raises the question as to why some potential combinations are not seen. For example, in Hopi why do we not see pronouns that are specified as {[+SG]} or {[–SG][+PL]}, feature specifications which are present on Hopi verbs? Sadler argues against accounts that rely on syncretism, but on those terms the feature system as presented still does not provide a theoretically elegant account.

5.2.2 Arka's (2012) proposal for Marori

The Papuan language Marori (Arka, 2011, 2012) is relevant at this point because it has a number of characteristics in common with Meryam Mir: both argument and verbal number are marked on the verb, and verbs show agreement with subjects and object.

However, there are also some differences with Meryam Mir. Marori has a broader set of number categories than Meryam Mir, comprising SG, DU, Limited Plural (LimPL), Generic Plural (GenPL) and Large Plural (LgPL). Arka also identifies separate morphological marking for verbal number with absolutive alignment (which he describes as O-vn) and verbal number relating to the subject of a transitive verb (which he describes as A-vn).

Arka has carried out detailed analysis of number morphosyntax, concluding that verbal number and nominal number are separate categories, and that verbal number is also separate to, but interacts with, aspect. He further proposes that argument number and verbal number share the same feature set, {[±SG], [±PL], [±AUG]}, where [+AUG] indicates augmentation of the semantic range of a feature. Table 5.4 shows how the categories are generated from combinations of feature values. Limited Plural differs

from Dual in carrying the feature [+AUG] alongside [–SG][–PL]; similarly, Large Plural differs from Plural in carrying the feature [+AUG] alongside [–SG][+PL].

TABLE 5.4: Marori number features (Arka, 2012, p.40)

	FEATURES		
CATEGORY	[SG]	[PL]	[AUG]
Singular	+	–	–
Dual	–	–	–
Limited Plural	–	–	+
Generic Plural	–	+	–
Large Plural	–	+	+

Before testing Arka's proposed feature set with Meryam Mir, there are two points that need to be addressed, which relate to two of the assessment criteria for feature systems set out in section 5.1.1: (iii) fit with a universal feature set; and (iv) semantically plausible entailments for individual features, in relation to the feature [±AUG].

5.2.2.1 Universality of Arka's proposed features

With regard to criterion (iii), compare the entailments of Sadler's feature set (85) with those of Arka's (86)[2].

(85) $[+\text{SG}_{Sadler}] \rightarrow |x| \leq 2$; $[+\text{PL}_{Sadler}] \rightarrow |x| \geq 2$

(86) $[+\text{SG}_{Arka}] \rightarrow |x| = 1$; $[+\text{PL}_{Arka}] \rightarrow |x| \geq 4+$

Rather than an overlap of entailments, which is required to construct the range of Hopi number categories, Arka proposes a gap between the entailments of the two features.

However, the entailment of $[+\text{SG}_{Arka}]$ is the converse of $[+\text{PL}_{Sadler}]$, which suggests that it may be possible to remove the gap in Arka's entailments by reversing the polarity of the definitions (87, 88).

[2] Arka proposes that only GenPL or LgPL carry the feature [+PL]; the upper boundary of LimPL is not fixed, GenPL entails more than 3 items

(87) $[+\text{SG}_{Arka}] \rightarrow |x| = 1 \Rightarrow [-\text{SG}_{Arka}] \rightarrow |x| \geq 2 = [+\text{PL}_{Sadler}]$

(88) $[+\text{PL}_{Arka}] \rightarrow |x| \geq 4+ \Rightarrow [-\text{PL}_{Arka}] \rightarrow |x| \leq 3+ \approx [+\text{SG}_{Sadler}]$

If we redefine Arka's features to be $[\pm\text{SG}'_{Arka}]$ and $[\pm\text{PL}'_{Arka}]$, the reversed polarity definitions of $[\pm\text{PL}_{Arka}]$ and $[\pm\text{SG}_{Arka}]$ respectively, Arka's definitions of the number categories that was shown in table 5.4 become the definitions shown in table 5.5.

TABLE 5.5: Comparing revised Marori number features with Hopi

	Marori features			Hopi features	
CATEGORY	$[\text{SG}'_{Arka}]$	$[\text{PL}'_{Arka}]$	[AUG]	$[\text{SG}_{Sadler}]$	$[\text{PL}_{Sadler}]$
Singular	+	−	−	+	−
Dual	+	+	−	+	+
Limited Plural	+	+	+	*n/a*	*n/a*
Generic Plural	−	+	−	−	+
Large Plural	−	+	+	*n/a*	*n/a*

Now, the feature specifications in terms of [±SG] and [±PL] are the same for Singular, Duals and (Generic) Plural, those number categories present in both languages. Limited Plural and Large Plural are present only in Marori, where their specifications differ only in the value of [±AUG] from those for Dual and Generic Plural respectively. In other words, reversing the polarity of Arka's original features brings the two systems much closer together.

The entailments of $[\pm\text{PL}_{Sadler}]$ and $[\pm\text{PL}'_{Arka}]$ are identical (89), although there is a discrepancy in the entailments of $[\pm\text{SG}_{Sadler}]$ and $[\pm\text{SG}'_{Arka}]$ (90).

(89) $[+\text{PL}_{Sadler}] \rightarrow |x| \geq 2$; $[+\text{PL}'_{Arka}] \rightarrow |x| \geq 2$

(90) $[+\text{SG}_{Sadler}] \rightarrow |x| \leq 2$; $[+\text{SG}'_{Arka}] \rightarrow |x| \leq 3+$

However, this discrepancy only occurs in Marori for number values of 3+, which also carry the feature [+AUG]. As Arka defines [+AUG] as augmenting the semantic space of

other co-occurring features, this is just what we expect. We can therefore redefine the entailment of the universal feature [±SG] which is sensitive to the feature set F of its category as follows.

(91) $[+\text{SG}] \rightarrow |x| \leq n$; $[+\text{AUG}] \notin F \Rightarrow n = 2$, else n set for a given language

With this revised definition, we now have feature systems for Hopi and Marori that are compatible with a universal feature set {[±SG], [±PL], [±AUG]}, as defined above.

5.2.2.2 Feature entailments

Ideally, the entailments of individual features in a universal feature set will be semantically plausible; that is, they will relate clearly to the real world and be motivated by evidence around human cognition. The entailment of the feature [±PL] relates to atomicity: this distinction between singular and non-singular entities is widely observed across languages and is at the bottom of Corbett's (2000) number hierarchy. The feature [±SG] identifies entities that are individual or in pairs: Tobin (1990) provides a summary of various motivations identified for such a feature.

However, the entailment of [±AUG] is defined not in relation to the real world, but to the scope of other features: [+AUG] ⇒ "bend the rules", so to speak. The definition is able to generate the observed number patterns in Marori, but is explanatorily less satisfactory. Further discussion of this in relation to [±AUG] is outside the remit of this work, but it is desirable, if possible, to find a feature analysis of Meryam Mir that uses features whose entailments relate directly to entities or events, rather than including features whose entailments modify other features.

5.2.3 Testing with Meryam Mir

It is now possible to use the feature set elaborated from Sadler's and Arka's proposals to test whether it generates the set of category distinctions observed at different marking sites in Meryam Mir, and also Arka's assumption that the feature sets for argument number and verbal number are identical. The feature set as currently specified, and the five number categories it generates in Marori, are repeated below in table 5.6.

TABLE 5.6: Marori number categories using derived universal features

	FEATURES		
CATEGORY	[SG]	[PL]	[AUG]
Singular	+	–	–
Dual	+	+	–
Limited Plural	+	+	+
Generic Plural	–	+	–
Large Plural	–	+	+

In comparison to Marori, Meryam Mir has only four number categories, and so it is necessary to identify the correspondence between the two. Aggregating the Marori feature sets is not possible because it would create specifications with inherent feature clash, as shown for one of the possible unifications in (92)[3]

(92) Generic Plural ∪ Large Plural = {[–SG][+PL][–AUG]} ∪ {[–SG][+PL][+AUG]}

= * {[–SG][+PL][+AUG][–AUG]}

Based on Arka's and Piper's descriptions of Marori and Meryam Mir respectively, I assume that the categories SG and DU are identical in the two languages. This leaves three options for mappings between the various Plural categories in Marori and PC/PL in Meryam Mir.

[3]Harbour (2007), in accounting for number patterns in Kiowa, explicitly requires feature clashes, which he describes as 'overspecification', but these cases are then unambiguously marked in the morphosyntax. This does not appear to be the case in Meryam Mir and so I maintain the assumption that feature clashes are ungrammatical.

(i) $\text{PC}_{MeryamMir} = \text{LimPL}_{Marori}$

$\text{PL}_{MeryamMir} = \text{GenPL}_{Marori}$

(ii) $\text{PC}_{MeryamMir} = \text{LimPL}_{Marori}$

$\text{PL}_{MeryamMir} = \text{LgPL}_{Marori}$

(iii) $\text{PC}_{MeryamMir} = \text{GenPL}_{Marori}$

$\text{PL}_{MeryamMir} = \text{LgPL}_{Marori}$

These mappings then give us the feature specifications in table 5.7.

TABLE 5.7: Possible Meryam Mir number feature specifications mapped from Marori

	Feature specifications								
Category	Mapping (i)			Mapping (ii)			Mapping (iii)		
	[SG]	[PL]	[AUG]	[SG]	[PL]	[AUG]	[SG]	[PL]	[AUG]
Singular	+	−	−	+	−	−	+	−	−
Dual	+	+	−	+	+	−	+	+	−
Paucal	+	+	+	+	+	+	−	+	−
Plural	−	+	−	−	+	+	−	+	+

Looking at the relationship between categories and features for the three mappings, mapping (i) seems intuitively most satisfactory, with Paucal number representing an augmentation of the semantic space of Dual, and Plural being neither singular nor augmented. In mapping (ii), the Plural category is the augmented semantic space of a the bare plural feature, which does not appear. And in mapping (iii), the feature [+PL] without augmentation denotes the Paucal category, which is available only to humans and high animates. This is not impossible, but does raise questions about the universality of the definition for the feature [±PL].

Accordingly, assessment of the applicability of the proposed feature system for Meryam Mir needs to take account of the ability of the system to generate the observed category distinctions, and also the plausibility of the entailments and their relationship to the

number values defined by categories. The category distinctions we are seeking to explain were presented in table 5.1 above. In table 5.8 we see the features whose values are required to alternate, in order to generate each of the observed category distinctions[4].

TABLE 5.8: Feature alternations required to generate Meryam Mir number category distinctions

Category distinction		Mapping (i)	Mapping (ii)	Mapping (iii)
(a,b)	SG–NSG	[PL]	[PL]	[PL]
(c)	SG/PL–DU/PC	[SG][PL]	[SG][PL]	[PL][AUG]
(d)	SG/DU–PC/PL	[SG][PL][AUG]	[AUG]	[SG]
(e)	SG–DU–PC–PL	[SG][PL][AUG]	[SG][PL][AUG]	[SG][PL][AUG]
(f)	VSG–VPL (*aligns NPL–PL*)	[SG]	[SG]	[AUG]
(g)	VSG–VPL (*aligns SG/DU–PC/PL*)	[SG][PL][AUG]	[AUG]	[SG]
(h)	VPL (*prolonged/habitual*)	?	?	?
(i)	VPL (*perfective aspect*)	?	?	?

Considering first the argument number distinctions (a-e), none of the three mappings is able to generate the binary distinction (c) SG/PL–DU/PC by varying a single feature. Mappings (i) and (ii) denote DU/PC with the feature values [+SG][+PL], whereas for SG/PL, one of those two features has a negative value. Under mapping (iii), DU/PC is observed when the values of [±PL] and [±AUG] are identical, both either positive or negative, and SG/PL is observed when those two features have differing values. Thus none of the three mappings meets the assessment criterion (vii) set out in section 5.1.1.

Furthermore, under mapping (i), the category distinction SG/DU–PC/PL is derived only by alternating all three number features. It appears therefore that the most plausible mapping of feature specifications, mapping (i), is the most problematic for explaining argument number, and the other two less plausible mappings are also problematic.

[4]For the verbal number distinctions (f-g) in table 5.8, the verbal number alternation is taken as a first approximation to be the argument number alternation as described by Piper: although this does not apply in all cases, it describes a distributive reading of the action across the most-affected arguments.

If we are assuming that a single number feature set can generate verbal number categories as well as argument number, we see the results in rows (f-i) of table 5.8. Again, mapping (i) has difficulty in generating the SG/DU–PC/PL alternation which is at the base of the majority of Group II verb stem alternations. Furthermore, none of the three mappings seems able to account for distinctions (h) and (i), marked by the suffix *-dar-* and perfective conjugation alternations respectively.

In the light of this, it is not straightforward to accept any of the three mappings derived from Arka as accounting for either argument or verbal number in Meryam Mir. Accordingly, rather than assume these feature systems, I will explore whether there are other potential universal features and category specifications that can generate Meryam Mir number patterns, if we remove Arka's assumption that the feature set and specifications for verbal number must be the same as that for argument number.

5.3 Revised proposal: argument number

If it is necessary only to account for argument number, the three binary distinctions that we are seeking to explain are SG–NSG, SG/DU–PC/PL and SG/PL–DU/PC. The first two of these share the same entailment as the features [±PL] and [±SG] respectively, assuming that the feature [±AUG] is not present and so the entailment of [+SG] is $|x| \leq 2$. However, the distinction SG/PL–DU/PC is not easily delivered. This distinction is therefore a good place to start looking for possible alternative features.

5.3.1 The distinction SG/PL–DU/PC

One point that the DU and PC number categories have in common is that, although nouns in Meryam Mir do not routinely mark number, the suffixes *-ba* and *-ey* are optionally available for common and proper nouns. These suffixes indicate membership of a group and trigger DU or PC suffix agreement as appropriate. It is therefore worth exploring the role of group membership or group identity in other accounts of number.

Wood (2007) discusses the cognitive process of constructing groups based on similarity, and how this might apply to the construction of plural actions as well as nominal plurals. Harbour (2007), working with Kiowa noun classes, proposes a feature [+group] for plural entities where the whole group is more salient than the individuals within the group. This seems to be the opposite of the case in Meryam Mir, where the marking seems to foreground the individual and their group membership. Henderson (2012), working with Kaqchikel, considers the differences between groups defined by membership, typified by English 'committee' or 'team', and groups defined by spatio-temporal proximity, typified by English 'grove' or 'bouquet'. For each type of group, there are different entailments between the properties of the group and the properties of individuals within the group. Again, this is not directly relevant to Meryam Mir, although the *-ba* and *-ey* suffixes seems to be used where individuals are together temporarily.

A number of features could be proposed that distinguish members of small groups from both individuals and pluralities. One possibility is a feature [±GRP], which foregrounds the membership of a collection of individuals. Another is its reversed-polarity counterpart [±ATOM], where singular entities and undifferentiated plurals are described as atomic, and groups with a countable number of members are not atomic. This second would be consistent with common nouns not carrying number, but would imply that

the marking of nouns with the 'group' and 'dual' suffixes *-ba* and *-ey* is triggered by the absence of atomicity. This would overgenerate in situations where a noun was underspecified for [ATOM], as the absence of [+ATOM] would trigger suffixation. This makes the feature [±GRP] preferable.

Accordingly, as a first approximation, I will assume that Meryam Mir does not use Arka's proposed feature [AUG], but instead has the feature [±GRP], which is defined as "a group with a countable number of distinguishable atomic entities". This produces the feature specification for Meryam Mir number categories shown in table 5.9.

TABLE 5.9: Revised proposal of a feature set for Meryam Mir

	Features		
Category	[SG]	[PL]	[GRP]
Singular	+	−	−
Dual	+	+	+
Paucal	−	+	+
Plural	−	+	−

5.3.2 Testing

The feature specifications from table 5.9 are applied to the Meryam Mir argument number category distinctions in table 5.10. Each binary distinction can now be generated by a single feature alternation, which is desirable.

TABLE 5.10: Proposed features underlying argument number category distinctions

Category distinction		Varying feature
(a,b)	SG–NSG	[±PL]
(c)	SG/PL–DU/PC	[±GRP]
(d)	SG/DU–PC/PL	[±SG]
(e)	SG–DU–PC–PL	[SG][PL][AUG]

Three features are required to generate the four number categories. In theory, this should not be a minimal account, as alternations of two binary features should be able to generate four categories. However, as the entailments of [–SG] and [–PL] are contradictory, the two feature-values cannot be derived simultaneously from the same entity.

It is still necessary to account for the lack of the categories that would be specified by the two remaining feature sets that do not appear. An entity with the feature set {[+SG][–PL][+GRP]} would need to be both a single atomic item and a group with a countable number of distinguishable atomic members, which is contradictory. The feature set {[+SG][+PL][–GRP]} would be generated by two entities that were not perceived as a group with a countable number of distinguishable atomic members. This is theoretically possible, but it is notable that dual marking on common nouns is facultative rather than obligatory, and it may be that there are asymmetries in the feature specifications for individual items which mean that this potential category is not observed.

If the arguments carry these semantic features, feature specifications can then be proposed for number-marked lexical items within each word class. Table 5.11 shows the proposed values for all argument-marked items. Each entry in the "Morphosyntactic features" column relates to a group of morphemes that are marked for that feature: morphemes within each group may be further differentiated for tense, aspect, mood etc.

The feature specifications for nouns, pronouns, verb pre-/infixes and Group I verb suffixes are reasonably straightforward, each requiring only one feature to vary. For the SG/PL–DU/PC distinction, agreement with the [GRP] feature is triggered by the presence of a proposed [+HUM] animacy feature, for humans and high animates.

Generating Group II verb suffixes that deliver the number hierarchy is more problematic and requires feature specifications that are less intuitively satisfying. For SG and DU

TABLE 5.11: Argument number feature specification in Meryam Mir

Morphosyntactic features	f-structure features
N-suffix:DU (*-ey*)	$(\uparrow \text{NUM GRP}) = +$ $(\uparrow \text{NUM SG}) = +$
N-suffix:NSG (*-ba*)	$(\uparrow \text{NUM GRP}) = +$
PrN:Sg	$(\uparrow \text{NUM PL}) = -$
PrN:Pl	$(\uparrow \text{NUM PL}) = +$
V-pre-/infix: SG	$(\uparrow \text{ABS NUM PL}) = -$
V-pre-/infix: NSG	$(\uparrow \text{ABS NUM PL}) = +$
V-pre-/infix: SG/PL	$(\uparrow \text{ABS NUM GRP}) = -$ $(\uparrow \text{ABS ANIM HUM}) = +$
V-pre-/infix: DU/PC	$(\uparrow \text{ABS NUM GRP}) = +$ $(\uparrow \text{ABS ANIM HUM}) = +$
V-suffix(Group I): SG/DU	$(\uparrow \text{SUBJ NUM SG}) = +$
V-suffix(Group I): PC/PL	$(\uparrow \text{SUBJ NUM SG}) = -$
V-suffix(Group II): SG	$(\uparrow \text{SUBJ NUM SG}) = +$ $(\uparrow \text{SUBJ NUM PL}) = -$ $(\uparrow \text{OBJ NUM SG}) =_c +$
V-suffix(Group II): DU	$(\uparrow \text{SUBJ NUM SG}) = +$ $(\uparrow \text{SUBJ NUM PL}) = +$ $(\uparrow \text{OBJ NUM SG}) =_c +$
V-suffix(Group II): PC	$(\uparrow \text{ARG}_x \text{ NUM SG}) = -$ $(\uparrow \text{ARG}_x \text{ NUM GRP}) = +$ $\left(\begin{array}{l} \left((\uparrow \text{ARG}_y \text{ NUM SG}) =_c -\right) \vee \\ \\ \left((\uparrow \text{ARG}_y \text{ NUM GRP}) =_c -\right) \end{array} \right)$
V-suffix(Group II): PL	$(\uparrow \text{ARG}_x \text{ NUM SG}) = -$ $(\uparrow \text{ARG}_x \text{ NUM GRP}) = -$

suffixes, it is necessary to specify that no PC or PL object argument is present that carries the [–SG] feature. Conversely, for the PC suffix, it is necessary to specify:

- that at least one argument to the verb carries the [–SG] feature;
- that this argument also has the appropriate value of [GRP] to derive the appropriate PC or PL; and
- that no PL argument is present if a PC argument is marked.

The specification for V-suffix(Group II): PC in table 5.11 does this but leaves open the question, related to the overall treatment of hierarchy phenomena, as to whether there is a more elegant explanation, which is outside the scope of this thesis.

Notwithstanding the elegance of the specification of some lexical items, the proposed feature set for argument number in Meryam Mir meets those of the criteria for assessing feature systems set out in section 5.1.1 that are relevant to argument number. We now move on to consider a feature system that can account for verbal number.

5.4 Revised proposal: verbal number

I am no longer following Arka's assumption that verbal number shares the same feature set and values as argument number. However, the two feature systems are also not completely separate: there must be enough compatibility between them to allow the high degree of correspondence that motivated Piper's and Ray's account of verb stem alternations based on argument number. Notwithstanding this, there are also particular combinations of aspect and verbal number that are ungrammatical, as well as suffixation patterns that are not yet fully explained.

I will attempt to address this by considering the underlying nature of event predicates, and proposing that the primary feature determining marking for verbal number is boundedness. The boundedness value for a predicate derives from interactions between its aktionsart (derived from the predicate's inherent lexical telicity and time-boundedness), the number of affected participants, and the time duration, which may include prolongation, repetition and perfective/imperfective aspect. I will argue that this explains the alternations seen in the available data, and propose further tests that can be carried out with targeted data collection.

5.4.1 Motivation and description

As the motivation for separate verbal number categories arises in part from the lack of complete fit with argument number in Meryam Mir, I will begin this section by returning to those cases where there is lack of agreement between argument number and the number marked on verb stem, or where there is other, inadequately explained morphology related to verbal number. This includes the following conditions (i-iv) which are illustrated in examples (93-99):

(i) repeated action in imperfective aspect, where VPL stems appear with SG/DU arguments (93, 94);

(ii) idiosyncratic mismatches between VPL stems and SG/DU arguments that appear to be motivated by the lexical semantics (95);

(iii) the suffix *-dar-*, indicating prolongation or habitual repetition of a semelfactive or achievement verb (96); and

(iv) alternations between suffixes in perfective aspect that are associated in some way with argument number, including for those verbs with that otherwise have no stem alternation for number (97, 99).

(93) *ka* *dígwat-* *li*
1SG.A haul.in.fish.VPL- PRS.IPFV
'I am hauling in fish' [*From* (31), *amended gloss.*]

(94) **ka* *dígwatmu-* *li*
1SG.A haul.in.fish.VSG- PRS.IPFV
(Intended) 'I am hauling in a couple of fish' [*From* (32), *amended gloss.*]

(95) *ka* *mári* *na-* *ker-* *e*
1SG.A 2SG.O FUT.1+1/2.SG.O- do.VPL- FUT.1
'I will fuck you' [*From* (45), *amended gloss.*]

(96) *Lez no w- éwsme- dar- er lokot te- lam*
Les RESTR FUT.3- come.out.VSG- VPL- NPRS.IPFV bush opening- ABL
'Les will always only come out from the back door' [*From* (20), *amended gloss.*]

(97) *ka able netat zyáwali emarik- dari*
1SG.A DET one book send- PFV.SG(Conj.1)
'I sent one book.' [*From* (33), *amended gloss.*]

(98) *ka able zyáwali emark-* ***i***
1SG.A DET book send- **PFV(Conj.2)**
'I sent the letters.' [*From* (34), *amended gloss.*]

Considering these examples, the following points arise in relation to agreement.

- There is no feature clash between singular pronouns and either VSG or VPL stems (93-95).
- The ungrammaticality of (94) suggests that there may be a feature clash between the VSG stem and IPFV aspect.
- The suffix *-dar-* is grammatical with a VSG stem, which suggests that there is no feature clash in the specification of verb root alternations and *-dar-*. It is also grammatical when it appears with imperfective aspect, but it is not *required* to appear with imperfective aspect.
- The only differences between sentences (97) and (98) are in the conjugation used and the presence of *netat* 'one' in (97) which suggests that the conjugation endings are indicating verbal number in a way similar to verb stem alternations.

Besides these, there are other relevant points to note from Chapter 2.

- although Piper cites a number of examples where VPL verb stems are seen despite subject and object both being SG or DU, there are no examples given where VSG verb stems are seen with exclusively PC/PL arguments;

- For verbs with stem alternations, perfective conjugation 1 tends to pattern with VSG and conjugation 2 tends to pattern with VPL, which suggests a high degree of overlap in the specification of stems and the two conjugations.

5.4.1.1 Boundedness

Given the interaction between aspect and verbal number in Meryam Mir, and in the light of Moens and Steedman's, and Wood's analyses of the relationship between aktionsart, aspect and verbal number, I propose to investigate the concept of boundedness in relation to aspect and aktionsart, to see if this can support the definition of a verbal number.

We can see the relevance of this to Meryam Mir by considering the analogy between example (93), where VPL appears in the imperfective aspect and the behaviour of the verb 'jump' in English. One jumping event is a point event, whereas the state of 'jumping' assumes iteration and an action in progress. In an appropriate context, a state reading is coerced from a verb that at its base is atomic and –conseq in Moens & Steedman's terms. Moving beyond aspect changes, bringing an adverbial into the sentence context can coerce a culmination ('I jumped out of the window.') and even a culminated process ('I jumped until the floorboards gave way.')

None of these transitions require a change in the verb which is used: 'jump' remains grammatical. However, in Meryam Mir the VSG form of jump is not grammatical with imperfective aspect: the VPL form is required (99).

(99) *ka* *éwpamaret-* *li*
1SG.S jump.VPL- PRS.IPFV
'I am jumping'

There appear to be different dimensions of boundedness. Where the difference between VSG and VPL forms is closely related to argument number, there is boundedness of participants. Telic actions are bounded by their inherent goal, whereas states and atelic actions are unbounded. Atomic events — semelfactives and achievements — are bounded within a very short time, whereas states, activities and accomplishments have a much longer duration. Furthermore it appears that a change in only one of these elements of boundedness is sufficient to require the use of a VPL verb where this is available, even if other elements remain bounded. Thus in (93) and (94), the number of participants — subject and object — remains bounded, but the removal of a time boundary by imperfective aspect triggers the use of the VPL verb stem.

In this model, each verb at its core defines an action or state that has an inherent specification of time-boundedness, telicity, and potentially also of the number of affected participants (e.g. the difference between 'kill' and 'massacre' in English). We can then see how a VSG stem can indicate a further level of boundedness of the activity, because of a restricted number of repetitions or participants. We can propose a feature [BOUNDED] which reflects the presence or absence of this restriction.

When we consider aspect, it is clear that, regardless of aktionsart, imperfective aspect indicates that the action is not yet complete, which suggests that imperfective aspect is inherently [–BOUNDED].

(100) $(\text{ASPECT} = \text{IPFV}) \Rightarrow (\uparrow \text{VNUM BOUNDED}) =_c -$

With respect to verb stem alternations, we can specify VSG stems as [+BOUNDED]. This is loosely associated with the argument number feature [+SG], although this association can be overridden. The relationship between the verbal number feature [BOUNDED] and the argument number feature[SG] can be stated as:

(101) $(\uparrow \text{VNUM BOUNDED}) = + \Rightarrow (\uparrow \text{ABS NUM SG}) = +$

One challenge to this association is the differing basic patterns of alignment between absolutive argument number and verbal number: Group I verbs with stem alternations tend to follow the distinction NPL-PL, whereas Group II verbs with stem alternations tend to follow the distinction SG/DU-PC/PL. This requires more investigation. Given that the PC category is only available to humans and high animates, low- and inanimate arguments align with VSG only where they are explicitly SG or DU, across all verbs. For humans and high animates the effective distinction seems to be that in Group I, PC human/high animate arguments align with VSG (and under the current proposal would therefore have the feature [+SG], although this is contradictory to the definition in table 5.11), whereas in Group II they align with VPL.

5.4.1.2 Extension

From sentence (96) it was inferred that the suffix *-dar-* carries different features to verb stem alternations. It is difficult to generalise about *-dar-* as it relates to both event-internal pluractionality (i.e. repeated jumps in a session of jumping, repeated seeing events that become the verb 'to watch') and event-external pluractionality (i.e. habitual, episodic repetition of an action). The repetition/prolongation appears to have ergative alignment, rather than absolutive, which is by far the most frequent pattern for verb stem alternations, and appears to be repetitive rather than distributive, as it does not depend on the argument number of the subject.

In the light of this, I propose that *-dar-* is associated with the feature [EXTENDED], defined semantically as 'prolonged or repeated action'. This has the opposite effect to the feature [BOUNDED]: in terms of Moens & Steedmans's transition matrix in table 4.2,

it moves a verb's denotation rightwards and/or upwards. A formal specification is given in (102).

(102) $(\uparrow \textsc{vnum extended}) = +$

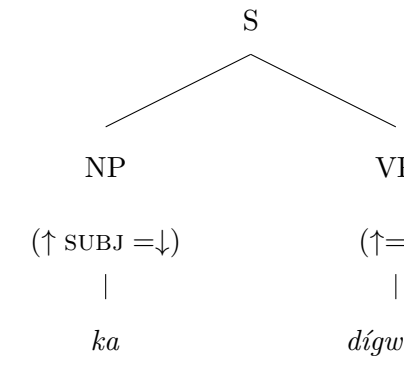
Where *-dar-* is not present, this feature is unspecified.

5.5 Feature analysis

The model for verbal number can now be tested by generating c-structures and f-structures for sentences (93-99) and seeing whether they correctly predict grammaticality or ungrammaticality. C-structures are set out in examples (103-108). For brevity, only those features relating to argument number and verbal number are included in the trees.

Sentence (103) is grammatical as the VPL form of the verb is unspecified for [BOUNDED], and the IPFV suffix contributes the feature [–BOUNDED]. However, there may be a problem arising from the specification of the number suffix. According to the specification given in table 5.11, there is a constraint on the object number (↑ OBJ NUM SG) $=_c$ + . Piper does not give examples of the verb with PC/PL object so it is not clear whether the suffix number hierarchy applies. One solution may be that this is an intransitive verb denoting an activity, in which case the object number constraint would not apply.

(103) *ka* *dígwat-* *li*
1SG.A haul.in.fish.VPL- PRS.IPFV
'I am hauling in fish'



(↑ NUM PL) = –

(↑ SUBJ NUM SG) = +

(↑ SUBJ NUM PL) = –

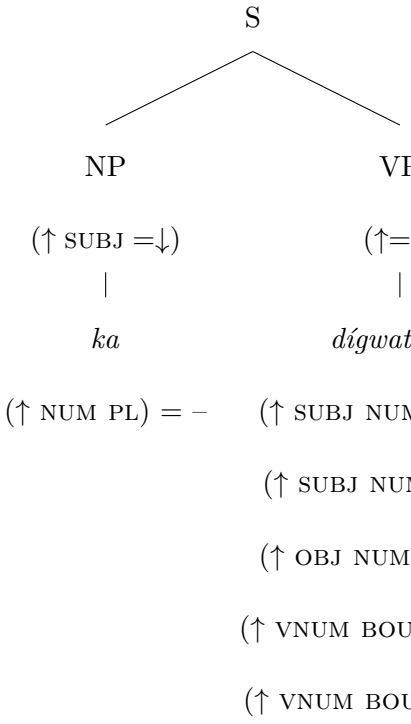
(↑ OBJ NUM SG) $=_c$ +

(↑ VNUM BOUNDED) = –

$$\begin{bmatrix} \text{PRED} & \text{'haul in fish } \langle \text{SUBJ} \rangle \text{'} \\ \text{VNUM} & \left\{ \text{BOUNDED} \quad - \right\} \\ \text{SUBJ} & \begin{bmatrix} \vdots & \vdots \\ \text{NUM} & \left\{ \begin{matrix} \text{SG} & + \\ \text{PL} & - \end{matrix} \right\} \end{bmatrix} \end{bmatrix}$$

Sentence (104) is ungrammatical as expected, as the inflected verb *dígwatmuli* carries both [+BOUNDED] and [–BOUNDED] features.

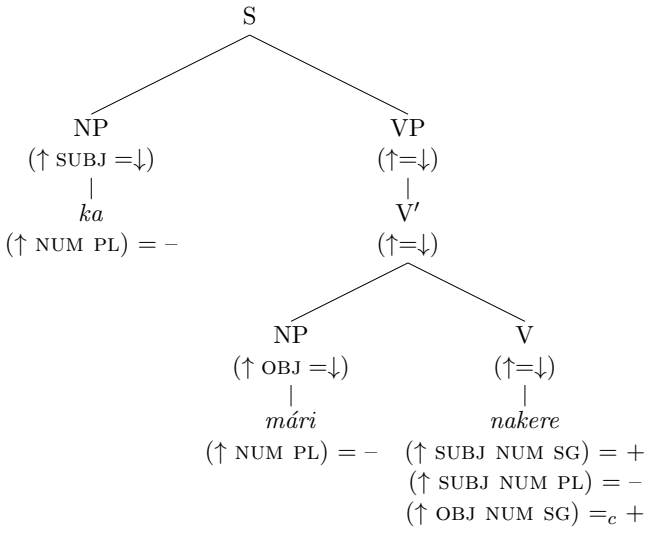
(104) **ka* *dígwatmu-* *li*
1SG.A haul.in.fish.VSG- PRS.IPFV
(Intended) 'I am hauling in a couple of fish'



$$\begin{bmatrix} \text{PRED} & \text{'haul in fish } \langle \text{SUBJ} \rangle \text{'} \\ \text{VNUM} & \left\{ \begin{matrix} \text{BOUNDED} & + \\ \text{BOUNDED} & - \end{matrix} \right\} \\ \text{SUBJ} & \begin{bmatrix} \vdots & \vdots \\ \text{NUM} & \left\{ \begin{matrix} \text{SG} & + \\ \text{PL} & - \end{matrix} \right\} \end{bmatrix} \end{bmatrix}$$

Sentence (105) is grammatical as expected: the VPL form of the verb is unspecified for [BOUNDED] and so there are no feature clashes.

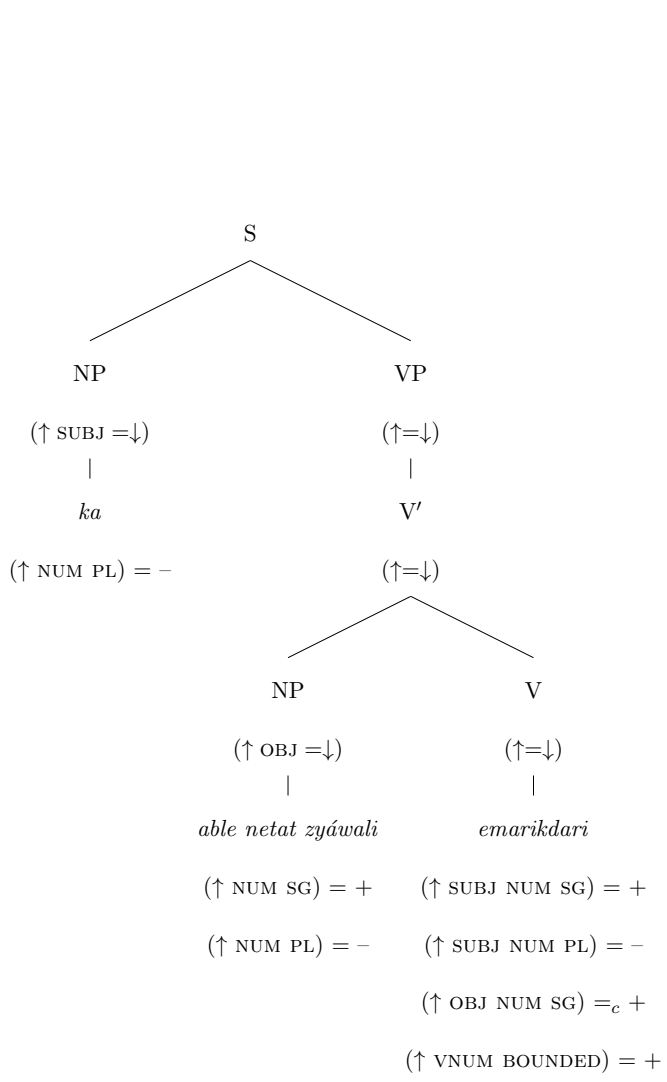
(105) *ka* *mári* *na-* *ker-* *e*
1SG.A 2SG.O FUT.1+1/2.SG.O- do.VPL- FUT.1
'I will fuck you'



$$\begin{bmatrix} \text{PRED} & \text{'do } \langle \text{SUBJ, OBJ} \rangle \text{'} \\ \text{SUBJ} & \begin{bmatrix} \vdots & \vdots \\ \text{NUM} & \left\{ \begin{matrix} \text{SG} & + \\ \text{PL} & - \end{matrix} \right\} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \vdots & \vdots \\ \text{NUM} & \left\{ \begin{matrix} \text{SG} & + \\ \text{PL} & - \end{matrix} \right\} \end{bmatrix} \end{bmatrix}$$

Sentence (106) is also congruent with the analysis.

(106) *ka* *able* *netat* *zyáwali* *emarik-* *dari*
1SG.A DET one book send- PFV.SG(Conj.1)
'I sent the one book.'

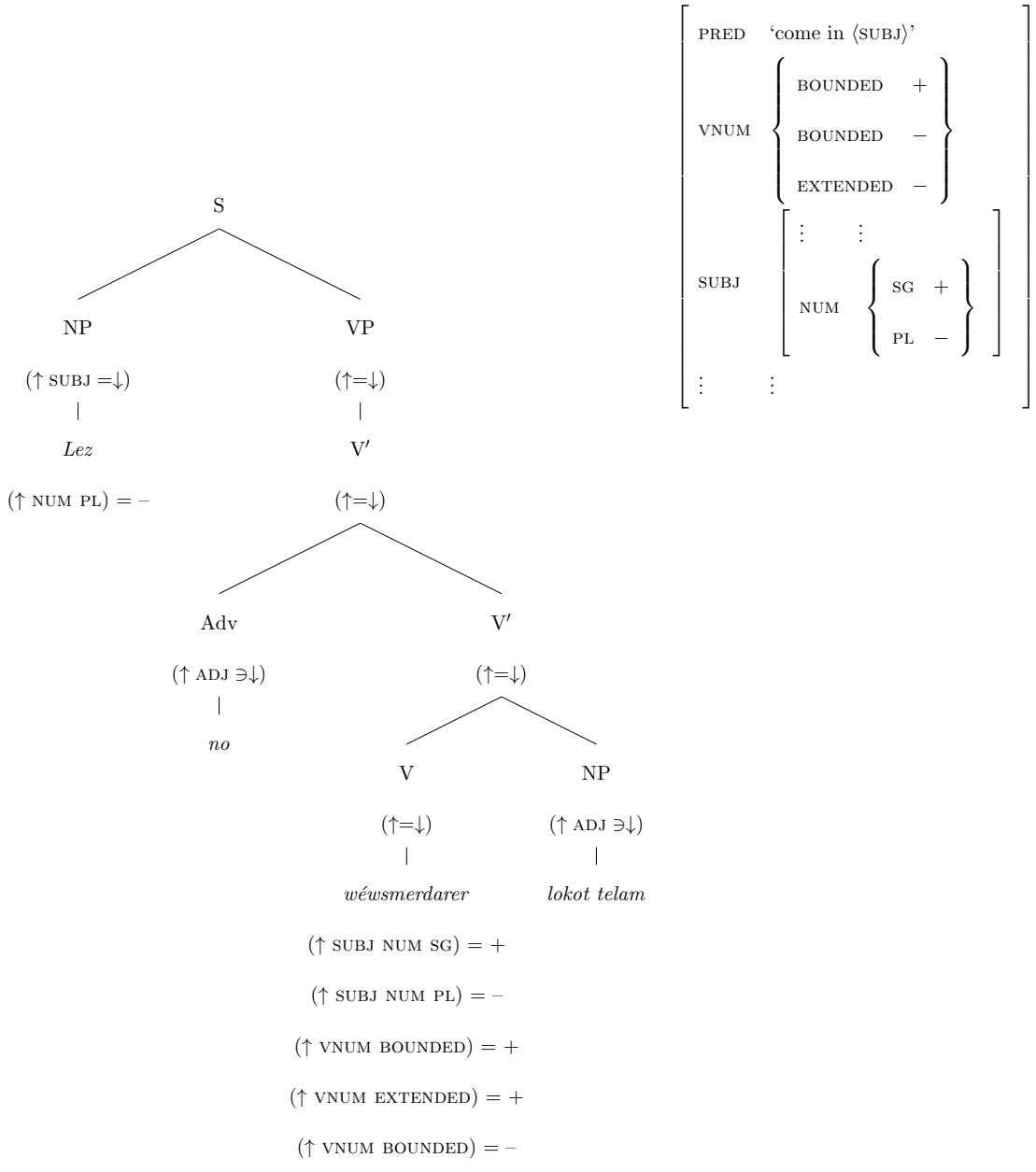


$$\begin{bmatrix} \text{PRED} & \text{'send } \langle \text{SUBJ, OBJ} \rangle\text{'} \\ \text{VNUM} & \left\{ \text{BOUNDED} \quad + \right\} \\ \text{SUBJ} & \begin{bmatrix} \vdots & \vdots \\ \text{NUM} & \left\{ \begin{matrix} \text{SG} & + \\ \text{PL} & - \end{matrix} \right\} \end{bmatrix} \\ \text{OBJ} & \begin{bmatrix} \vdots & \vdots \\ \text{NUM} & \left\{ \begin{matrix} \text{SG} & + \\ \text{PL} & - \end{matrix} \right\} \end{bmatrix} \end{bmatrix}$$

5.5.1 Remaining problems

Sentence (107) is problematic for my analysis. The sentence is grammatical, however there is a feature clash on the verb with VSG stem contributing [+VNUM BOUNDED] and the IPFV suffix contributing [–VNUM BOUNDED] to the lexical entry.

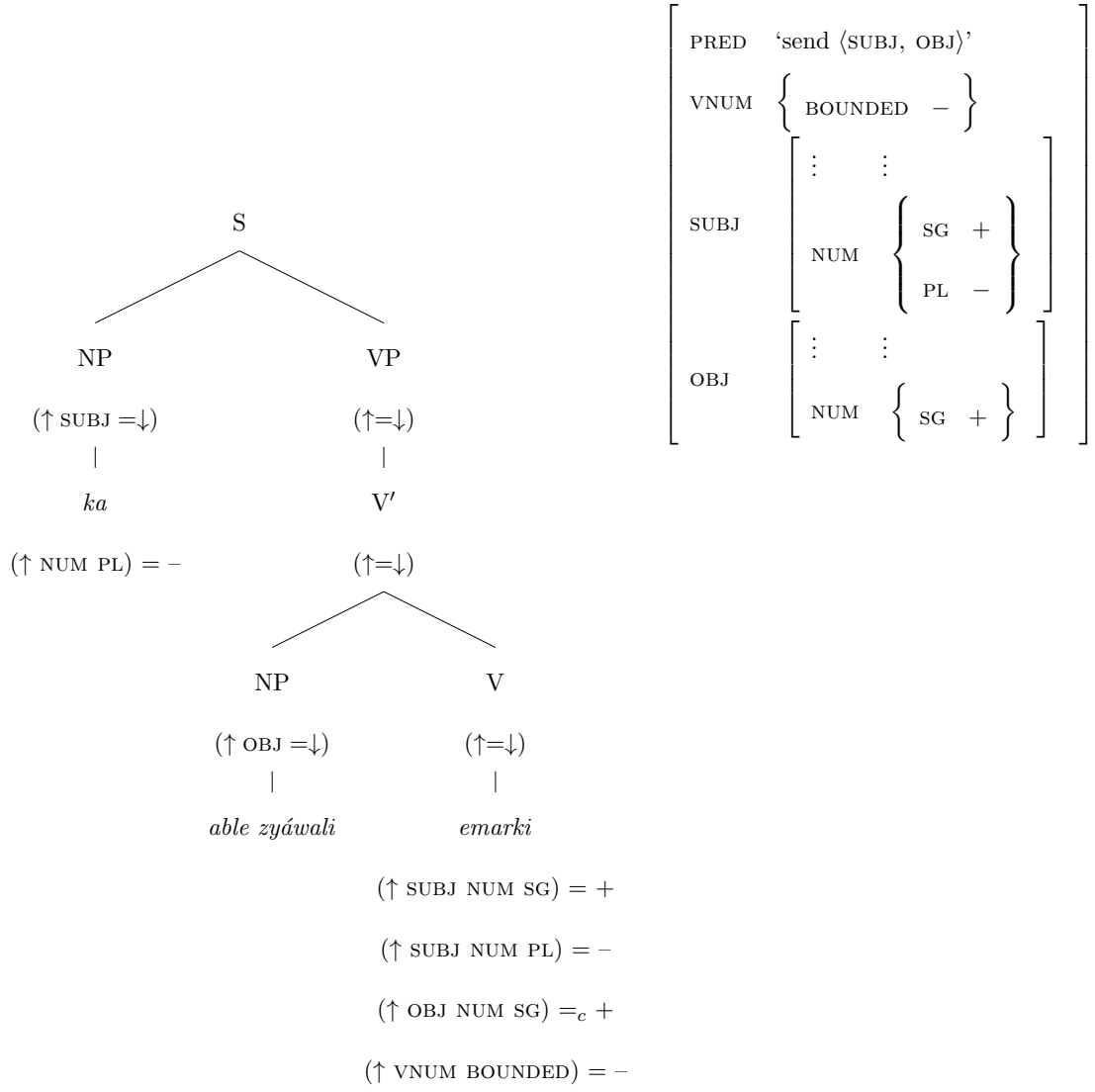
(107) *Lez no w- éwsme- dar- er lokot te- lam*
Les RESTR FUT.3- come.out.VSG- VPL- NPRS.IPFV bush opening- ABL
'Les will always only come out from the back door'



This is one of the examples described by Piper where *-dar-* can be added optionally. However, even if it is not there, the feature clash between the two values of [BOUNDED] remains. Further examples of the relationship between imperfective aspect and verb stem alternations would be helpful to refine the definition of [BOUNDED] or make an alternative proposal.

Sentence (108) may also be problematic for my analysis. The verb *emarik* 'send' has no stem alternation and so is unspecified for verbal number. However, as defined in table 5.11, the SG verbal suffix contributes the constraint $(\uparrow \text{OBJ NUM SG}) =_c +$. Syntactically, the object *able zyáwali* 'the letters' is unmarked for number and so there is no clash. However, semantically the object is plural and in other circumstances would trigger plural agreement.

(108) *ka* *able* *zyáwali* *emark-* *i*
1SG.A DET book send- PFV(Conj.2)
'I sent the letters.'



There are two possibilities here that require further investigation. First, although the suffix *-i* relates predominantly SG number in PFV aspect, it can also be used as a perfective marker alone, with no number value: indeed, this is the case in 108. Accordingly, there may be no number clash between subject and object. Second, Piper identifies cases where verb suffixes mark object number rather than subject number, as being where the object argument is human or high animate. Accordingly, it may be that the feature specification given in table 5.11 needs to be reframed as in table 5.12.

TABLE 5.12: Revised feature specification for Group II SG

Morphosyntactic features	f-structure features
V-suffix(Group II): SG	$(\uparrow \text{SUBJ NUM SG}) = +$ $(\uparrow \text{SUBJ NUM PL}) = -$ $\left(\begin{array}{l} (\uparrow \text{OBJ ANIM HUM}) = + \\ \\ \Rightarrow (\uparrow \text{OBJ NUM SG}) =_c + \end{array} \right)$

5.6 Conclusion

It appears that the features [BOUNDED] and [EXTENDED] may be helpful in accounting for Meryam Mir verbal number patterns, although more investigation is required to provide further examples of required alternation and ungrammatical combinations of verb stem, aspect and argument number. The relationship between [BOUNDED] and the various dimensions of boundedness (telicity, temporal and participant) also needs further investigation.

The patterns in Meryam Mir also cut across the event-internal and event-external categories of pluractionality described by Wood. It seems therefore that verbal number in Meryam Mir is expressed lexically rather than being grammaticalised, and that the alternations observed are due to selectional restrictions or preferences within pairs of lexical items.

Chapter 6

Conclusion

This thesis set out to demonstrate that an account of number in Meryam Mir requires the adoption of verbal number as well as argument number as a grammatical category. It also aimed to explore the feature sets underlying various number categories and the extent to which argument and verbal number arise from the same features.

Although the language data available are limited, the grammars and texts provided by Piper and Ray provide sufficient evidence to draw initial conclusions and propose hypotheses for testing against additional data to be gathered through any future fieldwork.

6.1 Overall conclusions

In Chapter 2, I set out the available data on number patterns and outlined some of the problems remaining if argument number alone is used to account for these phenomena.

In Chapter 3, I demonstrated that argument number is primarily through verb affixation. I also showed that SG and DU categories are consistently marked, whereas marking of

PC and PL categories is facultative. Furthermore, pronouns express only a SG-NSG distinction, with no separate identification of the DU, PC or PL categories.

In Chapter 4, I demonstrated that verbal number can account for the extensive set of verb stem alternations in Meryam Mir, and also for other unexplained verb suffix patterns. However, verbal number in Meryam Mir appears not to use the event-internal and event-external distinctions proposed by Wood for grammaticalised pluractionality (systematic inflectional marking), but instead is associated more with lexically-expressed verbal number linked to aktionsart and aspect.

Finally in Chapter 5, I showed that although different feature sets have been proposed to account for constructive number phenomena across languages, it is possible to bring together Arka's proposed number features set for Marori and Sadler's proposed set for Hopi, retaining the possibility of a potential universal feature set.

Building on this, it is possible to generate the argument number categories of Meryam Mir using two of these features, together with a proposed further feature [GRP]. Although the proposed feature [GRP] has a different entailment to Arka's feature [AUG], it also has a separate semantic grounding and so could be included in a potential universal feature set.

Furthermore, it appears that a distinct feature set is required to generate verbal number patterns. One possibility for features that explain the relationship between verbal number and aspect was explored, although the precise nature of this set will need further targeted data collection to thoroughly test the proposed entailments.

6.2 Unanswered questions and directions for further research

This conclusions of thesis are necessarily restricted because it was not possible to collect further field data within the constraints of the project. Drawing semantic conclusions from glossed examples is difficult, particularly where there are few examples of ungrammatical patterns to show the limits of particular features. Accordingly it is likely that features and rules set out in the thesis will both under-generate and over-generate patterns compared to the language in use.

There are also questions about detailed morphological patterns where an affix seems sometimes to cover more than one number category, or where hierarchies can operate, but are not obligatory. Further investigation of the conditions around these variations is necessary. A challenge for research is the rapid decline of the language. Piper identifies that some inconsistencies may be related to this decline, with less opportunity for children to acquire the full range of grammatical structures and morphological patterns that were used by earlier generations.

Further research could usefully gather data looking at particular dimensions of verbal number:

- event-internal vs event-external;
- distributive vs repetitive action;
- introduction of telicity, or extension of time through adverbials;

In particular, the frequent association between argument number and verb stem alternation, but the differing argument number associations for VPL in Group I and Group

II verbs, suggests that more work is necessary to understand the conditions and constraints. As Group I verbs are atelic and intransitive, and do not mark aspect, it may be that a different feature operates here.

Similarly, the presence of imperfective aspect with a VSG verb stem and the suffix -*dar* in (107) suggests that the different dimensions of boundedness could be explored further. In light of this, the behaviour of -*dar* with Group I verbs could also usefully be investigated.

Also, the conditions for VSG stems to appear with imperfective aspect, as opposed to those situations where imperfective aspect obligatorily triggers a VPL stem, need more investigation, for a better understanding of the relationship between verbal number, aspect and aktionsart.

Finally, the potential utility of [GRP] as an argument number feature could be explored using data from other languages with a wide set of number categories.

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