

A Grammar of Moro

A language of the Nuba Mountains

Peter Jenks and Sharon Rose
with Elyasir Julima and Angelo Nasir

African Language Grammars
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Contents

1	Introduction	1
1.1	Data collection	2
I	The sound system	5
2	Segmental phonetics and phonology	7
2.1	Vowels	7
2.1.1	/i/	8
2.1.2	/u/	8
2.1.3	/ɜ/	8
2.1.4	/e/	10
2.1.5	/o/	11
2.1.6	/a/	11
2.1.7	/ə/	11
2.1.8	/ə/	13
2.1.9	Contrasts	13
2.1.10	Diphthongs	14
2.1.11	Vowel Length and Stress	18
2.2	Consonants	20
2.2.1	/p/	21
2.2.2	/b/	22
2.2.3	/t/	23
2.2.4	/d/	24
2.2.5	/t/	24
2.2.6	/d/	25
2.2.7	/tʃ/	26
2.2.8	/dʒ/	26
2.2.9	/k/	27
2.2.10	/g/	28
2.2.11	/f/	28
2.2.12	/v/	29

Contents

2.2.13	/ð/	29
2.2.14	/s/	30
2.2.15	/m/	31
2.2.16	/n/	32
2.2.17	/ɲ/	34
2.2.18	/ŋ/	34
2.2.19	/l/	35
2.2.20	/ɾ/	36
2.2.21	/r/	37
2.2.22	/r/	37
2.2.23	/w/	39
2.2.24	/j/	40
2.2.25	Minimal pairs	40
3	Syllable structure	43
4	Tone	47
4.1	Tone bearing units	47
4.1.1	Nasal tone bearing units	47
4.2	Falling tones	51
4.3	Tone distribution	52
4.4	Tone spreading	54
4.5	Downstep	57
4.6	Tone stability	57
4.7	Intonation	58
5	Phonological Processes	61
5.1	Consonant-vowel interaction	61
5.1.1	Palatalization	61
5.1.2	Rounding	63
5.2	Vowels	64
5.2.1	Vowel hiatus resolution	64
5.2.2	Vowel reduction	66
5.2.3	Epenthesis	67
5.2.4	Vowel harmony	67
5.3	Consonants	77
5.3.1	Devoicing	77
5.3.2	Post-nasal hardening	78
5.3.3	Stop insertion	78

5.3.4	n-l avoidance	79
5.3.5	Dissimilation and rounding	80
5.3.6	Dissimilation and voiceless consonants	84
II	Nouns and noun phrases	89
6	Nouns and nominal morphology	91
6.1	Noun classes	91
6.1.1	l/ŋ class	95
6.1.2	l/ɲ class	98
6.1.3	ð/r class	98
6.1.4	ɲ/ɲ class	99
6.1.5	ɲ class	99
6.1.6	ð class	99
6.1.7	l class	100
6.1.8	g/l class	101
6.1.9	g/n class	102
6.1.10	ð/g class	104
6.1.11	j/j class	105
6.1.12	ð/j class	105
6.1.13	r/j class	106
6.1.14	l/j class	107
6.1.15	j/ɲ class	107
6.1.16	g class	107
6.1.17	j class	108
6.2	Nominalizing morphology	108
6.2.1	Gerundive nominalization	109
6.2.2	Property nouns	110
6.3	Case and locative morphology	110
6.3.1	Nominative case	112
6.3.2	Accusative case	112
6.3.3	Inessive <i>é-</i>	114
6.3.4	Adessive <i>n-</i>	116
6.3.5	Instrumental	117
6.4	Names and kin	118
6.4.1	Names	118
6.4.2	Associative plural	119

Contents

6.4.3	Kinship and inalienable possession	120
7	Pronouns	127
7.1	Independent personal pronouns	129
7.2	Object markers	130
7.3	Reflexive pronouns	133
7.4	Possessive pronouns	134
8	Noun phrases	137
8.1	Weak and strong nominal concord	137
8.2	Nominal modifiers	138
8.2.1	Demonstratives	138
8.2.2	Genitive phrases	140
8.2.3	Numerals	142
8.2.4	Adjectives and subject relative clauses	146
8.2.5	Non-subject relative clauses	148
8.3	Definiteness and quantification	149
8.3.1	Bare nouns	149
8.3.2	Universal quantifiers	151
8.3.3	Indefinites	152
8.3.4	Indefinite pronouns	157
III	Simple clauses	159
9	Copular clauses	161
9.1	Predicational copular clauses	162
9.1.1	Predicate nominal copular clauses	162
9.1.2	Locative copular clauses	166
9.2	Non-predicational copular clauses	167
9.2.1	Identificational copular clauses	168
9.2.2	Equative copular clauses	169
10	Nonverbal predicates	173
10.1	Adjectives and adjectival predicates	173
10.1.1	Basic adjectival morphology	173
10.1.2	Intensification and attenuation	176
10.1.3	Comparative, equative, and superlative forms of adjectives	179
10.1.4	Causative adjectives	181

10.1.5	Imperative adjectives	181
10.2	Deictic and existential predicates	183
10.3	Possessive predicates	185
11	Verbs and verbal morphology	189
11.1	Basics of verbal inflection	189
11.2	The preverb	191
11.2.1	Subject agreement	193
11.2.2	Clause marker	195
11.2.3	Past tense reduplication	198
11.3	Morphophonology of the macrostem	199
11.3.1	Imperfective verb forms	200
11.3.2	Perfective verb forms	210
11.3.3	Venitive imperfective verb forms	211
11.3.4	Iterative verb forms	212
11.3.5	Preverbal object markers	214
11.4	Aspectual and deictic semantics in the macrostem	215
11.4.1	Imperfective semantics	216
11.4.2	Perfective semantics	218
11.4.3	Iterative semantics	220
11.4.4	Venitive imperfective semantics	223
11.5	Extension suffixes and voice	225
11.5.1	Causative <i>-i</i>	227
11.5.2	Benefactive applicative <i>-aṭ</i>	233
11.5.3	Locative applicative <i>-aṭ</i>	236
11.5.4	Antipassive and reciprocal <i>-əḍ</i>	240
11.5.5	Passive and reflexive <i>-ən</i>	244
11.5.6	Manner <i>-aḍat</i>	245
11.5.7	Verbs with alternating finals	245
11.5.8	Order and distribution of multiple extension suffixes	248
11.6	The clitic group	255
11.6.1	Postverbal object markers	255
11.6.2	Instrumental <i>=ya</i>	255
11.6.3	Locative <i>=u</i>	255
12	Clausal syntax	257
12.1	Subjects	257
12.2	Verb classes and valence alternations	259
12.3	Objects	259

Contents

12.4	Basic properties of objects	259
12.5	Valence increasing alternations	260
12.5.1	Causatives	260
12.5.2	Applicative objects	260
12.6	Valence decreasing alternations	260
12.6.1	Passives and reflexives	260
12.6.2	Antipassives and reciprocals	260
12.7	Instrumental objects	260
12.8	Locative objects	261
12.9	Discontinuous constituents in the clause	261
12.9.1	Extraposition	261
12.9.2	Quantifier float	261
12.9.3	Secondary predicates	261
12.10	Ellipsis in the clause?	261
IV	Complex clauses	263
13	Auxiliaries	265
13.1	The negative auxiliary	265
13.2	The immediate future auxiliary	266
13.3	Progressive deictic auxiliaries	266
13.4	'Go' and 'come' as auxiliary verbs	266
13.5	The future auxiliary(?)	267
13.6	The past imperfect auxiliary	267
13.7	Modal auxiliaries??	267
13.8	Multiple auxiliaries and auxiliary ordering	267
14	Embedded clauses	269
14.1	Clause types	269
14.2	Embedded finite clauses	269
14.3	Embedded root clauses	269
14.4	Finite raising complements	269
14.5	Subjunctive complements	269
14.6	Infinitive clauses	269
15	Coordination and clause chaining	271
15.1	Clausal coordination	271

15.2	Clause chaining constructions	271
15.2.1	Consecutive clause chaining	271
15.2.2	Simultaneous clause chaining	271
16	Relative clauses and clefts	273
16.1	Import from wh-paper	273
16.2	Relative clauses	274
16.3	Topicalization	275
17	Questions, conditionals, and adverbial clauses	277
17.1	Polar questions	277
17.2	Clefts	277
17.3	Content questions	277
17.4	In-situ content questions	279
17.5	Ex-situ content questions	282
17.5.1	Subject questions	282
17.5.2	Non-subject questions	284
17.5.3	Properties specific to non-subject filler-gap constructions	287
17.5.4	Resumptive markers in ex-situ object constructions . . .	289
17.5.5	The prefix <i>ná-</i>	290
17.5.6	How	293
17.6	Conditional constructions	293
18	Imperatives	295
18.0.1	Proximal imperative	295
18.0.2	Distal imperative	297
18.0.3	Plural	297
18.0.4	Use of the imperatives	297
V	Expressive and social language	299
19	Ideophones	301
19.1	SECTION NAME HERE	301
19.1.1	Locative <i>n-</i>	301
19.1.2	Subsection 2 here	302
19.2	Section 2 here	302

Contents

20 Greetings and Expressions	303
20.0.1 Interjections and exclamations	304
20.1 sec:ch21:vocative	305
21 Texts	307
21.1 TEXT: Conversation about speaking Arabic and traveling home to the Nuba Mountains	307
21.1.1 Subsection 2 here	308
21.2 Section 2 here	308
List of references	309
Index	309
Name index	309
Language index	309
Subject index	309

1 Introduction

Moro is a language spoken in the Nuba Mountains region of South Kordofan State in the Republic of Sudan. There are numerous Moro-speaking villages and the main town is Umm Dorein. (nadel47) reports that the ancestral home of the Moro was on Lebu Hill in the western massif of the Moro area. Subsequent migrations were to the north and east of the massif.

INSERT MAP

Moro is classified as a Kordofanian language, part of the Niger-Congo phylum. Schadeberg (1981) splits Kordofanian into four main groups. Moro is part of the Heiban group, and is further classified as West Heiban along with the Tira language. The West, Central and East terms refer to geographical locations relative to one another.

INSERT FIGURE

Geographically, Moro borders Asheron and XXX

Moro is reported to have seven dialects, according to Ethnologue (XXX) and Blench (2005), corresponding to ethnic clan divisions. However, a document written by Angelo Ali for the SIL linguist, Elizabeth Guest, lists six clans.

The standard dialect is that spoken in the town of Umm Dorein, known as Lon-gorban or Werria. This is the dialect that is the subject of the only previous grammar of Moro, The Moro Language Grammar and Dictionary (1971) by Black & Black. Note that both names are listed as separate dialects in the table above. Our consultants usually use the term Werria to refer to it. Ləŋorban is the dialect that was used in the original New Testament translation. According to information reported in 1997 by Elizabeth Guest (http://www.rogerblench.info/Language/Niger-Congo/Kordofanian/Moro/guest_moro-nt-history1997.pdf), speakers of other dialects had difficulty understanding the original New Testament, and it was subsequently revised, completed in 1993. The current methodology employed by the Moro Language Committee is for representatives of all the dialects to meet and develop a consensus on appropriate words. This newly developed ‘standard’ is used in primers and other literacy materials. SEE ANGELO’S ARTICLE in NML for more info.

The dialect described in this book is *ḍəṭogoválá* or in the Moro writing system,

1 Introduction

Ḍəṭogovəla. This is the dialect identified as Toberelda, tobəɾelda or Ləṭopəɾelda which may represent the pronunciation of this dialect's name in the standard dialect. The sound ɾ in Werria frequently corresponds to [g] in this dialect, and the b/p often corresponds to [v]. However, note that these two sounds appear to have switched order. The Moro language is referred to as *ḍəmwārəḥá*. *ḍ-* is a noun class marker. Moro is the Arabic word for the language. However, it is not viewed as pejorative. *ḍ(ə)-* is replaced with *o-* for a single Moro person, and *l(ə)-* for plural. Hence, the *lə-* in the names above is probably the noun class marker:

- (1) Moro endonyms
 - a. *ḍəmwārəḥá* Moro language
 - b. *omwārəḥá* Moro person
 - c. *ləmwārəḥá* Moro people

1.1 Data collection

The data collected for this book have been amassed over a period of nine years, from 2005-2014, beginning with a graduate field methods class held at the University of California, San Diego. The main consultant for this class was Mr. Elyasir Afsos Julima, and he has been our primary consultant ever since. Data were also provided by Elyasir's wife, Ms. Ikhlās Elahmer, over the course of the nine years, and by Mr. Angelo Naser Kuku, the current head of the Moro Language Committee, who visited San Diego in June-July of 2013. Fieldwork in Sudan was not possible due to instability and war returning to the Nuba Mountains, but also due to personal circumstances which prevented travel to Khartoum for any reasonable length of time. This methodology has obvious drawbacks in that the speakers were displaced from the language area, and we were limited in the number of speakers which whom we could conduct research. On the other hand, it also had advantages due to availability of the speakers and the ability to cross-check data regularly.

Elyasir Julima is approx. 45 years old, and comes from the village of Karakaray-Al Byeara. He is a member of the X clan. He was raised in Omdurman rather than the Nuba Mountains due to war-induced displacement and the death of his mother when he was a small child. Nevertheless, there is a sizeable Moro population in Omdurman, and his primary caregiver during childhood was his paternal grandmother, who was monolingual in Moro. Elyasir also made frequent trips to the Nuba Mountains as a child and spent summers with his uncles in Karakaray.

Elaysir is also fluent in Sudanese Arabic and English. He left Sudan in 19XX, spent two years in Cairo, Egypt and then arrived in San Diego, California in 20XX.

Karakaray: clinic, elementary school. Angelo's parents are Kain, but grew up in Karakarai. ELYasir insists his Moro is Thetogovela. Market in Karakarai. Like city heights... (more than 1,000) (Angelo's family is Kain)

Ikhlas Elahmer is approx. 37 years old. She was born and raised in the village of XXXX and is a member of the X clan. After the town was attacked during the civil war when she was approx. nine years old, she and her family moved to Khar-toum. She did not reside in a Moro speaking neighbourhood in Khartoum, but still maintained the language. She left Sudan at age 20, spent two years in Cairo, Egypt and arrived in San Diego, California in 20XX. She is fluent in Sudanese Arabic and English. Elyasir and Ikhlas converse with each other primarily in Moro and Arabic, with English added when necessary. They speak to their children in Arabic and English. Although they used to speak to the children in Moro, the children never gained fluency, and are now dominant in English.

Angelo Kuku Naser is approx. 52 years old. He was born in the village of X and lived there for about 20 years. He resides in Omdurman, Sudan, and uses Moro on a daily basis with his family and other speakers. He works for the Bible Society translating the Old Testament into Moro, and preparing literacy materials as a member of the Moro Language Committee. He is familiar with the other dialects of Moro, as his family is originally Moro Kain, and he has worked extensively with the written standard based on Werria.

There is no reliable estimate of the number of Moro speakers. In 1955-56, the Moro population was 28,311 based on the Sudan Census. Ethnologue lists the number in 1982 as 30,000 based on an SIL survey. The Second Sudanese Civil War lasted from 1983-2005, and thousands of people were killed or displaced from the area. Given these issues, it is hard to ascertain overall numbers of speakers. The 2008 Sudan Census lists around 102,000 people in the Kadugli area, including Um Dorein. However, this is a large area that includes other people besides Moro, and the census may not be reliable. Moreover, war broke out again in 2011 and is still ongoing. In the current conflict, many Nuba people have been killed, and many displaced, this time across the border into South Sudan. As a result, Mous (1998) classifies the entire Kordofanian family as endangered, 'partly by genocide' and Williamson & Blench (2000) state that Kordofanian speakers 'have been displaced through political insecurity and their status is now uncertain'. The Moro are one of the larger populations in the Nuba Mountains; this was reported as early as Nadel (1947), and repeated by other researchers such as Guest (19XX), and Moro people themselves. The large numbers have surely con-

1 Introduction

tributed to the maintenance of the language even among displaced populations in the Omdurman/Khartoum area, despite the pressure of Arabic. However, the almost continuous civil strife in the Nuba Mountains has rendered the language threatened at the very least.

Part I

The sound system

2 Segmental phonetics and phonology

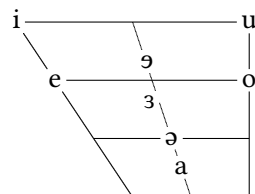
This chapter adapter outlines the phonetics and phonology of consonants and vowels in Thetogovela Moro.

2.1 Vowels

Thetogovela Moro contrasts the vowels in 2.1

Table 2.1: Vowels of Thetogovela Moro

front	central	back	
i		u	high
	ə		high-mid
e	ɜ	o	mid
	ə		mid-low
	a		low



The mean F1 and F2 values of the vowels for one male speaker (Elyasir Julima) are given below, and are plotted in Table 2.

Vowel height corresponds to the acoustic cue of the first formant, or F1; a low F1 corresponds to greater vowel height. Vowel backness corresponds to the second formant, or F2; a low F2 corresponds to greater vowel backness. The chart represents the approximate acoustic space of the vowels.

The figure shows that [i] has a lower F1 (hence is a 'higher' vowel) than [e] and the same goes for the comparison between [u] and [o]. In general, back vowels have higher F1 than front vowels. The mid-front-central vowel [ɜ] has lower F1 than the low-central [a]. The vowel [ə] is positioned as a high-mid vowel compared to the high and mid front vowels [i e] and high and mid back vowels [u o]. The vowel [ə] is a mid-low vowel compared to the mid vowels [e] [o] and [ə] and the low vowel [a].

The contrast between /ə/ and /ə/ is perceptually difficult, and only ə is used in the writing system. In previous research on Moro, only one short central ə

Table 2.2: F1 & F2 of vowels

Vowel	Mean F1	Standard Deviation	Mean F2	Standard Deviation
i	293.23	25.96	2263.32	125.49
u	343.13	38.45	1042.03	166.41
ə	365.21	49.03	1253.44	253.10
ɜ	414.62	50.55	1737.46	171.09
e	379.67	55.58	2030.30	85.58
o	426.08	65.16	1068.93	133.06
ə	445.77	44.09	1154.88	179.26
a	556.87	74.29	1477.02	127.66

was recognized. The distinction between the two vowels is reflected in the vowel harmony system, but few words contain only ə or ɜ. Therefore, the tradition of transcribing only ə will be continued in this book, unless it is necessary to point out the distinction.

In addition to the contrastive vowels, allophonic variants of /e/ and /i/ are [ɛ] and [ɪ] respectively, while [ɔ] occurs as a variant of both /o/ and /ə/.

2.1.1 /i/

The vowel /i/ is a high front close vowel, pronounced [i]. It may be pronounced [ɪ] in closed syllables or in open syllables between consonants. The following are examples of [i] in different positions in the word. There are no restrictions on the type of consonants that [i] can precede or follow. Examples of /i/ are given in Table 2.3.

2.1.2 /u/

The vowel /u/ is a high back round vowel, pronounced [u]. It can often induce lip rounding or labialization on preceding consonants. There are no restrictions with respect to consonants that precede or follow it.

2.1.3 /ɜ/

The vowel /ɜ/ is a mid central unrounded vowel, pronounced [ɜ] or [ə]. This vowel is written as ě in Moro orthography.

Table 2.3: Examples of /i/

Initial		Medial		Final	
iṭəlǐ	‘year’	iriniə	‘snot’	umədǐ	‘small ant’
idəvini	‘shoe’	lɪŋgwə	‘frog’	əs:ǐ	‘eye’
iðú	‘breasts’	kədʒivəʃənú	‘s/he forgot’	əðúni	‘hearthstone’
ikúrkuriə	‘butterflies’	ɲísíə	‘fever, bile’	lǐ rǐ	‘calf of leg’
igəlje	‘devil, satan’	kəriðíə	‘s/he’s about to change’	lǐmǐ	‘beard’
irpúlə	‘animal pelts’				

Table 2.4: Examples of /u/

Initial		Final	
uríθ	‘chain’	əðú	‘breast’
umədǐ	‘small biting ant’	umú	‘Arab (perjorative)’
uri	‘rat’	gəvəgú	‘s/he miscarried’
uṭədíə	‘grandfather, elder’	ṭíðú	‘thread, roll!’
undár	‘backside’		
Medial			
ðugi	‘wood plank’	lǐrúðǐ	‘grape’
umərtín	‘co-wife’	abug ^w ala	‘papers’
ərpúla	‘animal skin’	əlún	‘promiscuous person’

Table 2.5: Examples of /ɜ/

Initial		Final	
ɜdniə	‘young woman with a few children’	ɜtúlɜ	‘big spear’
ɜniŋíə	‘ear’	ðəwɜ	‘smoke’
ɜðú	‘breast’		
ɜwərí	‘door’		
Medial			
lǐmǐ	‘beard, chin’	ðǜrtǐ	‘anus, urethra’
ɲəvəní	‘blood’		

2 Segmental phonetics and phonology

Under influence of labialization, the vowel /ɜ/ may be pronounced [ɔ] in the final syllable, as in the examples in (5). We surmise that the vowel is /ɜ/ rather than another vowel for several reasons. Co-occurrence restrictions due to vowel harmony mean that the final vowel must be from the ‘higher’ set of vowels, /i u ɜ ɔ/ which appear elsewhere in the stem. The short central /ə/ and /ɐ/ cannot occur word-finally except as part of the diphthongs iə or eə. The vowel /i/ is compatible with labialization (áŋǵrǵđwí ‘..that he sharpen’ and /u/ usually suppresses underlying labialization (/g-ɜ-tʃəndəŋw-u → [gɜtʃəndəŋú] ‘s/he went down’). This leaves only /ɜ/ as a candidate. Alternations in verbal paradigms confirm the ɜ/ɔ alternation adjacent to labialization: /g-ɜ-rǵđw-ɜ/ – [gɜrǵđwɜ́ gɜrǵđwɔ́] ‘he is sharpening’

- (1) pǵlúŋʷɔ́ ‘devil, evil eye’ ɜŋɔʷŋ ‘mouth’
 ibɔŋʷɔ́ ‘fog’ rǵmʷɔ ‘snake, God’

2.1.4 /e/

The vowel /e/ is a mid front unrounded vowel pronounced [e]. It is found in both open and closed syllables. However, it may be pronounced [ɛ] in some closed syllables and before [r].

Table 2.6: Examples of /e/

Initial		Final	
ebamba	‘drum’	ole	‘sound, voice, words, language’
emađén	‘same age peer’	ome	‘fish’
evaja	‘poor person’	elǵe	‘king, leader’
el:e	‘feather, wing’	ɽdré	‘earth, ground’
eréθ	‘clothing’	əniŋé	‘ear’
Medial			
đǵbérá	‘air, wind’	údárén	‘uncle’
ogowélá	‘monkey’	aléɽa	‘wall’
aveja	‘liver’	léŋá	‘egg, penis’
ŋerá	‘girl, child’	lǵpér	‘tail’

Examples of [ɛ] in closed syllables and before [r]. Note that these pronunciations are variable, and [e] is also acceptable.

- (2) wɛn ‘liar’ éréká ‘yesterday’
 ɛ:le ‘feather, wing’ læpér ‘tail’

The vowel /e/ also triggers secondary palatalization of preceding consonants, as in *ondəðé* [ondəðjé] ‘louse’. In the Werria dialect of Moro, final /e/ is pronounced as a diphthong and is written *ea* in the orthography.

2.1.5 /o/

The vowel /o/ is a mid back rounded vowel pronounced [o]. However, it can be pronounced [ɔ] in closed syllables and before [r].

Table 2.7: Examples of /o/

Initial		Final	
ópá	‘grandmother’	ɲombogó	‘calf (baby cow)’
ómóná	‘tiger, big cat’	r:lo	‘female goat’
oʈɔmba	‘ostrich’	áró	‘cry, howl!’
ondəðé	‘louse’	kalaŋó	‘s/he sang’
ogowélá	‘monkey’	kobəðó	‘s/he ran away’
Medial			
ðóróná	‘dust’	ndogá	‘stick for lower lip’
paðóla	‘jute’	lókógón	‘scorpion’
ðopa	‘star’	ɾdón	‘occipital bun’
aróbá	‘whey’	læbopwá	‘mushroom’
agó l	‘two lower teeth re- moved for beauty’	ɔ:r:áɲ	‘my sibling/cousin’

The last two examples illustrate pronunciation of /o/ as [ɔ].

2.1.6 /a/

The vowel /a/ is a low central unrounded vowel, pronounced [a] in all contexts.

2.1.7 /ə/

The vowel /ə/ is a mid-low central unrounded vowel. It is of short duration compared to the other vowels, averaging around 50ms. This vowel can be epenthetic

Table 2.8: Examples of /a/

Initial		Final	
áró	‘cry, howl!’	ðóráná	‘dust’
agól	‘two lower teeth re- moved for beauty’	paðóla	‘jute’
áðámá	‘book’	læbopwá	‘mushroom’
ándómé	‘flea’	aróbá	‘whey’
áwáná	‘sugar cane’	ndogá	‘stick inserted under lower lip’
Medial			
váðó	‘shave!’	ɲárlá	‘spear’
gálá	‘bead’	lɛɲáθ	‘tooth’
logopájá	‘cup’	máɲga	‘mango’
lamámá	‘dove, bathroom’	ɔ:rájɲ	‘gentleman/man’

or a reduced version of front and back vowels. However, it also appears in roots with no obvious synchronic source of reduction, and contrasts with the other vowels of the same harmonic set: /e a o/. The vowel /ə/ is therefore a phonemic vowel, and acoustic evidence suggests that it contrasts with another mid central unrounded short vowel, /ɘ/, which is a higher vowel - see section ɘ. /ə/ cannot appear word-finally, except as part of a diphthong [eə], and only appears initially preceding geminates or liquid-initial consonant clusters (ld, rm, rl). Imperative forms of verb roots with a single geminate consonant are preceded by [ə], so we conclude that initial [ə] is epenthetic in these cases. In medial position, /ə/ can appear in any syllable, and surrounded by different consonants:

Table 2.9: Examples of /ə/

Initial		Medial	
(ə)ldəmáná	‘bean’	ðəbérá	‘air, wind’
ér:á	‘lizard’	lavəra	‘stick’
əs:ó	‘eat!’	gəla	‘plate’
ərmeə	‘rib’	ləbón ^w á	‘bottle’

2.1.8 /ə/

The vowel /ə/ is a mid-high central unrounded vowel, also with a duration of around 50ms. Like /ə/, this vowel can be epenthetic or a reduced version of front and back vowels. However, it also appears in roots with no obvious synchronic source of reduction, and contrasts with the other vowels of the same harmonic set: /i u ə/. /ə/ is also restricted from appearing word-finally except as part of a diphthong /iə/. Imperative forms of verb roots with a single geminate consonant are preceded by [ə], so we conclude that initial [ə] is epenthetic in these cases. In medial position, /ə/ can appear in any syllable, and surrounded by different consonants:

Table 2.10: Example of /ə/

Initial		Medial	
əp:ú	‘beat!’	ɲəbɛní	‘jewelry’
əw:í	‘boil!’	ðəgí	‘scab’
əs:iə	‘eye’	umərtín	‘co-wife - 3poss’
		uðəmiə	‘witch doctor’
		undə́r	‘backside’

2.1.9 Contrasts

Moro has vowel harmony in which the vowels /e a o ə/ alternate with /i ɜ u ə/. Therefore, it is difficult to find minimal pairs contrasting all the vowels, as vowel harmony restricts their co-occurrence. Nevertheless, we present available contrasts here through minimal pairs. Note that tones may sometimes differ between words.

(3) Higher vowels:

i vs u	ɲudí	dew	ɲudú	dough
i vs. ɜ	iðú	‘breasts’	ɜðú	‘breast’
i vs. ə	ɲiðəniə	‘rabbit’	ɲəðəniə	‘honor’
ɜ vs. u	gɜwúndɜ	‘s/he filters’	gɜwundú	‘s/he filtered’
ɜ vs. ə	ðədiə	‘side’	ðədiə	‘crevice, crack’
	lɜmí	‘beard, chin’	lɜmí	‘hedgehog’
u vs. ə	ðugi	‘wood plank’	ðəgí	‘cut, wound’

(4) Cross-height:

2 Segmental phonetics and phonology

i vs. e	víðú	‘vomit!’	véðó	‘knock!’
ɜ vs. a	ɽwɜ	‘testicles’	ɽwa	‘small monkey’
u vs. o	uw:ɜ	‘moon’	ów:á	‘woman’
e vs. ɜ				
ə vs. ə				

(5) Lower vowels:

e vs. o	leró	‘they don’t have’	loró	‘they mated’
	eða	‘meats’	oða	‘deer sp.’
e vs. a	ole	‘voice, sound’	ola	‘large covered milk gourd’
e vs. ə	ɲerá	‘girl’	ɲərə	‘trash’
o vs. ə	ðóla	‘rat’	ðólá	‘grave, horn’
o vs. a	ola	‘large covered’	ala	‘grinding stone’ milk gourd’
ə vs. a	ɲəma	‘power’	ɲama	‘gum’

2.1.10 Diphthongs

Light diphthongs [iə] and [eə] are attested word-finally. In Moro orthography, these are written *ia* and *ea* respectively, but in Thetogovela, the second portion of the diphthong is pronounced more like a mid central vowel than a low *a*.

- (6) lwátədéə ‘heel’ ɜgəðíə ‘mill floor’
 opéréə ‘sword’ ugəviə ‘bird’

These diphthongs contrast with their front vowel counterparts [i] and [e]:

- (7) ɜgíə ‘mental person’ ləmeə ‘fleas’
 ugi ‘rat’ ləme ‘fish’

There may also be diphthongs with rounding, but it is difficult to assess whether these sounds are diphthongs, labialized consonants, or a sequence of a consonant and a glide [w]. Let us consider the distribution. We will assume for now a transcription with [w]. This chart shows the distribution of CwV sequences in major lexical items:

There is an overwhelming tendency for Cw sequences to be followed by the lower vowels [a] or [ɜ]. There are some [ə] and a few instances of [u] and [o], but these latter alternate with [ə], and may be considered rounded schwa. Finally, there are a handful of words that have a front vowel, but the Cwi or Cwe sequences are otherwise very restricted:

Table 2.11: Chart of Cw-vowel sequences

	e	a	o	i	ɜ	u	ə/ɘ
pw		•			• (ɔ)		•
bw		•			•		
ɸw		•			•		
ɖw							
tw		•			•		
dw		•			• (ɔ)		
tɸw		•					
dʒw							
kw		•	•		•		•
gw	• (eə)	•			•		•
fw							
sw							
ðw		•			•		
mw		•			•	•	•
nw		•					
ɲw		•					
ɳw		•	•		•	•	•
lw		•			•		•
rw		•		• (i, iə)	•		
ɾw					•		
ɽw	• (eə)	•					
jw							

- (8) trwi ‘police’
 ɽrwíə, ɳwuriə ‘cucumber, cucumbers’
 ɽwéə, ɲədweə ‘ankle, ankles’
 ləbəgwéə, ɲəbəgwéə ‘tall flower’

One analysis would hold that wa and wɜ sequences are light diphthongs [oa] and [uɜ]. Another possibility is that there are restrictions on the other sequences, such that they tend not to co-occur. This would make sense for [wu] and [wo], as they share rounding, and there is some evidence from verb paradigms that [w] is not realized before underlying /u/ and /o/. Consider the following verb paradigms, which show sequence of Cw both root-initially and root-finally. In

the proximal imperfective forms (9a,d), a [w] appears before the final aspectual/-mood/deixis suffix *-a* or *-3*. However, in the proximal imperative and perfective, where the aspectual suffix is *-ó* or *-ú*, no [w] appears. The same pattern is not observed if the [w] is not adjacent to the suffix.

- (9)
- | | | | | |
|----|------------|--------------------|------------|-----------------|
| a. | g-3-márw-3 | ‘he is passing by’ | g-3-mwáɬ-3 | ‘he is sipping’ |
| b. | g-3-mər-ú | ‘he passed by’ | g-3-mwəɬ-ú | ‘he sipped’ |
| c. | múr-ú | ‘pass by!’ | múɬ-ú | ‘sip’ |
| d. | g-a-ɲádw-á | ‘he is soaking’ | g-a-ɲwáð-á | ‘he smells bad’ |
| e. | g-a-ɲəd-ó | ‘he soaked’ | g-a-ɲwəð-ó | ‘he smelt bad’ |
| f. | ɲád-ó | ‘soak!’ | ɲwáð-ó | ‘smell bad!’ |

These forms also suggest that not all sequences of [wa] and [wɜ] are underlying diphthongs, but may arise from Cw-vowel sequences.

To complicate the picture further, there is also a distinction between two kinds of stems that begin with [w]. The locative prefix *é-* attaches to nouns. If the noun is vowel initial, then another consonant, either [s] or [k] also appears (below. Some [w] initial nouns also show the extra consonant, suggesting that they are vowel-initial, not consonant-initial. Compare (16c-f) to (16g-j).

	Singular	Plural	Locative	Noun
a.	ándámé	nándámé	ék-ándámé	‘flea’
b.	ajén	ején	ék-ajén	‘mountain’
c.	wára	nwára	ék-wára	‘animal pen’
d.	wílí	nwílí	ík-wílí	‘picture, dream, spirit’
e.	wájá	lájá	ék-(ə)wájá	‘fly, bee’
f.	wíjɜ	*	ík-wíjɜ	‘dry dirt, ground’
(10) g.	wára	lára	é-wára	‘chicken’
h.	wará	lará	é-wará	‘baobab tree’
i.	wálá	*	é-wálá	‘wool, braids’
j.	wasén	lɔwasénanda	é-wasén	‘wife’
k.	wəliɜ			‘flour’
l.	wəŋgaló	laŋgaló		‘animal’
m.	wuɬɜ	nɬwɜ		‘low wall of compound’

A similar pattern occurs in verbs. Verb roots that begin with [w] are distinguished from those that begin with [u] or [o]. The imperative has no prefixes, so the root is also word-initial. The proximal imperfective form typically has a prefix *a-* or *3-*. All vowel-initial roots lack the clause marking vowel, due to vowel

hiatus resolution, where the first vowel is deleted. This is observed with roots beginning with [u] or [o]:

(11)	Proximal imperative	Proximal imperfective	Meaning
	wáṭ-ó	g-a-wáṭ-á	‘sew’
	wund-ú	g-3-wúnd-3	‘filter, strain’
	wáṅó	g-a-wáṅ-á	‘have sex’
	óṭ-ó	g-a-wóṭ-á	‘choose’ /wáṭ-o/ → [óṭo]
	óg-ó	g-og-a	‘thresh’ /g-a-og-a/
	ódáṅ-ó	g-odáṅ-a	‘squat, kneel’
	uḍəḍ-ú	g-udáḍ-3	‘milk’

However, some verb forms have a [w] that appears to be part of the root, but acts like a vowel rather than a consonant. The clause marking vowel that typically appears between the class marker and the root is missing in these forms, just as in vowel-initial roots. Furthermore, the tone pattern is also suggestive of a vowel-initial root. VC roots usually lack high tone in the imperfective, whereas CVC roots have high tone. The root *wan* below behaves like a vowel-initial root.

(12)	Proximal imperative	Proximal imperfective	Meaning
	wán-ó	g-wan-a	‘be anxious’
	wáj-ṭ-ó	g-waj-á	‘be rough, coarse’ (adj.)
	wás:əḍ-ó	g-wás:əḍ-eə	‘scatter (seeds)’

This suggests that the *waṭ* begins with a consonant [w], whereas *wan* begins with a vowel, or a diphthong, and so is /oan/.

There is a third set, however, that shows even more chameleon-like behaviour. Like the forms in (18), these verbs lack [w] in the imperative, and are missing the clause-marking prefix. The tone pattern, with a high tone on the root, are more consistent with consonant-initial roots, but are not unattested with vowel-initial roots. It does not appear to be possible to predict whether [w] appears in the imperative or not.

(13)	Proximal imperative	Proximal imperfective	
	ás-ó	g-wás-a	‘wash’
	ár-ó	g-wár-a	‘badmouth’
	ál-ṭ-ó	g-wal-á	‘be long’ (adj.)
	ánd-ó	g-wánd-a	‘harvest’
	ónḁáḁ-ó	g-wónḁáḁ-a	‘be pregnant’
	óndótó	g-wóndəṭ-a	‘dry up, wither, be strong’

This means that words like *g-a-bwáp-á* ‘s/he wants’ may be transcribed as *gab-wápá* or *gaboápá*, since both /oa/ and /wa/ are attested in the language. If the CwV sequence is contained within a morpheme, however, it is difficult to tell which transcription is more accurate, and indeed they have been transcribed both ways in previous publications.

There are co-occurrence restrictions on [w] appearing with round vowels. See section X.

2.1.11 Vowel Length and Stress

Moro does not have contrastive vowel length. There are, nevertheless, some vowels that are long in particular positions. In phrase final position and citation form, penultimate vowels in open syllables may have longer duration than in antepenultimate or ultimate position if the following consonant is short. In addition, the vowel [a] has longer inherent duration than the other vowels, which contributes to the perception of long vowels. Finally, some following consonants such as [r] or [g] may cause increased vowel duration.

In order to illustrate this general pattern, recordings were taken from a separate intonation study. Four repetitions of subject-verb-object declarative sentences were recorded in which the subject-verb portion did not differ, but the objects varied. The durations of vowels in nouns in the phrase-final position were measured. For trisyllabic nouns, there is no pattern whereby penultimate vowels are consistently longer than ultimate vowels or vice versa. Instead, the pattern is dependent on the nature of the consonant intervening between them. The penultimate vowels are longer if the consonant is /r/ (except for *ngará*), but the ultimate vowel is longer if the consonant is a nasal.

As for bisyllabic nouns, there is no general pattern (TABLE X). Only one case shows a significant difference, with a longer final vowel. The short central vowels [ə] and [ɘ] are not lengthened in penultimate position.

Table 2.12: Vowel length by position in trisyllabic nouns.

penultimate	ultimate	T-test	<i>p</i> value
ðamala	111.82	80.51	n.s
ðəbára	176.39	139.56	$p < 0.05$
ŋgará	161.47	147.36	n.s.
ŋgára	161.96	140.48	$p < 0.05$
lamámá	103.00	147.89	$p < 0.05$
lómóna	129.90	158.99	$p < 0.05$

Table 2.13: Vowel length by position in disyllabic nouns.

penultimate	ultimate	T-test	<i>p</i> value
lára	163.24	156.22	n.s.
ðára	160.23	195.23	$p < 0.05$.
ŋána	158.83	172.14	n.s
ŋaŋa	162.84	130.88	n.s

The longer duration of vowels in some words leads to the percept of stress, and may have prompted the description of Moro stress in Black & Black (1971:14):

Stress presents a problem because it fluctuates freely in many words. It also seems to vary with the intonation pattern and is affected by elision. However for the most part a rough prediction can be given.

1. If the last syllable is closed, it is stressed.
2. If it is open the stress moves to the penultimate unless this syllable contains /ə/.
3. If so the stress moves further to the front to the nearest syllable not containing /ə/, or,
4. If the word is only 2 syllable, the stress returns to the ultimate.

They further comment (p. 15) that “There is a tendency to lengthen vowels in stressed syllables when words are said in isolation. In normal speech however length is not present.”

If Moro has stress, tone is not a correlate of stress. Any type of syllable (open/-closed) and any type of vowel may bear either high or low tone. While there is

a tendency for high tone to be attracted to closed syllables, this is not an absolute requirement. If tone is not a correlate of stress, two other parameters may express prominence: duration and intensity.

2.2 Consonants

The consonant inventory of Thetogovela Moro is characterized by contrast between dental and alveolar stops, and several types of rhotics – a trill, flap and retroflex flap. Voiceless fricatives are not common within the language, although /s/ and /f/ are phonemic.

Table 2.14: Moro consonant inventory.

	Labial		Dental		Alveolar		Retroflex	Palatal		Velar	
Stop / Affricate	p	b	t̪	ɖ	t	d		tʃ	ɖʒ	k	g
Nasal	m				n			ɲ		ŋ	
Trill					r						
Tap/Flap			ɾ		ɽ						
Fricative	f	v		ð	s						
Lateral					l						
Approx	w							j			

In the Moro writing system used in Bible translation and teaching materials, the Roman alphabet is combined with some International Phonetic Alphabet symbols (ɲ ɽ ə). Most vowels and consonants are the same in both alphabets. However, the following letters are used which are different:

Geminate or long consonants are indicated with double letters in the writing system, ex. *dappa* ‘friend’ or *igannana* ‘I am listening to you’ (examples drawn from *Fatau agəwərdia Ajwab?* or “How to write a letter?”). This is true except for rr, which represents the trill [r] as opposed to r which represents [ɾ]. However, these uses are not consistent, and [r] is often used to indicate [ɾ] as well.

CHECK – loss of final vowel due to case – what obstruents can occur word-finally?

Table 2.15: Correspondence between written Moro and IPA.

<i>Written Moro</i>	<i>IPA</i>
ë	ɜ
d	ð
t	t̪
d	d̪
c	tʃ
j	dʒ
ñ	ɲ
y	j
r	ɾ or r
rr	r

2.2.1 /p/

/p/ is a voiceless bilabial stop. It can occur word-initially, between vowels and following [r]. We have not observed any occurrences of [lp] [rp] or [mp] sequences. [p] can only occur pre-consonantly before [r]. It does not occur word-finally.

[p] has relatively long duration when it occurs between vowels, so it is difficult to ascertain whether an intervocalic [p] is geminate or not, and there are no clear minimal pairs for gemination. Certain words have consistently long consonants, however, and we conclude that these are geminate.

(14)	# ____ V		V ____ V	
	paɖólwa	‘jute’	ðopa	‘star’
	páɖiə	‘place to pray’	eɖapəgá	‘nail’
	páɖúŋwá	‘devil, evil eye’	lápəɲiə	‘firefly light’
	pəgó	‘weed, uproot!’	lápér	‘tail’
	púllí	‘open gourd by making hole!’	gaɖzópá	‘s/he is following to catch up’
	pəndé	‘long time’	larbapa	‘old leather shoe’
<hr/>				
Geminate				
<hr/>				
	C __ V		# __ C	
	ʒrpúlɜ	‘animal skin’	góp:əta	‘s/he is defending’

2 Segmental phonetics and phonology

áp:ó	‘carry!’
ðap:a	‘friend’
pr	‘very’

[p] has short Voice Onset Time (VOT), as can be seen in the following spectrogram of a portion of the word *égapəgó* ‘I weeded’. The silent closure duration of [p] is 126ms, whereas the VOT measures 20ms.

2.2.2 /b/

/b/ is a voiced bilabial stop. It can occur word-initially, between vowels and following a consonant, either [r], [r] [m] or [l], although most [lb] words are loans from Arabic, and the [rb] and [rb] sequences are only observed in nouns. [b] can also precede [r] and [r] in nouns. There are no geminate [b] and it does not occur word-finally. [b] is a very frequent sound in Moro nouns in non-initial position. However, most Moro nouns begin with a consonantal noun class marker prefix, a small set that does not include labial consonants. Therefore, nouns beginning with labials are rare and may be borrowings.

(15)

#__V		V__V	
biṭiə	‘butter’	aróbá	‘whey’
boṭṭa	‘ashes’	ðaba	‘cloud’
báró	‘touch!’	ðəbiə	‘pre-wedding feast for bride’
bétó	‘be satisfied!’	ebambəná	‘skull,eggshell’
bóló	‘wrestle!’	íbín	‘sibling-in-law’ (3sg.poss).
bəṭe	‘never’	ləbú	‘well’
		gabórṭa	‘s/he is riding’
C__V		V__C	
ṭfambára	‘scab’	ləbrea	‘walking stick’
ɜlbámbəriə	‘stool’	embreá	‘ring for balancing pots on head’
ðərmbégwa	‘lyre’	ɜlibríz	‘thread’
ṭfarbapóða	‘lung’		
gatfómbəða	‘s/he is tickling’	ombra	‘branch of doleib palm’

The triconsonantal sequences [rmb], [mbr] and [mbr] suggest that the sequence mb may be a prenasalized stop. The word *mbú* ‘come!’ is the only occurrence of [mb] word-initially, however, and the fact that [m] bears tone may indicate that it is syllabic.

Between vowels /b/ is often pronounced [β]. In this example of the word *égabáro* ‘I touched’, the pronunciation is that of a fricative. The [β] is very short compared to the duration of intervocalic [p]:

Word-initially, [b] is a prevoiced stops with negative VOT:

Many words transcribed with [b] in the Werria dialect are pronounced with [v] (or [ʋ]) in Thetogovela (Werria data provided by Angelo Naser)

- (16)
- | Werria | Thetogovela | |
|--------|-------------|--------------------------------|
| baðo | váðó | ‘shave!’ |
| bəleðo | vələðó | ‘pull!’ |
| biðu | víðu | ‘vomit!’ |
| galəbó | galəvó | ‘s/he filled hand, took scoop’ |

2.2.3 /t/

/t/ is a voiceless (APICAL/LAMINAL?) dental stop. It can occur word-initially, between vowels and following a consonant, [r], [r] [l] or [n], although there are only one or two attestations of the latter. [t] can precede [r], even word-initially. It does not occur word-finally. Like the other voiceless stops, [t] has relatively long duration when it occurs between vowels. It can be geminated.

- | #__V | | V__V | |
|--------|------------|-----------|--------------------------|
| təbwɜ | ‘bamboo’ | aʔəndréa | ‘cloven hoof’ |
| təmətɔ | ‘step on!’ | ðəʔa | ‘corn leaf’ |
| təðó | ‘leave!’ | ðóʔon | ‘agama lizard’ |
| tíðu | ‘thread!’ | eʔa | ‘lake, pool’ |
| | | gatəʔəʔó | ‘s/he licked’ |
| | | gɜwúndəʔɜ | ‘s/he is about to wring’ |
- (17)
- | C__V | | V__C | |
|---------|------------------|----------|---------------------------------|
| ðɜbətʊɜ | ‘type of locust’ | ðəbətʊwá | ‘(shield made of) doleib frond’ |
| eməɜʔa | ‘horse’ | | |
| ʔɜʔí | ‘buttock’ | #__C | |
| túɜʔú | ‘wait for!’ | tɜ | ‘police’ |
| əlʔəmiə | ‘termite mound’ | | |

2 Segmental phonetics and phonology

gʒnɿú ‘s/he entered’

t̪ has short VOT, only slightly aspirated. It sometimes has an ejective quality.

2.2.4 /ɖ/

/ɖ/ is a voiced (APICAL/LAMINAL?) dental stop. It can occur word-initially, between vowels and following [n] or [l], although there is only one attestation of the latter. The cluster nɖ can occur word-initially. ɖ does not occur preceding consonants or word-finally. It cannot be geminated. This sound is not common, particularly word-initially.

(18)

#__V		V__V	
ɖetəm	‘truly’	áɖámá	‘book’
ɖoátó	‘send, forge!’	idəvíni	‘shoe’
ɖoáðó	‘push!’	ɲəðərriə	‘nursing of babies’
	uɖəmiə		‘witch doctor’
	kaɖó		‘plant!’
	luɖʒðʒ		‘they are milking’
<hr/>			
C__V			
t̪únɖú	‘cough!’		
galánɖa	‘s/he is about to close sthg’		
ólɖəmáná	‘bean’		
nɖəmana	‘kidney’		
nɖəmiə	‘witch doctors’		
nɖurɿu	‘behind, last’		

2.2.5 /t/

/t/ is a voiceless alveolar (APICAL LAMINAL) stop. It can occur word initially, between vowels and following a consonant, [r], [ɾ], [ɽ], [l] or [n]. The latter is uncommon. It does not occur word-finally. Like the other voiceless stops, [t] has relatively long duration when it occurs between vowels. It can be geminated only in morphological contexts.

(19)

#__V		V__V	
t́sı́	‘shake!’	lamatára	‘support pole’
tóaðó	‘stroke, rub!’	lɛtaŋgora	‘mane’
támó	‘describe in detail!’	lútı́	‘owl’
táj	‘again’	otéleə	‘mat woven from palm leaves’
tu	‘there’	gatoɡó	‘it pecked’
<hr/>			
C__V			
ɲártəməðá	‘small lizard’		
əɾtú	‘gazebo, shade structure’		
umərtın	‘co-wife’		
úrtəðú	‘pull out!’		
ərtəɲətıə	‘armpit’		
əltóléa	‘cheek, shouting’		
əltəmiə	‘barren woman’		
ɡunto	‘one, on one’s own’		
bantalón	‘trousers’		

GEMINATE?

2.2.6 /d/

/d/ is a voiced (APICAL/LAMINAL?) alveolar stop. It can occur word-initially, between vowels and following [n] or [l], although there is only one attestation of the latter. The cluster nd can occur word-initially. d does not occur preceding consonants except in the cluster ndr, which can occur word-initially and word-internally. Since [d] cannot otherwise occur before [r], it may constitute and insertion in an /nr/ sequence. [d] cannot appear word-finally and it cannot be geminated.

	#__V		V__V	
	diə	‘cow’	ð́diə	‘side’
	dóɡə́t́o	‘get clean!’	lodórə́wa	‘flower, leaf’
(20)	doátó	‘speak, tell!’	ɡə́d́d́əð́ə	‘s/he is hiccupping’
	dúwə́t́ú	‘chew with back teeth!’	ɡadə́rnó	‘s/he pressed’
	dájó	‘stay!’	ɡavə́dað́o	‘s/he cleaned’

2 Segmental phonetics and phonology

	ododo	‘all’
C__V		C__C
ándámé	‘flea’	ándréá ‘saddle’
ándiə	‘leather’	kańdrá s/he is sleeping’
ándú	‘catch (it)!’	ńdráťó ‘be near to’
kavəndəɲó	‘he snapped (it)’	
ðəpəldwə	‘male agama lizard’	#__C
ndəɲ	‘firm’	
ndəm	‘together’	

2.2.7 /tʃ/

/tʃ/ is a voiceless alveopalatal affricate. It is written *c* in the orthography. It can occur word-initially, between vowels and following the consonants [m] and [r]. It does not occur before a consonant or word-finally. It can be geminated.

(21)	#__V		V__V	
	tʃambára	‘scab’	ðəťa	‘wine filter’
	tʃugúlə	‘pumpkin, gourd’	ləťuwə	‘whip made from leather or stiff hair’
	tʃəɲge	‘cobra’	matťó	‘man’
	tʃəndúɲú	‘go down!’	gatťóđa	‘s/he is chopping legs (of bed, table)’
	tʃómbəđó	‘tickle!’	gatťoná	‘s/he is hungry’
	tʃom	‘also, too’	gəmədətťú	‘s/he twisted sthng’
			gərtťiđiə	‘s/he is gathering (things) together’
	C__V		Geminate	
	əmtfu	‘loan, feud; clan’	ləť:ó	‘animal fat; top of sprout of doleib palm tree seedling’
	ortťəl	‘poisonous tree’	otť:a	‘milk pot made from calabash’

2.2.8 /dʒ/

/dʒ/ is a voiced alveopalatal affricate. It is written *j* in the orthography. It can occur word-initially, between vowels and following the consonants [ɲ] and [n].

Between vowels it can be pronounced [j]. It does not occur before a consonant or word-finally. It cannot be geminated. [dʒ] is a rare consonant. It occurs word-initially only in verbs, and most of the occurrences in verbs are probably due to dissimilation from a following voiceless consonant (see section X), typically a [tʃ], in what appear to be lexicalized reduplicative durative/iterative prefix. A good example is *gadʒátʃaŋgərəða ánó* (see section X.)

(22)

#__V		V__V	
dʒópó	‘follow to catch up!’	ɲəkawádʒá	‘white people’
dʒómó	‘move!’	lédʒógádʒógá	‘coucal bird’
dʒátʃədwe	‘implore’	gadʒəvá	‘s/he doesn’t know’
	gadʒəpəðiə	‘it is rotten’	
		gadʒátʃaŋgərəða	‘s/he is twisting, writhing’
		ánó	
		gədzínvətʃəniə	‘s/he forgets’
<hr/>			
C__V			
ðéráɲdzálá	‘stone wall’		
lédʒú	‘swish water in a bowl!’		

2.2.9 /k/

/k/ is a voiceless velar stop. It can appear word-initially before a vowel, between vowels and following [r] and [l]. It can also appear geminated.

(23)

#__V		V__V	
kájó	‘tie!’	ókóra	‘sap’
kəwó	‘pinch!’	lókógóŋ	‘scorpion’
kárðó	‘worry!’	gəkiðú	‘s/he opened’
kúra	‘ball’	áləkarðó	‘we worried’
<hr/>		<hr/>	
C__V		Geminate	
əkúrkuriə	‘butterfly’	gagak:oreð-ó	‘s/he scratched’
əlkənísə	‘church’		

[k] is pronounced with slight aspiration, a longer VOT than the other voiceless stops.

2 Segmental phonetics and phonology

2.2.10 /g/

/g/ is a voiced velar stop. It can appear word-initially before a vowel, between vowels and following [ŋ], either preceding a vowel or [r]. It cannot be geminated.

(24)	#__V		V__V	
	gí	‘farm’	ḍugi	‘wood plank’
	gálá	‘bead’	iməɡaniə	‘excrement’
	gə́nó	‘kill!’	omága	‘snail’
	gwánǝ	‘thing’	ḍugi	‘wood plank’
			gogə́tɔ	‘s/he jumped’
			pə́gə́ðɔ	‘pay!’
<hr/>				
	C__V			
	mánǝ	‘mango’		
	lənǝǝl:əme	‘pen/crab’	C__C	
	ŋǝrá	‘salt’	alənǝgréma	‘bed’

Although there are contrasts between /k/ and /g/ at the beginning of the word, the contrast is generally neutralized in phrase-initial position where both are pronounced as [k]. Consider the following sentences in which the noun class subject agreement marker /g-/ is realized as [g] phrase-internally in (33)a, but as [k] phrase-initially in (33)b.

- (25) a. um:iə ɡaɖǝnɔ ntəɾəbɛsa u
 m:iə ɡ-a-ɖǝn-ɔ n-təɾəbɛsa CLg.boy SM.CLg-RTC-sit-PFV LOC-table
 ‘the boy sat on the table’
- b. ɖaɖǝnɔ ntəɾəbɛsa ɡ
 -a-ɖǝn-ɔ n-təɾəbɛsa SM.CL-RTC-sit-PFV LOC-table ‘he sat on the table’

2.2.11 /f/

/f/ is a voiceless labiodental fricative. It is attested word-initially in only one word, and only occurs following a consonant [l] in loanwords from Arabic. Otherwise, [f] occurs between vowels and may be geminated:

(26)	#__V		V__V	
	fərfər	‘never’	ódófá	‘foam, bubble’
			ðəgəfiə	‘tree sp. (green with thorns)’
			ɲófəɲé	‘unskillfulness’
			galófa	‘s/he swears’
<hr/>			<hr/>	
	C__V		Geminate	
	alfərára	‘small hatchet’	láf:əɾəɲəə	‘bird sp.’
			áf:ó	‘shoot!’

Many words transcribed with *f* in Werria are pronounced with *v* in Thetogovela:

(27)	Werria	Thetogovela	
	ðəfia	ðəviə	‘type of tree’
	ðəffia	ðəviə	‘lion’
	gafərəða	gavərða	‘s/he is clearing the fields’
	gafó	gavó	‘s/he lived (somewhere)’

2.2.12 /v/

/v/ is a voiced labiodental fricative, often pronounced as an approximant [ʋ]. It occurs word-initially preceding a vowel and between vowels, but it does not occur before or after a consonant, word-finally or as a geminate. It is also restricted from appearing before round vowels. It is pronounced [w] before round vowels: *gakává* ‘s/he is about to pinch’ vs. *gakəwó* ‘he pinched’ (compare /v/ with the behaviour of /w/: *gaðəwá* ‘s/he is about to poke’ *gaðəwó* ‘s/he poked’)

(28)	#__V		V__V	
	váðó	‘shave!’	áveja	‘spring, rainy season’
	vártó	‘lead, be in front’	ðává	‘chaff’
	vələðó	‘pull!’	ðəvəra	‘line’
	vərdó	‘clear the field!’	evəla	‘wild cat’
	vəðó	‘knock, slap’	idəvini	‘shoe’
			lónará	‘guinea fowl’
			luvəriɲi	‘eyebrow’

2.2.13 /ð/

/ð/ is a voiced interdental fricative. It is one of the most common obstruents in Moro, as it is a noun class prefix. It can occur word-initially, between vow-

2 Segmental phonetics and phonology

els, following a consonant [r] or [ɾ], and word-finally. When word-final, it is devoiced and pronounced [θ]. For some speakers, it may be pronounced [θ] in other positions, too. It can also be geminate, either lexically, or as the result of morphological concatenation.

(29)	#__V		V__V	
	ðolón	‘eel’	ónáðájá	‘winter (Dec. – mid Feb.)’
	ðílí	‘manure’	uðɜ	‘worm’
	ðərliá	‘root, artery’	úmáðí	‘sharp spear with serrations’
	ðáðá	‘path’	ləðe	‘bone’
	ðúgí	‘breastfeed!’	gɜðíɲɜ	‘s/he is scared’
	ðɜdiá	‘path’	kɜsɜðɜ	‘s/he is defecating’
	C__V		V__#	
	ðərðiá	‘water lizard with long tail’	uríθ	‘chain’
	rða	‘meat’	eréθ ləɲáθ	‘clothing’ ‘tooth’
Geminate				
	ɲwáð:á	‘male goat’		
	gagað:ó	‘s/he mixed a lot of things’		

2.2.14 /s/

/s/ is a voiceless alveolar fricative. It is not a common sound in Moro, and many occurrences are due to borrowed words. s can occur word-initially, between vowels and as a geminate. It does not occur after consonants or word-finally. There is no voiced counterpart.

(30)	#__V		V__V	
	síanó	‘face’	ðəsiə	‘loincloth for women’
	sɜndúgi	‘box’	wasén	‘wife’
	súrá	‘icture’	ɲusí	‘chicks’

suwʒə	‘type of dance’	tərəbésá	‘table’
sʒðu	‘defecate!’	úsílá	‘spirit, shade’
sáʒó	‘chew!’	koása	‘s/he is washing’
		kʒtʒsú	‘s/he shook’

Geminate

ɲəs:a	‘lot of food’
əs:í	‘eye’
kas:a	‘s/he is eating’

2.2.15 /m/

/m/ is a voiced labial nasal stop. It can occur word-initially, between vowels, before [b], following a consonant ([g], [r] [ɾ] and [l]), and word-finally. It can also be geminated.

(31) #__V		V__V	
matʃó	‘man’	ðónɡómá	‘nostril’
mog ^w átá	‘peanut’	rumɜ	‘wild yams’
músí	‘banana’	eməɾʒá	‘horse’
məɡú	‘curse!’	íməðíə	‘celebration’
mɪɲʒtʃú	‘peel, remove layer!’	imɜɡəniə	‘excrement’
mánó	‘cook!’	ləmúrgúrgí	‘type of bird’
mbú	‘Come!’	ləmí	‘hedgehog’
V__C		V__#	
ebamba	‘drum’	etám	‘neck’
ləbəmbɜj	‘yam’	tʃom	‘also, too’
lumbɜlwó	‘calabsh bowl’	ndəm	‘together, two’
		rám	‘early’
Geminate		C__V	
lɜtúm:ɜ	‘hollow behind the ear’	lugma	‘porridge’
gam:ó	‘he took/married’	ərmeə	‘rib’
um:iə	‘boy’	almotʃána	‘tobacco pipe’
		ðərmbég ^w a	‘lyre’

2.2.16 /n/

/n/ is a voiced alveolar nasal stop. It can occur word-initially, between vowels, after consonants ([r], [l], [d]), before [d], and word-finally. It can also be geminated. [n] is a very frequent sound, due in part to its status as a noun class prefix. [nd] sequences are observed word-initially, and these may be prenasalized stops. However, the [n] in this position can also bear tone, which may indicate that it is syllabic.

(32)

#__V		V__V	
nəmənía	‘olive trees’	ηóní	‘dog’
nálá	‘beads’	lów:áná	‘porcupine’
nəðəjín	‘day, hour’	anadára	‘eyeglasses’
néðó	‘refuse!’	anó	‘place’
nátó	‘taste!’	énéə	‘community hunting’
nínú	‘search for!’	ʔəðənú	‘slip!’
		úlɬlítańó	‘morning’
		ɜni	‘here’
V__C		V__#	
ʔɬɪndía	‘river bank’	emaðén	‘age-mate’
lávándəjé	‘hard seed of emakəje fruit used to play hockey game’	lómón	‘day, finger’
ləpəndónwá	‘bushbaby’	aten	‘quietly, slowly’
undrɬu	‘under’		
Geminate		#__d	
gan:ó	‘he heard’	ńdría	‘fences, gardens’
ɲədwɜn:éəɲ	‘hot drink’	ndogá	‘stick inserted under lower lip’
		nda	‘head’
		ńdrá	‘sleep!’
C__V			
lɜbərnéɬa	‘hat’		
lórńá	‘big basket for grain’		
əlná	‘room’		
ɜdniə	‘young woman with children’		

The sequence [ndr] may result from the insertion of a stop [d] between /n/ and /r/. This occurs, for example, with noun class prefixes. The singular begins with a vowel [e] or [i] and is of noun class [g]. The plural has the prefix /n-/. The sequence /n-r/ → [ndr].

2 Segmental phonetics and phonology

- (33)
- | | | |
|----------|--------|-----------------|
| singular | plural | |
| eréθ | ndréθ | ‘clothes’ |
| íríə | ńdríə | ‘fence, garden’ |
| iríŋ | ndríŋ | ‘name’ |

2.2.17 /ɲ/

/ɲ/ is a voiced palatal nasal stop. It can occur word-initially, between vowels, and word-finally. The only cluster it can appear in is preceding [dʒ], and this is only observed in one word. Can it be geminated? [ɲ] is a noun class prefix, and so appears frequently in word-initial position.

- (34)
- | | | | |
|-------------|-----------------------------------|----------|--|
| #__V | | V__V | |
| ɲəgəmbólliə | ‘top molars’ | abəɲá | ‘piece of ostrich egg for facial decoration’ |
| ɲogól | ‘eagles’ | éɲáɲá | ‘forest’ |
| ɲaŋwaʔa | ‘water cup bowls made from gourd’ | léɲá | ‘egg, penis’ |
| ɲubólbáliə | ‘earlobes’ | ðəɲónɲ | ‘large forest’ |
| ɲádó | ‘be wet!’ | əðɲíní | ‘sun’ |
| | | gəmiɲəʔɲ | ‘he is peeling sthg’ |
| V__C | | V__# | |
| ðəráɲdʒálá | ‘stone wall’ | ɲgáɲ | ‘sickness, death’ |
| | | ɲgwəɲ | ‘sign, letters, writing’ |
| | | óráɲ | ‘my brother’ |
| | | káɲ | ‘very, much’ |
| | | ʔwáɲ | ‘near’ |

2.2.18 /ŋ/

/ŋ/ is a voiced velar nasal stop. It can occur word-initially, between vowels, before [g] and word-finally. It can also be geminated. [ŋ] is a noun class prefix, and so occurs frequently word-initially.

(35)	#__V		V__V	
	ḡombogó	‘calf (baby cow)’	ámákəḡé dom	‘palm fruit’
	ḡərá	‘trash’	ǰáḡála	‘ewes’
	ḡelá	‘oil’	ḡəḡelá	‘tongue’
	ḡítfa	‘sin, mistake’	éḡáǰá	‘forst’
	ḡáḡó	‘scratch’		
	V__C		V__#	
	tfaḡḡwərá	‘rhino, large boulder tha?’	ámǰáḡ	‘large rock’
	ḡəḡguri	‘chameleonv’	ḡəbəḡ	‘type of gum tree’
	ḡóḡḡómá	‘nostril’	ḡómóḡ	‘big, lazy rat’
	ḡǰáḡ	‘sickness, eath’	óḡəḡḡa	‘plant that causes itching’
	#__C			
	ḡǰám	‘squirrel’		
	ḡǰítú	‘let be, allow!’		
	ḡǰátó	‘go away, leave!’		

2.2.19 /l/

/l/ is a voiced alveolar lateral. It can appear word-initially, between vowels, before consonants, and word-finally. It can also be geminated. The only consonant that can precede it in a cluster is [r]. However, [l] can precede a large number of consonants due to Arabic noun borrowings, in which [l] is part of the Arabic definite article, ex. *almotǰána* ‘tobacco pipe’. There are no instances of [l] before the voiced fricatives or the rhotics. Sequences of l-coronal are in native words.

(36)	#__V		V__V	
	láǰá	‘flies, bees’	odəlónǰá	‘fox’
	ləbú	‘well’	oǰelea	‘spider’
	lodóǰəwa	‘flower, leaf’	ulǰngi	‘night’
	lútí	‘owl’	ḡamala	‘camel’
	lǰndǰú	‘swish water in bowl’	málǰóú	‘exchange, re-place!’

2 Segmental phonetics and phonology

limú	‘put together!’	úlɜlɪtɪ	‘tomorrow’
C__V		V__	
rlo	‘female goat’	ortɕəl	‘poisonous tree’
ðərliə	‘artery, root’	ɕrél	‘wisdom tooth’
		agól	‘gap where two lower teeth re- moved for beauty’
		táltal	‘quickly’
Geminate			
evəla	‘wild cat’	lubəlbəliə	‘earlobe’
el:ə	‘wing, feather’	əldəmáná	‘bean’
l:oa	‘elbow’ ə	ltúlé	‘cheek’
ɲallára	‘yellow locust’ ə	lɕəmiə	‘termite mound’
kəvəli:əniə	‘s/he is boasting’	ɜlkənisə	‘church’
		alfərára	‘small hatchet’
		almotɕána	‘tobacco pipe’

The following are minimal pairs showing single vs. geminate contrast: *káló* ‘chop up!’ vs. *kəl:ó* ‘pull branches from a tree!’.

2.2.20 /ɕ/

/ɕ/ is a voiced retroflex flap. It occurs word-initially before /d/, /ɾ/, /r/ as a noun class marker, although the noun class concord marker of ɕ-initial nouns is /l/. It occurs in a few words between vowels, but otherwise ɕ is a relatively rare sound, and is not found in verbs.

(37)

#__C		V__V	
ɕdiə	‘dalib fruit’	éɕo	‘around’
		ðoɕár	‘type of yellow and white snake’
ɕrá	‘lizard’	ɲáɕáká	‘small lizard’
ɕrágəgá	‘claw’	ɲəɕəɲgé	‘donkey’
ɕwa	‘long bamboo stick’	əɕiə	‘water pot’
əɕtú	‘gazebo’		

Thetogovela has less examples of [ɕ] than the standard Moro Werria dialect; many [ɕ] have become [g] or [d] in Thetogovela. Examples with [d] are generally

surrounded by higher vowels, but there are also [g] with high vowels, so it is not possible to predict why some [ɾ] became [d] and some [g].

(38)	Werria	Thetogovela	
	dəɾia	ð́diá	‘side’
	lɛɾwa	ĺdʷóŋ	‘back, mid-back’
	giɾú	gidú	‘s/he fell’
	deɾəm	ðegóme	‘jaw’
	eɬapəɾa	eɬapəgá	‘nail’
	ŋəɾa	ŋga	‘urine’
	gabəɾia	gʒv́giá	‘s/he is miscarrying’
	garēməɾu	gʒŕmægú	‘s/he got drunk’

2.2.21 /ɾ/

/ɾ/ is a voiced alveolar flap. It does not occur word-initially, word-finally or following a consonant. It is found between vowels and pre-consonantly before voiceless stops and affricates (p t̪ tʃ, k), ð and m. It cannot occur geminated. It is written r in the orthography.

(39)	C__V		V__V	
	artfə́ŋála	‘broken piece of gourd’	ð́rá	‘gourd vine’
	ðəɾðia	‘water lizard with long tail’	aŋora	‘elephant’
	ðəɾmbégʷa	‘lyre’	ðagere	‘large pot for sorghum wine’
	eməɾtá	‘horse’	əmʷəɾíni	‘red-necked cobra’
	ʒɾpúlɜ	‘animal skin’		
	ŋártə́máðá	‘small lizard’		
	ʒkúɾkuriə	‘butterfly’		

2.2.22 /r/

/r/ is an alveolar trill that occurs word-initially, intervocalically, word-finally and pre- and post-consonantly. It can also occur geminated. It is written r in the orthography, even though the same symbol is used for [ɾ] and the two sounds contrast in intervocalic position and pre-consonantal position. It may be syllabic word-initially or word-internally following a consonant, often alternating with a

2 Segmental phonetics and phonology

schwa pronunciation either preceding or following, [ər] or [rə]. When /r/ occurs in the syllable rhyme (either in the nucleus or in the coda), it is tone-bearing. It is not restricted adjacent to vowels. Pre-consonantly, it precedes the stops/affricates [p t tʃ k g] as well as [m n l w]. Post-consonantly, it follows [b d t g k] as part of a complex onset, and [ɾ] when [ɾ] is syllabic and initial.

#__C		#__V	
rða	‘meat’	r3tɬiðu	‘gather together’
ərmeə	‘ribs’	ró	‘stab!’
rlo	‘female goat’	rəmʷə	‘snake, God’
		rátó	‘inherit’
V__C		C__V	
ɬarbapóða	‘lung’	3librí3	‘thread’
ləvartɬɨə	‘fig-like fruit’	aɬəndreá	‘cloven hoof’
ðórtóðéa	‘type of tree’	3tɬiə	‘gum of mouth’
ortɬəl	‘poisonous tree’	aləŋgréma	‘bed’
ləmúrgúrgi	‘type of bird’	3bəlúkriə	‘dove’
g3múrkw3	‘s/he is rolling, sliding’	ɬréa	‘upper arm’
gakarmó	‘s/he was found guilty and fined’		
g3v3rniə	‘s/he is named’		
ɨárlá	‘spear’		
lámberwáðá	‘religious icon, usually stone’		
V__#		V__V	
ðəwər	‘spring (water)’	ara	‘small animal pen made of dirt’
ləmaɬár	‘roof post with two prongs’	g3rəgiə	‘s/he is passing under, pushing through’
ləpér	‘tail’	bətéréká	‘before the day before yesterday’
		lokórá	‘throat’
		ðəbarəla	‘river, stream’

		lurumi	‘chest’
		gʒriðú	‘s/he turned over (once)’
C__C/#		Geminate	
brlágá	‘slime’		
pr	‘very, a lot’		
undrɿtu	‘under’		
tr	‘policeman’		

2.2.23 /w/

/w/ is a voiced labio-velar approximant. It can occur word-initially and between vowels.

(41)	#__V		V__V	
	wáðó	‘poke, pierce, sow!’	gowá	‘he is bad at sports’
	wálá	‘wool, braids’		
	wúndú	‘filter, strain!’	gawótá	‘he is choosing’
	wéndátó	‘watch, see!’	suwójə	‘kind of dance’
	wéndáðú	‘call!’	ɳədəwén	‘deceit’
	wuɿɜ	‘low wall of com- pound’	ogowélá	‘monkey’
	wíjɜ	‘dry dirt, ground’	ðəwí	‘intestines, heart’
			ɜwíɜ	‘type of tree’

There are no lexical sequences of [iw] or [ew], but these sequences can arise in verb forms when the 1sg prefix *e-* abuts a verb root beginning with [w] or when the locative prefix *é-* attaches to a *w*-initial noun.

Geminate /w/ with durative/iterative prefix?

Geminate *w*: is written *bw* in the orthography, and we have previously transcribed it [βw] in Gibbard et al (2009), due to weaker energy in its production. It is certainly a long sound. However, it is not clear that it is a fricative-*w* sequence. Compare the spectrograms of the words *ɳawa* ‘water’ and *ow:a* ‘woman, wife’. In the first case, the [w] has consistent voicing and strong vocalic waveform structure:

In the second case, the waveform is weak, but it is still periodic. Furthermore, the duration of the [w:] is longer.

Therefore, the sound appears to be a long *w*: that has weaker energy due to its length.

2 Segmental phonetics and phonology

2.2.24 /j/

/j/ is a voiced palatal approximant. It is written y in the orthography. It is a plural noun class marker, and appears word-initially in some nouns. [j] does not precede the high vowels [i] or [u]. [j] can appear in coda position, which may be analysed as a diphthong. There are no examples of geminate [j].

(42)	#__V		V__V	
	jəbərɬulɜ	‘type of locusts’	ajén	‘mountain’
	jamala	‘camels’	əwíjɜ	‘friend’
	jɜŋguri	‘chameleons’	ləgaján	‘pebble’
	jomón	‘big, lazy light-colored rats’	wojá	‘type of tree’
	jwalea	‘type of green birds’	lavajó	‘they died’
	C__V		V__C	
	lúwjɜ	‘type of tree’	ðəlájréa	‘type of tree’
	ŋgíljáŋa	‘loudly’	rėj	‘hands’
			ləbəmbɜj	‘yam’

2.2.25 Minimal pairs

Minimal and near minimal pairs illustrating consonant contrasts are given below:

- (43) Labial minimal pairs
- | | | | | |
|----------|---------|---|--------|------------------------|
| p vs. b | gapəgá | ‘s/he is about to weed’ | gabəgá | ‘s/he is strong’ |
| p vs. f | gap:ó | ‘s/he carried’ | gaf:ó | ‘s/he built’ |
| b vs. w | gabəðá | ‘s/he played’ | gawədá | ‘s/he is burning (it)’ |
| b vs. v | ebea | ‘door made from doleib palm’ | eveá | ‘sand’ |
| f vs. v | ðəgəfiə | ‘tree sp. (green with yellow fruit and thorns)’ | ðəviə | ‘tree sp. (large)’ |
| v. vs. w | váðó | ‘shave’ | wáðó | ‘pierce, poke!’ |
- (44) Alveolar/dental minimal pairs

d vs. ð	umədí	‘small biting ant’	úmáðí	‘sharp spear with cerrations’
ḍ vs. d	ḍoátó	‘send, forge!’	doátó	‘speak!’
ḍ vs. ð	uḍəmiə	‘medicine healer’	úðápi	‘tree sp. with white lowers’
ṭ vs. ð	eṭa	‘lake, pool’	eða	‘meat’
ṭ vs. t	oṭeleə	‘spider’	otéleə	‘mat woven from palm leaves’
t vs. ð				
ṭ vs. tʃ	egogóvaṭa	‘I am about to re- turn’	egogóvatʃa	‘I am about to re- turn smthg’
t vs. tʃ				
ḍ vs. dʒ				
d vs. dʒ				

(45) Velar minimal pairs

k vs. g	gakaḍó	‘s/he planted’	gagaðó	‘s/he mixed (food, words)’
---------	--------	----------------	--------	----------------------------

(46) Liquid minimal pairs

ɾ vs. r	wára	‘animal pen’	wára	‘chicken’
ɾ vs. ɽ	ɲgára	‘salt’	ɲáɽáká	‘small lizard’
ɽ vs. l	ɽavəgá	‘seed of ardeb tree’	lavəðá	‘fruit of evəða tree’
r vs. l	wára	‘animal pen’	wála	‘wool, braids’
ɾ vs. l	garága	‘s/he is crawling’	galága	‘s/he is planting’

(47) Nasal minimal pairs

m vs. n	ome	‘fish’	óna	‘small basket’
n vs. ɲ	nádádá	‘roofs of mouth’	ɲadodo	‘neck glands’
ɲ vs. ɳ	ɲále	‘flutes’	ɳále	‘flute’
n vs. ɳ	nəməniə	‘olive tree’	ɳəməneá	‘fruits (like big grape)’

(48) Nasal minimal pairs

nára	‘non-physical hearts, souls’	ɲára	‘thick ropes’
------	------------------------------	------	---------------

3 Syllable structure

Moro allows the following types of syllables:

Table 3.1: Syllable types in Moro.

V	a.ró.bá	‘whey’
N	m.bú	‘go!’
	n.dón	‘when’
R	r.ða	‘meat’
	ɾ.díð	‘dalib fruit’
CR	pr	‘very’
	br.lá.gá	‘slime’
CV	la.və.ra	‘stick’
VC	ɜr.pú.la	‘animal skin’
CVC	e.ma.ðén	‘same age peer’
	ɲárlá	‘spear’

Word-internal consonant sequences are attested, but there are no obstruent-obstruent sequences. All consonant sequences consist of two sonorants or an obstruent and a sonorant. The majority of sonorant-obstruent combinations are coda-onset sequences with rising sonority.

There is one word, *ɜdnið* which has the sequence obstruent-nasal as a coda-onset.

There are several stop-r sequences in which the [r] is either the nucleus or forms a complex onset with the preceding stop.

The sonorant-sonorant sequences are l-m, l-n (one example each) r-m, r-n, r-l, which all have rising sonority. There is also r-m. There are no attested sonorant sequences of falling sonority, such as m-l, m-r, n-l, n-r or l-r. There are no sonorant sequences involving the nasals ɲ and ɲ.

Finally, all the ɾ-C sequences, including ɾ-r and ɾ-r, occur in initial position. This suggests that ɾ functions syllabically in this environment.

There are sequences of three consonants word-internally, all of which include

3 Syllable structure

Table 3.2: Sonorant-sonorant sequences.

l-m	almoʈʃána	‘tobacco pipe’	< Arabic
l-n	əlná	‘room’	< lən:á
r-m	ɣərmɜʈʃiə	‘blindness’	
	kakárma	‘s/he finds guilty and fines’	
r-n	kɜmúrnəniə	‘s/he pretends, acts like’	
	ðórná	‘leather strips, animal skin, patch’	
r-l	ðərlió	‘root, artery’	
r-m	ðərmbéɡ ^w a	‘lyre’	

Table 3.3: C1/C2.

	p	ʈ	t	tʃ	k	b	ɖ	d	dʒ	g	f	v	ð	s	m	n	ɲ	ŋ	l	ɾ	r	ʈ
p																					x	
ʈ																					x	
t																						
tʃ																						
k																					x	
b																					x	
d																x						
dʒ																						
g																					x	
f																						
v																						
ð																						
s																						
m				x		x																
n		x	x				x	x														
ɲ									x													
ŋ										x												
l		x	x		x	x	x	x			x	x			x	x						
ɾ	x	x	x	x	x									x		x						
r		x	x	x	x	x				x	x		x		x	x			x			
ʈ			x	x				x												x	x	

a nasal-stop sequence. While this might suggest that the sequence is a prenasalized stop, it should be noted that stop-r sequences, as in g-r and d-r also occur independently.

Table 3.4: Stop-r Sequences

	ðərmbég ^w a	‘lyre’
gr	aləŋgréma	‘bed’
dr	ándréá	‘saddle’

4 Tone

This chapter describes the phonological characteristics of tone in Moro and regular phonological processes which apply to it. Additional processes involving tone which involve particular affixes are described throughout the grammar.

Moro contrasts two tones, high and low. Tonal minimal pairs are provided in Table 4.1. High tone is marked with an accent ´, whereas low tone is unmarked. This transcription also reflects the distribution and behavior of the tones. High tone can be spread, shifted and trigger downstep in the case of adjacent H tones, whereas low tone is inert.

Perfect minimal pairs contrasting HL with LL or HL with HH have not been noted. Forms that differ by tone and the initial consonant are included here. This may be a gap due to the lower frequency of HL words. There are no tonal minimal pairs for verbs or adjectives, as the distribution of tone on verbs and adjectives is morphologically and prosodically determined, as described for verbs in Chapter 11, particularly in Section ??, and for adjectives in Section 10.1.

4.1 Tone bearing units

Tone bearing units are vowels, but high tone can also appear on nasals and [r] when these are syllabic or occur in a coda. In other positions, the consonants are always low-toned. Nevertheless, there are restrictions on the distribution of high tones on the sonorant consonants.

4.1.1 Nasal tone bearing units

Nasals can bear high tone in word-initial position when followed by a consonant. Contrasts between low-toned and high-toned nasals in this position are observed for [nd] and [ŋg] sequences:

- (1)
- | | | | |
|------|-------------------|-------|--------|
| ńbú | ‘go!’ | | |
| ńdró | ‘sleep!’ | ndá | ‘head’ |
| ńgú | ‘alcoholic drink’ | ńgára | ‘salt’ |
| ńgá | ‘urine’ | | |

Table 4.1: Tone minimal pairs and near minimal pairs

HH vs. LH			
ɽ́rwá	‘goat dung’	ɽrwá	‘testicle’
ðólónɣ	‘iron nail’	ðolónɣ	‘eel’
wára	‘chicken’	wará	‘baobab tree’
LL vs. LH			
ɣəwa	‘young girl’	ɣəwá	‘youth (girls), virginity, purity’
eða	‘meat’	eðá	‘why?’
ɣata	‘dirtiness’	ɣatá	‘very little’
HL vs. LH			
káw:a	‘s/he is urinating’	kaw:á	‘s/he is persuading’
ðwála	‘height’	ðwalá	‘it is tall (ð noun class)’
HL vs. HH			
ðóla	‘rat’	ɣólá	‘tears’
HL vs. LL			
ðóla	‘rat’	ola	‘large covered gourd for milk’
LL(L) vs. HH(H)			
ləmeə	‘flea’	láméə	‘bear-like animal’
ðəra	‘tree sp.’	ðərá	‘vine of gourd’
lwata	‘bat for threshing, beating grain; hoof of camel’	lwátá	‘area for a dance, stick-fighting’
ɣaləɣa	‘song’	ɣáləɣá	‘kingdom’

Nasals in coda position are low-toned, both medially and word-finally, even if the preceding vowel bears high tone:

(2)	Word-internal	Word-final
	ebamba ‘drum’	etám ‘neck’
	ondəðéa ‘lice (on humans)’	ɲgón ‘squirrel’
	ðápúndrí ‘wooden object’	ɲgáp ‘sickness’
	lónḡáḡé ‘bell’	ɽdón ‘pointy back of head’

There is one exception to this pattern in the verb system. Consider the following verbs, conjugated in the proximal imperative and the proximal imperfective, which show a three-way distinction for how nasal-stop sequences are treated with respect to tone. The general grammatical tone pattern for the proximal imperative is that all tone-bearing units are high-toned. The general grammatical tone pattern for the proximal imperfective is that H tone is placed on the first tone-bearing unit, and may spread to a second if the syllable is not closed. If the root begins with a consonant cluster, H tone is placed on the preceding vocalic prefix.

(3)	Proximal Imperative	Proximal Imperfective
a.	ńdrát-ó	k-a-ńdraɽ-a ‘be near to’
b.	ńdr-ó	k-a-ńdr-a ‘sleep’
c.	ɲgát-ó	k-a-ɲgát-eə ‘go away, leave’
d.	ɲgít-ú	k-ʒ-ɲgiɽ-iə ‘let, allow’

In each of these cases, the nasal-consonant sequence is root-initial, as shown by the imperative form, which consists of the verb root and a suffix -ó. This is the position that allows nasals to bear H tone. The first two verbs have high tone on the nasal, but the second two do not. In the imperfective form, the first two verbs have high tone on the nasal, which does not spread. This indicates that the nasal functions as the coda, creating a heavy syllable that prevents further tone spreading. In [c], H tone skips the nasal and appears instead on the first vowel of the root. In [d], the H tone appears on the vowel preceding the root rather than on the first vowel of the root. The nasal-consonant sequence in (4)c may be a prenasalized stop, since it is ignored in terms of tone assignment. The pattern in [d] occurs when initial geminate consonants are followed by a vowel in the root: (*g-á-w:aḡaɽ-a* ‘s/he finds’), indicating that this form is a true NC sequence.

4.1.1.1 Liquid (l and r) tone bearing units

Although the trill [r] can appear word-initially preceding a consonant, there are no attestations of it bearing high tone in that position. However, word-medially [r] can appear in either C __ V or C __ C environments, and can bear tone in these cases:

(4)		Low-toned		High-toned
	# __ C	rða	‘meat’	
	C __ C	brlágá	‘slime’	krmátfú ‘quieten s.o.!’
	C __ V	ʒbəlúkriə	‘dove’	ítříə ‘gum of mouth’
				ʒróðéə ‘coccyx’
				ʒlibríʒ ‘thread’
				ðəbətʃ ^w á ‘(shield made from)
				palm frond’

It is not clear what the syllable structure of these forms is. As the consonant sequence involves a rise in sonority from the stop or flap to [r], this could be construed as an onset. Some words can begin with stop-r sequences. However, it may be that an underlying [ə] vowel has been dropped, with its high tone transferred to the [r], so /ítríə/ → [ítříə]. In slow speech, there is often an [ə].

When [r] appears in coda position followed by a less-sonorant consonant, it can also bear H tone, but only if the preceding vowel is high-toned.

- (5) ár ɲárlá ‘spear’
 ar ɲarléðá ‘dirt’
 ár evártʃəɲé ‘tree sp.’

In word-final position, however, [r] is always low-toned. This is the same pattern as with the nasals.

- (6) ðoɹár ‘snake sp. (yellow, white)’
 ðəwár ‘spring (water)’
 læpér ‘tail’
 əltúr ‘umbilical hernia’
 luɲwʊr ‘small bowl’
 vələðar ‘pull (from here to there)!’

As for [l], it typically bears low tone, even if the preceding vowel is high. When geminate, it is also low-toned.

- (7) ortʃəl ‘poisonous tree’
 ɲwəl ‘sound, tears’
 logəl ‘eagle’
 erél ‘side of face’
 l:oa ‘elbow’

[l] can occasionally bear high tone when in coda position, but only if the vowel following it has been deleted and the [l] recuperates the vowel’s tone, a case of tonal stability. For example, the 3pl object marker *-lo* can reduce or delete its vowel before the instrumental *-ja*.

4.2 Falling tones

Falling tones can appear on words in phrase-final position, but falling tones are not phonologically contrastive with level tones. Nouns with two high tones in a row at the end of the word (HHH or LHH) are pronounced in isolation with a final falling tone. There is variation among speakers with respect to (L)LH. Some speakers do not show a fall, others do.

In the following example, the HHH word at the end of the sentence shows a final fall:

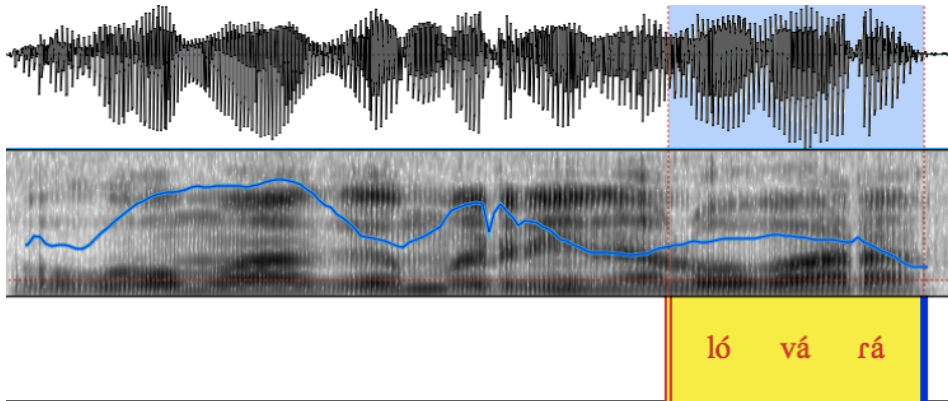


Figure 4.1: *ogóma gzmárniniə lóvárá* ‘the thief is acting like a guinea fowl.’

Words with sequences of LL are pronounced with downdrift, where there is a gradual lowering of f_0 across the word, but no sharp fall.

Falling tones are also observed with the affixes *-lo* (3pl), *-ja* (inst) and *-u* (loc) which attach at the end of verbs. In general, these affixes cause a H tone to be

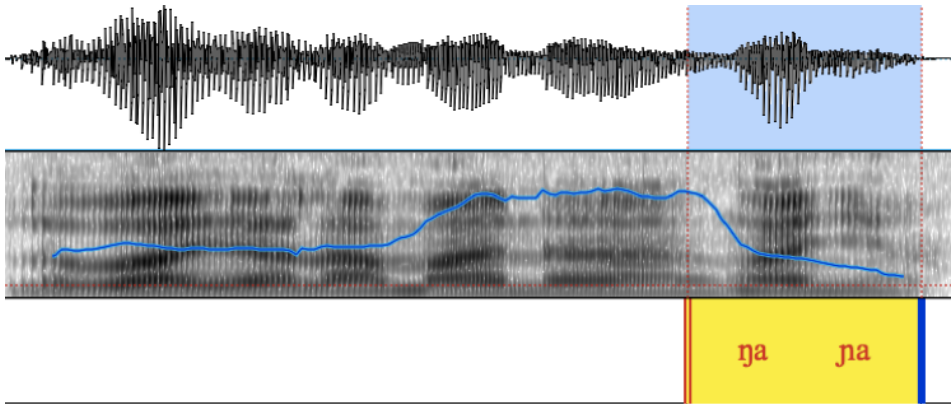


Figure 4.2: *lávaja lamáná ɲaɲa* ‘the poor people are cooking grass’

inserted on the previous syllable if it is otherwise low, as in the following forms:

- (8) *kɜ́ɟɜ́:urt̪iə* ‘he’s waiting for it’
kɜ́ɟɜ́:urt̪iá-lo ‘he’s waiting for them’
kat̪oŋóðeá-ja ‘he’s taking care of it’

When the previous syllable is a single H tone, however, a falling tone occurs on the suffix:

- (9) *g-a-laɬ-ó* [galaɬó] ‘he molded it’
g-a-laɬ-ó-lo [galaɬólô] ‘he molded them’

When the verb forms have a sequence of H tones preceding, there is no falling tone, and the suffixes are low-toned.

- (10) *g-a-láɬ-á* ‘he is molding it’
g-a-láɬ-á-lo ‘he is molding them’
t̪úɾ̪t̪-ú ‘wait for it!’
t̪úɾ̪t̪-ó-lo ‘wait for them!’

4.3 Tone distribution

The tone patterns of nouns and verbs are different. Nouns show a range of different high and low lexical sequences. Verb roots do not contrast for lexical tone. Instead, grammatical tone is imposed on verb stems. We will leave discussion of verb tone for the verb section X when aspect, mood and deixis are outlined.

In the noun system, the main restriction on tone distribution is that two high tones separated by a low cannot occur within a single root (including noun class markers). Exceptions to this are reduplications, such as *ləpáləpá* ‘sandstone’. Adjacent sequences of H tone are possible, and the restriction can therefore be analyzed as one single autosegmental H tone per word, assuming that tone sequences consist of a single H tone that is spread to other vowels. The tone patterns observed are as follows.

(11) LL		HH	
nala	‘grinding stones’	ḏára	‘rope’
ləmbi	‘loincloth’	lépá	‘egg, penis’
oḏa	‘deer sp.’	ḏí	‘skin’
abəl	‘bird sp. that hangs upside down’	ḏówáḏ	‘buffalo’
LH		HL	
ləbú	‘well’	óna	‘small basket’
ḡusí	‘chick’	ḏóla	‘rat’
əḏú	‘breast’	lólonḡ	‘string’
ḡogəl	‘eagles’	él:e	‘feather’

The HL pattern is not as common as the others, and it is often associated with an initial heavy syllable. The LH pattern is also commonly found when the final syllable is heavy. However, as can be seen by the examples, this is a tendency rather than a requirement.

Three syllable words have all possible combinations of L and H except for the unattested HLH. Those of the form HLL, HHL and LHL are less common than the others. This suggests a tendency to favor high tone spreading to the end of the word (Jenks & Rose 2011).

(12) LLL		HHH	
ḏəvəra	‘line’	ḏəb ^w áḏá	‘incense-producing tree’
ebamba	‘drum’	íməḏíə	‘celebration’
laməreḏ	‘non-poisonous snake sp.’	ləḡgəḡé	‘bell’
LHH		LLH	
ḏəbéra	‘cotton’	ḏəbəḡí	‘animal trap weighted with a large flat stone’

4 Tone

3ǫúní	‘hearthstone, oven’	3ǵəðiǵ	‘mill floor’
lambála	hut, shelter	lǝbopwá	‘mushroom’
HLL		LHL	
ǫ́ǵǵuri	‘chameleon’	ǫ́ǵívi	‘bread’
óǵǵ:a	‘plant that causes itching’	3ǵúl3	‘big spear’
áveja	‘spring, rainy season’	laǵóra	‘tomato’
HHL		HLH	
ǫ́ǵála	‘ewe’	★	
lǝbúǵw3	‘water pot, bottle’		

As for words longer than three syllables, similar patterns are found, but again, words with a single H anywhere but the final position are rare.

- (13)
- | | | |
|------|------------|--------------------------------|
| HHHH | ǵǻvándǻǵé | ‘type of dried fruit’ |
| | ǻrtǻǵǻtiǻ | ‘armpit’ |
| LLLL | ǵǻm3ǵǻniǻ | ‘work, job’ |
| | ǫ́abǝlaǵa | ‘thatching tool for smoothing’ |
| LHHH | lǻpǻndǫǵwá | ‘bushbaby’ |
| | ǵaǵábǝlá | ‘small lock’ |
| LLHH | lamatára | ‘support pole’ |
| | ǫ́ǵǻmǻníǻ | ‘sesame granary’ |
| LLH | eǵapǻǵá | ‘nail’ |
| | ebambǻǵá | ‘skull, eggshell’ |
| LLHL | ǵavǻléka | ‘mule’ |
| | alǻǵǵréma | ‘bed’ |
| LHLL | ǻlbǻmbǻǵiǻ | ‘stool’ |
| | lǻǵǵǻl:ǻme | ‘pen, crab’ |
| LHHL | artǻǵála | ‘broken piece of gourd’ |
| | atǻǵǵwára | ‘black bird of prey’ |
| HHLL | lǻf:ǻǵǵǻ | ‘bird sp’ |

4.4 Tone spreading

There are four tonal spreading rules in Moro, two in the nominal system and two associated with verbs.

In the nominal system, a H tone spreading rule is observed with the instrumental/comitative suffix *-Ca*. The C indicates that the consonant agrees in noun

class (Jenks & Rose 2011). The tone of the suffix matches that of the final syllable of the noun. This can be analyzed as tone spreading from the noun stem to the suffix.

Table 4.2: Instrumental –Ca

Final H			Final L		
LH-H	зđú-já	‘breast’	LL-L	eđa-ga	‘meat’
HH-H	ɲíní-ɲá	‘dog’	HL-L	đóɬoŋ-đa	‘agama lizard’
LLH-H	đəŋəlá-đa	‘tongue’	LLL-L	đamala-đa	‘camel’
LHH-H	đəbára-đa	‘cotton’	HLL-L	áveja-ga	‘spring’
HHH-H	ɲəvəní-ɲá	‘blood’	LHL-L	padóla-đa	‘jute’

The locative prefix *é-* (allomorphs: *í, ék-, és-, ég-, ík, ís-, íg-*) spreads high tone rightwards. There are two possible variants of this rule. Either the high tone may spread once to the following syllable, or it may spread to the end of the noun stem (excluding other suffixes), as shown below. In both cases, if the noun contains a LH sequence, H tone spreading halts one syllable away to avoid placing two H tones adjacent to each other, ex. *đəŋəlá é-đəŋəlá*.

Table 4.3: Locative *é-*

Noun	locative		Noun	locative	
đaba	é-đábá	cloud	đəŋəlá	é-đəŋəlá	tongue
đamala	é-đámálá	camel	ogovélá	ék-ógovél	monkey
ɲíní	í-ɲíní	dog	đóɬoŋ	é-đóɬoŋ	agama lizard
ɲəvəní	í-ɲəvən	blood	áveja	ék-áveja	spring
ɲəđəmáná	é-ɲəđəmán	beans	đájála	é-đájála	sheep
etám	ég-ətám	neck	evártəŋé	ék-əvártəŋ	type of tree
đəbára	é-đəbára	cotton	ləŋgəl:əme	é-ləŋgəl:əme	pen
padóla	é-padóla	jute	aɬjəŋ ^w ára	ég-aɬjəŋ ^w ár	‘bird of prey’

The addition of this prefix can condition loss of the final vowel. See details of this prefix in section X.

In the verbs, there are two patterns of H tone spreading. One involves H tone on the stem in proximal imperfective and dependent clause verb forms. The second involves H tone spread from a final perfective vowel to a following object.

If a verb root is of the shape CVC, H tone appears on the root in the proximal imperfective and in dependent clause forms. This H tone is spread or extended one syllable to the right for most verbs. This is typically to the final aspect suffix,

4 Tone

-a or -eə (or vowel harmony variants [ɜ], [iə]).

- | | | | | |
|------|-------------|--------------|-------------|---------|
| (14) | H-H pattern | | H-L pattern | |
| | g-3-sǝǝ-ǝ | ‘defecate’ | g-a-tóǝ-a | ‘move’ |
| | g-a-wáǝ-ǝ | ‘poke’ | g-a-váǝ-a | ‘shave’ |
| | g-a-náǝ-ǝ | ‘taste’ | g-a-sáǝ-a | ‘chew’ |
| | g-a-bwáǝ-ǝ | ‘like, want’ | g-a-nwáǝ-a | ‘watch’ |

However, if the passive, anti-passive or benefactive applicative suffix appears before the final aspect suffix, it will host the H tone. This is the case with both kinds of short verbs:

- | | | | | |
|------|-----|--------------|----------------------|--------------|
| (15) | | Imperfective | Imperfective passive | |
| | H-H | g-a-bwáǝ-ǝ | g-3-bwǝǝ-ǝn-iə | ‘like, want’ |
| | | g-a-wáǝ-ǝ | g-3-wǝǝ-ǝn-iə | ‘poke’ |
| | H-L | g-a-váǝ-a | g-3-vǝǝ-ǝn-iə | ‘shave’ |
| | | g-a-tóǝ-a | g-3-túǝ-ǝn-iə | ‘move’ |

If a perfective verb is followed by an object beginning with a low tone, H tone spreads from the perfective to the following object, as in (19)c,d:

- | | | | |
|------|----|--|-------------------|
| (16) | a. | l-a-mám:-atǝǝ-ǝ | ɲavəɾa |
| | | SM.CLL-RTC-ITER-take-RECIP-IMPV | CLɲ.stick |
| | | ‘they are taking sticks from each other’ | |
| | b. | l-a-pǝǝ-ǝ | lúgi loǝɾa |
| | | SM.CLL-RTC-uproot-IMPV | CLɲ.tree CLɲ.many |
| | | ‘they are uprooting a lot of trees’ | |
| | c. | l-a-m:-atǝǝ-ó | ɲávəɾa |
| | | SM.CLL-RTC-take-RECIP-PFV | CLɲ.stick |
| | | ‘they took sticks from each other’ | |
| | d. | l-a-pǝǝ-ó | lúgi loǝɾa |
| | | SM.CLL-RTC-uproot-PFV | CLɲ.tree CLɲ.many |
| | | ‘they uprooted a lot of trees’ | |

Other verb forms that have already undergone H tone spreading within the verb stem, such as the imperfective, do not condition this cross-word spreading (19)b.

As all these examples involve restrictions on H tone or H tone spreading, and contour tones do not appear phonologically, Jenks & Rose (2011) analyze Moro as a H/0 tone system where low tone is not specified with an autosegmental tone.

In all cases of high tone spreading, it is in the progressive or rightward direction. There are no observed cases in the language of high tone spreading leftwards.

4.5 Downstep

Downstep, or the lowering of a H tone adjacent to another H tone, is observed at some word and stem boundaries in Moro. H tones do not generally delete, but they can lower.

The perfective high tone spreading rule discussed in section 4.4 does not apply if the following noun begins with a high tone. In this case, downstep occurs on the object.

- (17) a. l-a-pəg-ó ↓nódeə noaŋa
 SM.CL1-RTC-uproot -PFV CLN.doleib palm CLN.many
 ‘they uprooted a lot of doleib palm trees’
- b. ŋerá ŋalagó ↓ŋwóréďá
 CLŋ.girl SM.CLŋ-RTC-plant-PFV CLŋ.sesame seed
 ‘the girl planted sesame seeds’

This can be seen in the following sentence in which the HHH object *ŋwóréďá* shows a drop of the H tones to a mid f₀ range following the final H of the verb, but not as low as the low tones of the verb *ŋalagó* preceding it. The final syllable of the sentence shows a falling tone as discussed above.

The other environments for downstep occur within the verb stem.

4.6 Tone stability

Moro shows tonal stability. If a vowel bearing a single H tone is deleted, the H tone appears on a neighboring vowel or sonorant, a phenomenon referred to as tonal stability. Tonal stability occurs when vowels are juxtaposed across morphemes or word-boundaries, and the first vowel deletes. Compare the forms in (a) and (b). In the latter, the subject relative clause marker *é-* is deleted due to the following vowel-initial root, but its high tone appears on the [o] of the root. In (d), the object marker *ŋé-* loses its vowel, and the high tone is recuperated on the preceding vowel rather than the following, a pattern which appears to be unique to high-toned object markers.

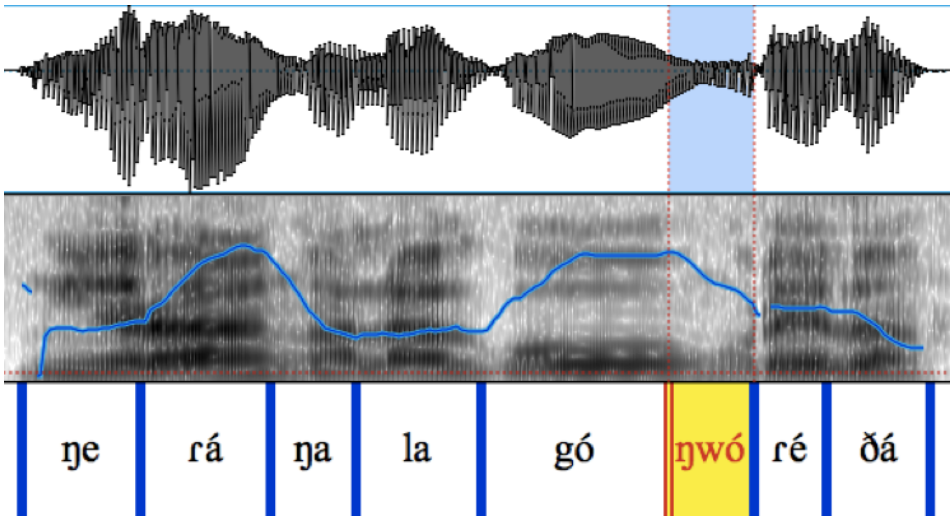


Figure 4.3: *nɛrá ɲalagó ɲwóréḏá* ‘the girl planted sesame seeds’

- | | | | |
|------|---------------|------------|---------------------------------|
| (18) | g-a-ogə́t-ó | [kogə́tó] | ‘s/he jumped’ |
| | g-é-ogə́t-ó | [kóɡə́tó] | ‘... who (sg.) jumped’ |
| | g-3-3wuṭ-3 | [k3wúṭ3] | ‘he is about to drop something’ |
| | g-3-ɲé-3wuṭ-3 | [k3ɲ3wúṭ3] | ‘he is about to drop me’ |

In each case, however, the high tone appears on another host.

In running speech, the same effect is observed across word boundaries:

- (19) lapəgúgi
 l-a-pəg-ó ugi
 SM.CLL-RTC-uproot-PFV clg.tree
 ‘they are uprooting tree’

4.7 Intonation

Intonation interacts with the lexical tone of the utterance, but in a circumscribed manner. In general, the lexical tones are maintained and the entire pitch is raised, except in the utterance-final position.

Declarative utterances and yes/no questions (those to which the response is yes or no) are distinguished by i) a question particle and ii) overall pitch raising. Yes/no questions are often marked with an *-a*, which attaches to the final word in the question. However, the particle is optional, and is not obviously present on

words than end in [a]. The two types of utterances are otherwise distinguished by pitch. Yes/no questions show raised pitch throughout the utterance, falling during the final word. Speakers differ in whether the final fall in pitch occurs over the whole final word or is confined to the final syllable.

Consider the following two utterances and the pitch tracks associated with them. The higher (black) pitch track is a yes/no question, and the lower (red) pitch track is the declarative utterance. The two utterances are identical in terms of segments and lexical tones, but differ in overall pitch. The question has much higher overall pitch than the declarative, although both fall in utterance final position. This shows that questions do not show final raising. The tone peak represents both H tones on *máná*

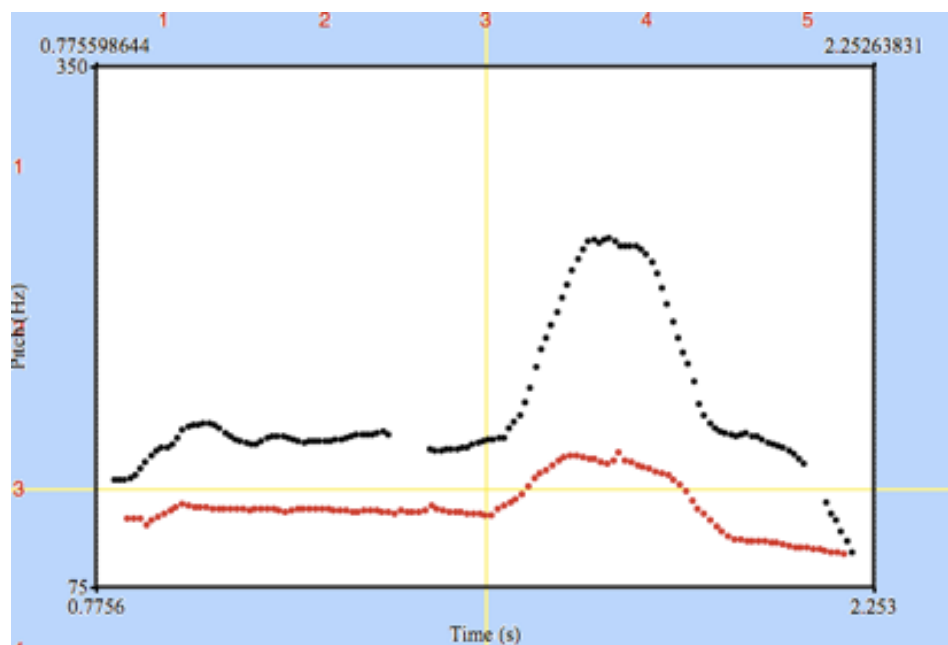


Figure 4.4

This example is similar, but each word has H tones, and each of the H tone peaks are higher in the question version of the utterance.

4 Tone

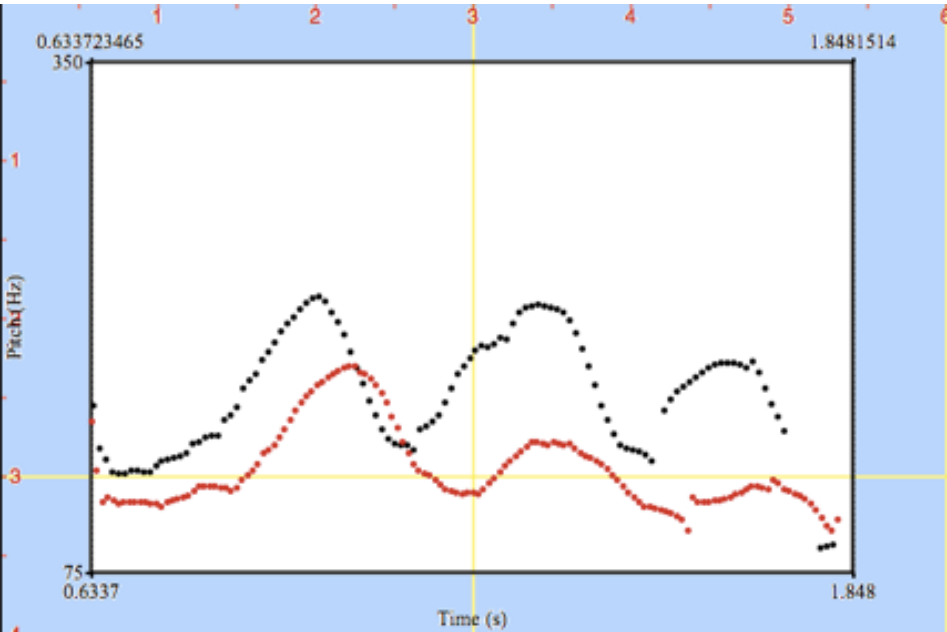


Figure 4.5

5 Phonological Processes

In this chapter, we describe the segmental processes in Moro, those that affect vowels, consonants or the interaction between them.

5.1 Consonant-vowel interaction

5.1.1 Palatalization

Palatalization describes the process whereby consonants are articulated with a palatal off glide [j] (ex. k^j), or shift their articulation to the palatal region, often with a change in manner of articulation.

The vowel /e/ triggers palatalization of a preceding consonant, adding an off-glide. This affects all consonants except /w/ and /j/. This is an automatic process and will not be indicated in further transcriptions.

- | | | | |
|-----|---------|------------|-----------|
| (1) | éle | [élj:e] | ‘feather’ |
| | ámáagéə | [ámággjéə] | ‘scar’ |
| | ðegámé | [ðjegámjé] | ‘jaw’ |
| | ɲelá | [ɲjelá] | ‘oil’ |

The dental stops /t/ and /d/ are palatalized when followed by the causative suffix *-i*, the passive suffix *-ən*, and the benefactive applicative suffix *-əɬ*, as shown in Table 5.1. Verbs which exceptionally do not show palatalization are given in Table 5.2. All three suffixes also trigger vowel harmony. No other schwas or [i] trigger palatalization in the language, so this is a lexical process.

If the passive suffix follows the applicative, it can trigger palatalization of the applicative: *k-and-ɪf-in-ú* ‘it was caught for’.

Other sequences of [t] or [d] followed by [i] do not show palatalization:

- | | | | | |
|-----|--------|-----------------|---------|-----------|
| (2) | ðáɾɿ | ‘anus’ | uməɾɿn | ‘co-wife’ |
| | ɪɬəlɪ | ‘year’ | ɪɬəvínɪ | ‘shoe’ |
| | kəɬɪðú | ‘s/he threaded’ | | |

Table 5.1: Palatalization triggered by extension suffixes

	Perfective	Causative perf.	Passive perf.	Applicative perf.
‘lick’	k-a-təŋaʔ-ó	k-3-təŋ3ʃf-í	k3-təŋ3ʃf-in-ú	k-3-təŋ3ɕɕ-íʔ-ú
‘prep. soil’	k-a-raʔ-ó	k-3-r3ʃf-í	k-3-r3ʃf-in-ú	k-3-r3ɕɕ-íʔ-ú
‘sew’	k-a-waʔ-ó	k-3-w3ʃf-í	k-3-w3ʃf-in-ú	k-3-w3ɕɕ-íʔ-ú
‘repair’	k-a-dogaʔ-ó	k-3-dug3ʃf-í	k-3-dug3ʃf-in-ú	k-3-dug3ɕɕ-íʔ-ú
‘tend’	k-a-rəmwəʔ-ó	k-3-rəmwəʔf-í	k-3-rəmwəʔf-in-ú	k-3-rəmwəɕɕ-íʔ-ú
‘find’	k-a-w:aðaʔ-ó	k-3-w:3ð3ʃf-í	k-3-w:3ð3ʃf-in-ú	k-3-w:3ð3ɕɕ-íʔ-ú
‘watch’	k-a-wəndaʔ-ó	k-3-wənda3ʃf-í	k-3-wənda3ʃf-in-ú	k-3-wənda3ɕɕ-íʔ-ú
‘jump’	k-ogəʔ-ó	k-ugəʔf-í	—	k-ugəɕɕ-íʔ-ú
‘throw’	k-3wuʔ-ú	k-3wuʔf-í	k-3wuʔf-in-ú	k-3wuɕɕ-íʔ-ú
‘enter’	k-ənt-ú	k-əntf-í	k-əntf-in-ú	k-əndɕɕ-íʔ-ú
‘dance’	k-a-rəʔ-ó	k-3-rəʔf-í	—	k-3-rəɕɕ-íʔ-ú
‘close’	k-a-lanɖ-ó	k-3-l3ndɕ-í	k-3-l3ndɕ-in-ú	k-3-l3ndɕ-íʔ-ú
‘send’	k-a-ɖoaʔ-ó	k-3-ɖu3ʃf-í	k-3-ɖu3ʃf-in-ú	k-3-ɖu3ɕɕ-íʔ-ú

Table 5.2: Exceptions with no palatalization

	Perfective	Causative perf.	Passive perf.	Applicative perf.
‘drink’	k3-ʔ-ú	k3-ʔ-í	k3-ʔ-ən-ú	k3-ʔ-əʔ-ú
‘cough’	k3-ʔund-ú	k3-ʔund-í	—	k3-ʔund-əʔ-ú
‘plant’	ka-kaɖ-ó	k3-k3ɖ-í	k3-k3ɖ-ən-ú	k3-k3ɖ-əʔ-ú

The proximal subordinate suffix *-i* (a raised version of */-e/*) does not palatalize a preceding dental stop, whether that stop is root-final, or is in the applicative affix (c).

- (3)
- | | Perfective | Subordinate | |
|----|-------------|-------------------|-------------|
| a. | k-ənt-ú | ... ʔəŋ-ənt-í | ‘enter’ |
| b. | k-3wuʔ-ú | ... ʔəŋ-3wúʔ-í | ‘throw’ |
| c. | k3-k3ɖ-əʔ-ú | ... ʔəŋə-k3ɖ-əʔ-í | ‘plant for’ |

The proximal imperfective diphthong suffix *-ia*, which occurs with roots with high vowels, also does not condition palatalization:

- (4) a. kɜ́túrɕiə 's/he is waiting'
 b. kɜ́vɜ́ɲɕiə 's/he is entering'
 c. kɜ́rómáðitɕiə 's/he is filling a hole'

The consecutive imperfective complementizer prefix *t̪ʰ* occurs word-initially and is also never palatalized, even when followed by the 1st person subject prefix *i-*:

- (5) a. t̪ʰ-í-við-ú 'and I vomited'
 b. t̪ʰ-í-tund-ú 'and I coughed'

In addition to vowels affecting consonants, palatal consonants can also affect vowels. Before the alveopalatal affricates [tʃ] and [dʒ], /a/ is articulated with a palatal off-glide [j]:

- (6) labatʃó [labajtʃó] 'they lifted'
 áɕʰv́á(ɲ) [ájɕʰv́áɲ] 'sorghum porridge, food'
 gadʒ́v́á [kajdʒ́v́á] 's/he doesn't know'

5.1.2 Rounding

The short central vowels [ə] and [ɘ] are rounded when followed by a labialized consonant, but not in all cases. Consider the following verb paradigms. The labialization of the final root consonant is suppressed before an *-o* or *-u* suffix, but appears to transfer to the vowel of the root in the imperative (9)a-f. However, if there is no labialized consonant, no rounding occurs (9)g-h.

- (7)
- | | imperfective | perfective | imperative | |
|----|---------------------------|----------------|------------|-----------------------|
| a. | g-abə́r ^w -a | g-abə́r-ó | ábə́r-ó | 'fly' |
| b. | g-abə́ɕ ^w -a | g-abə́ɕ-ó | áboɕ-ó | 'climb up' |
| c. | g-3-bə́gw-3 | g-3-bə́g-ú | búg-ú | 'hit' |
| d. | g-3-də́rw-3 | g-3-də́r-ú | dúr-ú | 'stop, stand' |
| e. | g-3-tʃə́ndəɲw-3 | g-3-tʃə́ndəɲ-ú | tʃə́ndúɲ-ú | 'go down' |
| f. | g-3-mú́rk ^w -3 | g-3-mú́rk-ú | mú́rk-ú | 'roll, slide' |
| g. | g-a-bə́r-á | g-a-bə́r-ó | bə́r-ó | 'touch' |
| h. | g-a-tʃə́ð-á | g-a-tʃə́ð-ó | tʃə́ð-ó | 'chop furniture legs' |

In addition, labialized consonants that appear before [ə] or [ɘ] in the root are realized as [u] in the imperative:

5 Phonological Processes

(8)	imperfective	perfective	imperative	
a.	g-a-mwén-á	g-a-mwən-ó	mwén-ó	‘suck, lick’
b.	g-3-mwə́t-3	g-3-mwət-ú	mú́t-ú	‘sip’
c.	g-a-wə́t-á	g-a-wət-ó	ó́t-ó	‘choose’
d.	g-3-wə́r-3	g-3-wər-ú	ú́r-ú	‘dig, bury’

This also accounts for the alternation between [udʒi] ‘man/woman’ (Elyasir’s pronunciation) and [wədʒi] ‘woman’ (Angelo’s pronunciation).

The vowel /ɜ/ is rounded to [ɔ] following and preceding labialized consonants. Phonologically it is transcribed as /wɜ/ (see above), but phonetically, it is pronounced [wɔ].

5.2 Vowels

In this section, we outline vowel hiatus resolution and vowel harmony.

5.2.1 Vowel hiatus resolution

When two vowels become adjacent due to morpheme concatenation or across word boundaries, the sequence is repaired by deletion, glide formation, or fusion. Across word boundaries and in the verb/adjective morphology, the first vowel is deleted. In nominal morphology, deletion, glide formation and fusion occurs depending on the nature of the vowels.

5.2.1.1 Vowel deletion

Vowel deletion will be addressed first, beginning with sentences. No matter the quality of the two vowels, the first vowel is always deleted and the second one maintained:

- (9) Subject + Verb
- (10) Verb + Adverb kadanó aṭen [kadanáṭen] ‘he was quiet’
- (11) Verb + Postposition/particle
- (12) Verb + Noun

- | | | | |
|----|--------------------|------------------|----------------------------------|
| a. | k-a-w:aðat-ó evəla | [kaw:aðat évəla] | ‘he found the wild cat’ |
| b. | k-a-w:aðat-ó ugi | [kaw:aðat úgi] | ‘he found the tree’ |
| c. | k-uəndit-ú evəla | [kuəndit évəla] | ‘he listened to the wild cat’ |
| d. | ánə-w:aðat-e ugi | [ánəw:aðat ugi] | ‘(that) he finds the tree’ |
| e. | ánə-w:əð-i ugi | [ánəw:əð ugi] | ‘(that) he makes find the tree’ |
| f. | ánə-w:əð-i ʒtúli | [ánəw:əð ʒtúli] | ‘(that) he makes find the spear’ |

Word-internally, the same effect is observed. In examples a-f, the root clause markers *a-/ə-*, *é-/i-* delete in favor of the first vowel of the root. In examples g-h, the vowel of the object marker is deleted.

- | | | | | | |
|----|------------------|-------|-----|--------------|---------------------|
| a. | k-a-erl-ó | /a-e/ | [e] | [kerló] | ‘he walked’ |
| b. | k-ə-ilið-ú | /ə-i/ | [i] | [kiliðú] | ‘he bought’ |
| c. | k-é-ar-ó | /é-a/ | [á] | [káró] | ‘...who cried’ |
| d. | k-é-ogət-ó | /é-o/ | [ó] | [kógətó] | ‘...who jumped’ |
| e. | k-í-ənt-ú | /í-ə/ | [é] | [kénú] | ‘...who entered’ |
| f. | k-í-udən-ú | /í-u/ | [ú] | [kúdənú] | ‘...who farted’ |
| g. | k-ə-ji-əwu-ú | /ə-ə/ | [ə] | [kəjəwuú] | ‘he dropped me’ |
| h. | k-ə-ji-ilið-ət-ú | /ə-i/ | [i] | [kəjiliðətú] | ‘he bought for you’ |

5.2.1.2 Glide formation

The locative affix *-ánó* triggers glide formation if the first vowel is peripheral /i e u o/ (15)a-d, but vowel deletion if it is central /ə ə a/ (15)e-g.

(13)

- | | | | | | |
|----|-------------|--------|------|--------------|----------------------------|
| a. | ðugi-ánó | /i-á / | [já] | [ðugjání] | ‘inside the plank’ |
| b. | ome-ánó | /i-á / | [já] | [omjání] | ‘inside the fish’ |
| c. | umu-ánó | /u-á/ | [wá] | [umwání] | ‘inside the Arab (derog.)’ |
| d. | ɲombogó-ánó | /o-á/ | [wá] | [ɲombogwání] | ‘inside the calf’ |
| e. | utrə-ánó | /ə-á/ | [á] | [utrání] | ‘inside the pig’ |
| f. | əwírə-ánó | /ə-á/ | [á] | [əwírání] | ‘inside the tree sp.’ |
| g. | əɲorá-ánó | /á-á | [á] | [əɲorání] | ‘inside the elephant’ |

5.2.1.3 Vowel fusion

The demonstrative suffix *-íC:i* (C = noun class concord consonant) shows reduction to [ə] with peripheral vowels (16)a-d or vowel fusion with central vowels (16)e-f.

5 Phonological Processes

- (14)
- | | | | | | |
|----|--------------|-------|-----|--------------|---------------|
| a. | ðugi-íð:i | /i-í/ | [ə] | [ðugəð:i] | ‘this plank’ |
| b. | ome-ík:i | /e-í/ | [ə] | [omək:i] | ‘this fish’ |
| c. | zðu-ís:i | /u-í/ | [ə] | [zðəs:i] | ‘this breast’ |
| d. | ηombogó-ín:i | /ó-í/ | [ə] | [ηombogəη:i] | ‘this calf’ |
| e. | ðuw:3-íð:i | /3-í/ | [ə] | [ðuwəð:i] | ‘this smoke’ |
| f. | ðapa-íð:i | /a-í/ | [ə] | [ðapəð:i] | ‘this friend’ |

It is hard to tell which vowel has been deleted since all peripheral vowels may reduce to [ə] (Gibbard et al 2009). When V1 is central, however, vowel fusion appears to take place, producing a central, but raised [ɜ].

5.2.2 Vowel reduction

The high vowels /i u/ centralize and reduce to [ə] and the mid vowels /e o/ may reduce to [ə]; they are both transcribed here as [ə]. Vowel reduction is variable, but occurs between consonants. It is often triggered by the addition of affixes, but may also occur across words, particularly in the verb - object configuration.

- (15) Between words
karənó ηáwá → [karənə ηáwá] ‘s/he swallowed water’

Singular forms that begin with one of the vowels /i e u o/ show reduction to [ə] with the addition of a plural prefix /n-/:

- (16)
- | | | | |
|----|----------|----------|----------------|
| | singular | plural | |
| a. | ibəgwə | n-əbəgwə | ‘back of knee’ |
| b. | ebamba | n-əbamba | ‘drum’ |
| c. | uməní | n-əmɰəní | ‘tree sp.’ |
| d. | otf:a | n-ətʃ:a | ‘milk pot’ |

Reduction occurs after the progressive prefix *v-* in (19)a, and locative prefix *ék-/ík-* in (19)b,c. The object marker *ɲé* causes reduction of the preceding vowel /ó/ when attached as a suffix in (19)d, but it reduces itself when attached as a prefix in (19)e.

- (17) Affixes
- | | | | |
|----|--------------------|--------------------|----------------------------------|
| a. | gílið3 ġ3vəlið3 | ‘s/he is buying’ | |
| b. | irəŋ | ‘name’ | ík-ərəŋ ‘in name’ |
| c. | ebamba | ‘drum’ | ék-əbámabá ‘in drum’ |
| d. | lanatʃó-ɲé lavəðá | [lanatʃəɲé lavəðá] | ‘s/he gave me a fig’ |
| e. | la-ɲé-natʃa lavəðá | [laɲənatʃa lavəðá] | ‘s/he is about to give me a fig’ |

5.2.3 Epenthesis

The vowel [ə] (or [ɐ] under harmony) is inserted to break up consonant sequences, and to aid in the pronunciation of initial geminates. Some verb roots begin with geminate consonants. When they occur in the imperative with no prefixes, [ə] is inserted before obstruent geminates. There are also some nouns that appear to have epenthetic vowels.

(18)	Verbs	Nouns
	és:ó ‘eat!’	és:í ‘eye’
	ép:ú ‘beat!’	ér:á ‘lizard’
	éw:í ‘boil!’	és:iá ‘fire’
	ét:ú ‘drink!’	əw:ɜgá ‘threshing floor’

The other case of initial [ə] involves consonant sequences with initial liquids: /rɪ/ /rm/ /ɾt/ /ln/, /lt/, /lt/ and /ld/. These sometimes alternate with CəC. They may be considered epenthesis or metathesis (switching of ə and the first consonant).

(19)	əCC	CəC	
	árl-ó	g-a-rəl-á	‘bear fruit/have rash, scabs’
	árlát-ó	g-a-rəlát-a	‘stomp, trample’
	ərmeə		‘rib’
	értú		‘gazebo, shade structure’
	əlná	lən:á	‘room’
	əltú		‘shelter’
	əltóléa		‘cheek, shouting’
	əltúr		‘umbilical hernia’
	əltəmiá		‘barren woman’
	əltəmiá		‘termite mound’
	əldəmáná		‘bean’

Epenthesis also occurs between consonant sequences that arise through morpheme concatenation.

5.2.4 Vowel harmony

Thetogovela Moro has a vowel harmony system that is productive, even applying to loanwords. The ‘lower’ set of vowels /e a o/ raise to the higher counterparts /i ɜ u/ respectively. In addition, phonetic evidence suggests that there are two kinds of schwa, a lower /ə/ which patterns with /e a o/, and its alternate, a higher

5 Phonological Processes

/ə/ that groups with /i ɜ u/ according to harmony (see Ritchart & Rose to appear for more details).

Unlike other Kordofanian languages, such as Tocho (REF) or Acheron (REF), there are no contrastive distinctions within the same height category, such as /e/ and /ɛ/ or /i/ and /ɪ/, contrasts which are assumed to involve the feature Advanced Tongue Root (ATR).

Vowel height can be measured acoustically by using the first formant. A low first formant (F1) corresponds to a higher vowel, whereas a high F1 corresponds to lower vowel. Vowel backness corresponds to the second formant, or F2; low F2 corresponds to a backer vowel. The mean F1 and F2 values of the vowels for one male speaker (Elyasir Julima) are given below, plotted in a chart. The higher vowels [i] and [u] have a lower F1 than their lower counterparts [e] and [o]. The same is true for the peripheral vowels [ɜ] and [ə] versus [a] and [ɔ].

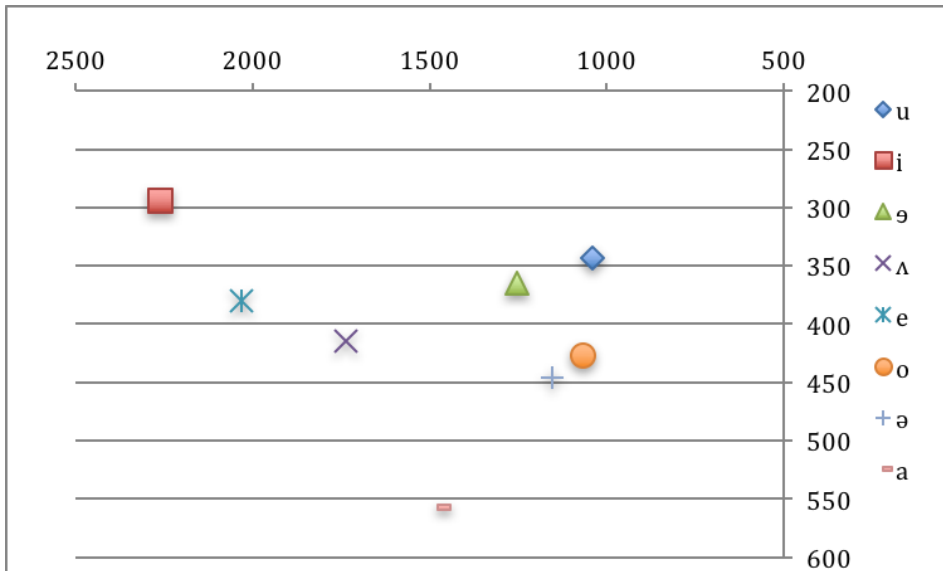
Table 5.3: Mean F1 of higher vowels

Vowel	Mean F1	Standard Deviation	Mean F2	Standard Deviation
i	293.23	25.96	2263.32	125.49
u	343.13	38.45	1042.03	166.41
ə	365.21	49.03	1253.44	253.10
ɜ	414.62	50.55	1737.46	171.09

Table 5.4: Mean F1 of lower vowels

Vowel	Mean F1	Standard Deviation	Mean F2	Standard Deviation
e	379.67	55.58	2030.30	85.58
o	426.08	65.16	1068.93	133.06
ə	445.77	44.09	1154.88	179.26
a	556.87	74.29	1477.02	127.66

The vowel ɜ is acoustically in the mid range, even though it patterns with the higher vowels for the purposes of vowel harmony. Allowing for the fact that back vowels are generally lower than front vowels acoustically, the vowels fit into the basic descriptive categories as follows:



(20)

	front	central	back
high	i		u
high-mid		ɐ	
mid	e	ɜ	o
low-mid		ə	
low		a	

We treat the vowels ə and ɐ as central because they can be subject to some coarticulation. The examples in the above chart were followed by back round vowels, which lowered their F2.

The vowel harmony system can be understood by examining prefixes and suffixes that alternate depending on harmony. Harmony pervades the nominal and verbal systems. In both, the root controls harmony, but in both systems, there are some suffixes that condition raisin.

5.2.4.1 Vowel harmony in noun stems

Prefixes that attach to nouns harmonize with the vowels of the noun stem. The locative prefix that appears on nouns is a clear example. This prefix may be either [e] or [i] in accordance with the vowels of the noun stem:

5 Phonological Processes

- (21)
- | | | | | | |
|----|------------|-------------------|----|---------|----------------|
| a. | é-lógopájá | ‘in the cup’ | e. | í-lútí | ‘in the owl’ |
| b. | é-ḡáná | ‘in the milk’ | f. | í-ḡí | ‘in the thorn’ |
| c. | é-ḡéj | ‘in the hand’ | g. | í-ḡóviá | ‘in the lion’ |
| d. | é-ḡám | ‘in the squirrel’ | h. | í-ḡwáḡ | ‘in the sign’ |

Like the locative prefix, the genitive prefix also harmonizes. This prefix is of the shape *Ca-* (the *C* represents noun class agreement) and raises when attached to nouns with higher vowels. The prefix attaches to the possessor, but the consonant agrees with the noun class of the possessed. Whether the possessed has high vowels or not does not affect the pronunciation of the genitive prefix. The vowels of the possessor are from the lower set (/a e o/), so no raising applies:

- (22)
- | | | |
|------------|----------|----------------------|
| ajén | ja-ḡál:o | ‘Ngalo’s mountain’ |
| rápá | ra-ḡál:o | ‘Ngalo’s friends’ |
| ládéə | la-ḡerá | ‘the girl’s hat’ |
| rápá | ra-ḡerá | ‘the girl’s friends’ |
| lubálbálíə | la-ḡerá | ‘the girl’s earlobe’ |
| rágí | ra-ḡerá | ‘the girl’s wounds’ |

When the possessor has a higher vowel, however the genitive prefix is realized as [C₃]

- (23)
- | | | |
|-------|------------------------|---------------------|
| ajén | j ₃ -kúku | ‘Kuku’s mountain’ |
| rápá | r ₃ -kúku | ‘Kuku’s friends’ |
| ḡádéə | ḡ ₃ -ləm:iə | ‘the boys’ hats’ |
| rápá | r ₃ -ləm:iə | ‘the boys’ friends’ |

There are also some noun class prefixes that harmonize. In general noun class prefixes are consonants, and they are categorized according to the type of consonant. However, Gibbard et al (2009) argue that the *j* noun class is characterized by vocalic prefixes. The singular has the prefix *a-* and the plural the prefix *e-*, as follows:

- (24)
- | | | |
|-----------|-----------|---------------------------------------|
| singular | plural | |
| a-jén | e-jén | ‘mountain’ |
| á-rómá | é-rómá | ‘black biting ant’ |
| a-ṭándreá | e-ṭándreá | ‘cloven hoof’ |
| a-bəl | e-bəl | ‘type of bird that hangs upside down’ |

If the root has high vowels, the prefixes are *ɜ-* and *i-* respectively:

- (25)
- | | | |
|------------|------------|--------------------|
| singular | plural | |
| 3-bulúkriə | i-bulúkriə | ‘dove’ |
| 3-túmí | i-túmí | ‘onion’ |
| 3-mwəríní | i-mwəríní | ‘red-necked cobra’ |
| 3-ðú | i-ðú | ‘breast’ |

Harmony does not affect most nominal suffixes. The instrumental or comitative suffix *-Ca* agrees for noun class with the noun to which it attaches and has the same tone as the final syllable of the noun stem. However, it does not undergo vowel harmony. This is in clear contrast with the genitive *Ca-* prefix, which takes the same segmental shape.

- (26)
- | | | | |
|------------|--------------------|----------|----------------------|
| nəbamba-na | ‘with the drums’ | ʒtúl3-ja | ‘with the big spear’ |
| áróm-já | ‘with the anthill’ | l3mí-lá | ‘with the beard’ |
| emərtá-gá | ‘with the horse’ | ɲusí-ɲá | ‘with the chick’ |

The demonstrative suffix is *-íC:i*. It also agrees in noun class with the noun to which it attaches. The initial vowel of the suffix fuses with the final vowel of the noun stem. However, it does not trigger vowel harmony.

- (27)
- | | | | |
|---------|------------|-------------|----------------------|
| ðamala | ‘camel’ | ðamal3ð:i | ‘this camel’ |
| lókógóɲ | ‘scorpion’ | lókógóɲ3l:i | ‘this scorpion’ |
| ðərliə | ‘root’ | ðərliəð:i | ‘this root’ |
| lúti | ‘owl’ | lúti:l:i | ‘this owl’ [lút3l:i] |

The same goes for the other demonstrative suffixes, the distal *íC:ʒtiC:ʒ* and the proximal to hearer *íC:ʒj*.

Possessive pronoun suffixes indicate the person of the possessor. They also agree for noun class, but do not participate in harmony, either as triggers or as targets. Consider the following paradigms:

- (28)
- | | |
|----------|-------------------|
| 1SG | lókógóɲ-íl:əɲəlɲ |
| 1DUAL | lókógóɲ-íl:əɲəlɲ |
| 2SG | lókógóɲ-íl:ol:e |
| 3SG | lókógóɲ-íl:ɔɲəlɲ |
| 1PL.EXC. | lókógóɲ-íl:apɲapɲ |
| 1PL.INC. | lókógóɲ-íl:əndɲí |
| 2PL | lókógóɲ-íl:al:e |
| 3PL | lókógóɲ-íl:enlen |

The possessive suffixes are complex, composed of two components: *íC*, which may be the demonstrative suffix, and a pronominal-type suffix, which itself is often reduplicated and contains one or two consonants showing noun class agreement. Vowel harmony operates within the second component, so that all the vowels are low or high, but there is no harmony between the *íC*: portion and the second component.

There is one group of suffixes that does participate in harmony, both as triggers and as targets: the inalienable possessives. Inalienable possessives are affixes that indicate inherent possession. In Moro, they attach to kinship terms; these kinship words always appear with a suffix.

The first four nouns (a-d) all have low vowels, and the suffixes also contain low vowels. There is no vowel harmony observed in the forms in (e-f), even though the noun roots contain high vowels. This is like the behavior observed with other suffixes. However, in (g-h), vowel harmony applies to the *first* vowel of the suffix. The main distinction appears to be the size of the noun stem, which is monosyllabic in (g-h), compared with bisyllabic in (e-f). Harmony in inalienable possession operates rightward, or in the progressive direction, within a two syllable window.

(29)	1EX	2	3	
a.	eṭ-áɲ	eṭ-aló	eṭ-én	‘father’
b.	was-áɲ	was-aló	was-én	‘wife’
c.	eváŋg-áɲ	eváŋg-aló	eváŋg-én	‘husband’
d.	or-áɲ	or-aló	or-én	‘sibling/cousin’
e.	iðjəŋg-áɲ	iðjəŋg-aló	iðjəŋg-én	‘offspring(sg.)’
f.	údɔ́r-áɲ	údɔ́r-aló	údɔ́r-én	‘uncle/aunt’
g.	un-ɔ́ɲ	un-ɔ́ló	un-ín	‘parent-in-law’
h.	ib-ɔ́ɲ	ib-ɔ́ló	ib-ín	‘sibling-in-law’

The 1dual inclusive and 1plural inclusive forms are indicated by suffixes with high vowels, which trigger harmony on the root in the regressive direction, observable on the forms in a-d, which contain underlying low vowels.

(30)	1DUAL INC.	1PL INCL.	
a.	it̪-ɜ́lɔŋ	it̪-ɜ́lɔŋ-ɔ́ndr	‘father’
b.	wɜ́s-ɜ́lɔŋ	wɜ́s-ɜ́lɔŋ-ɔ́ndr	‘wife’
c.	ivɜ́ŋg-ɜ́lɔŋ	ivɜ́ŋg-ɜ́lɔŋ-ɔ́ndr	‘husband’
d.	ur-ɜ́lɔŋ	ur-ɜ́lɔŋ-ɔ́ndr	‘sibling/cousin’
e.	iðjəŋg-ɜ́lɔŋ	iðjəŋg-ɜ́lɔŋ-ɔ́ndr	‘offspring(sg.)’
f.	údɔ́r-ɜ́lɔŋ	údɔ́r-ɜ́lɔŋ-ɔ́ndr	‘uncle/aunt’
g.	un-ɜ́lɔŋ	un-ɜ́lɔŋ-ɔ́ndr	‘parent-in-law’
h.	ib-ɜ́lɔŋ	ib-ɜ́lɔŋ-ɔ́ndr	‘sibling-in-law’

The regressive harmony pattern is not restricted in terms of how many vowels it can affect, as seen in (c). Vowel harmony in inalienable possessives is therefore distinct from how harmony operates in other nominal forms. First, it can apply to suffixes, albeit in a restrictive manner, and second, it can be triggered by suffixes and affect roots. The vowel harmony system is therefore not just root-controlled, but exhibits a pattern known as ‘dominant-recessive’, in which one particular harmonic value is dominant. In this case, it is the harmonic value of the high vowels, and this justifies the term ‘raising’ in characterizing the harmony system.

The domain of vowel harmony in the noun is as follows. Prefixes and inalienable possessive suffixes participate in harmony, but other suffixes do not.

(31) [LOC-GEN-NC.ROOT-INAL.POSS]-POSS-DEM-INST

5.2.4.2 Vowel harmony in verb stems

Both prefixes and suffixes alternate in harmony according to the harmonic quality of the vowel of the verb root. The following verb forms contain roots with one vowel as well as three affixes: the 1sg subject marker /é-/ , the root clause marking prefix /a-/ and the perfective suffix /-ó/. Roots with the vowel /a e o ə/ co-occur with prefixes and suffixes with these same vowels. However, if the root has a high vowel /ɜ́ i u ə/, then the prefixes and suffixes are raised to their higher counterparts. This type of system can be termed root-controlled. We will justify the form of the underlying vowels and the use of the term ‘raising’ to characterize the harmony when we present suffixes that trigger raising of root vowels.

(32)

	lower vowels		higher vowels.	
a.	é-g-a-vað-ó	‘I shaved’	d. í-g-3-v3g-ú	‘I miscarried’
b.	é-g-a-veð-ó	‘I knocked’	e. í-g-3-kið-ú	‘I opened’
c.	é-g-a-toð-ó	‘I woke up’	f. í-g-3-turt-ú	‘I waited for’
b.	é-g-a-bær-ó	‘I touched’	e. í-g-3-dær-ú	‘I stood, covered’

As with the nouns, all prefixes participate in vowel harmony. These include all subject markers, clause markers, object prefixes, and the durative/iterative reduplicative prefix. The forms below illustrate the subject markers and the root clause marker *a-*, which alternates with *3-*:

(33) SM.CLG-RTC -root-PFV

	‘woke up’	‘waited for’
1SG	é-g-a-toð-ó	í-g-3-turt-ú
2SG	á-g-a-toð-ó	3-g-3-turt-ú
3SG	g-a-toð-ó	g-3-turt-ú
1DU	álá-g-a-toð-ó	3lá-g-3-turt-ú
1PLEXC	ɲá-g-a-toð-ó	ɲ3-g-3-turt-ú
1PLINC	álá-g-a-toð-ó-r	3lá-g-3-turt-ú-r
2PL	ɲá-g-a-toð-ó	ɲ3-g-3-turt-ú
3PL	l-a-toð-ó	l-3-turt-ú

More complex forms with object prefixes and the durative/iterative prefix are given below. These verb forms would occur in subject wh-questions of the form ‘who is poking X?’. The clause marker is /é-/ , followed by the object prefix, the durative/iterative prefix *CaC-*. All the prefixes harmonize.

(34) SM.CLG-DPC1-OM-ITER-ROOT-IMPV

	‘.. is poking X’	‘..is waiting for X’
1SG	g-é-ɲá-ðað-ðəw-a	g-í-ɲ3-ɖ3t-turt-iə
2SG	g-é-ɲ3-ðað-ðəw-a	g-í-ɲ3-ɖ3t-turt-iə
3SG	g-é-ɲó-ðað-ðəwa	g-í-ɲú-ɖ3t-turt-iə
1DU	g-é-ndá-ðað-ðəwa	g-í-nd3-ɖ3t-turt-iə
1PLEXC	g-é-ɲá-ðað-ðəwa-landa	g-í-ɲ3-ɖ3t-turt-iá-landa
1PLINC	g-é-ndá-ðað-ðəwa-r	g-í-nd3-ɖ3t-turt-iə-r
2PL	g-é-ndá-ðað-ðəwa	g-í-nd3-ɖ3t-turt-iə
3PL	g-é-ðáð-ðəwa-lo	g-í-ɖ3t-turt-iá-lo

Not all suffixes harmonize. The aspect-mood-deixis suffixes are a single vowel, either /e/, /a/, and /o/, which harmonize to /i/, /3/ or /iə/, and /u/ respectively.

5 Phonological Processes

- b. í-g-3-kɜ́d-í
1SG-CL-RTC-plant-CAUS.PFV
'I made s.o. plant'
- c. í-g-3-kɜ́d-ə́t-ú
1SG-CL-RTC-plant-APPL-PFV
'I planted for s.o.'
- d. ŋ-3-kɜ́d-ən-ú
SM.CL-RTC-plant-PASS-PFV
'it (corn) was planted'

Vowel harmony extends to the beginning of the word, but is more restricted in the progressive direction, affecting only the aspect-mood-deixis suffix. It fails to extend to object markers (b-c) or the instrumental suffix -ja (c-e)

- (39)
- a. é-g-a-veð-ə́-ŋá 'I slapped you sg.'
 - b. í-g-3-bug-ə́-ŋá 'I hit you sg.'
 - c. g-3-dɜ́r-ə́-ló-ja 's/he covered them with it'
 - d. g-3-dɜ́r-ə́-ja 's/he covered it with it'
 - e. g-3-dɜ́r-t-ú-ŋá-ŋó-ja 's/he covered me with it for him/her'

The locative suffix -u, although high, does not trigger raising, but forms a diphthong with the preceding vowel.

- (40) g-a-vádað-á-u 's/he is sweeping in it'

The domain of vowel harmony is therefore the entire verb excluding the final suffixes (see Rose 2013, Jenks & Rose to appear). Triggers are italicized.

[COMP-SM-CLASS-CLAUSE-AMD-OM/PROG-ITER-ROOT-AP-LOC.APPL-CAUS-APPL-PASS-AMD]-PL-OM-INST-LOC

5.2.4.3 Vowel harmony in loanwords

Many Arabic loanwords have been incorporated into Moro, and they conform to the vowel harmony system, too. There are also some words borrowed from English or neighboring Kordofanian languages. With Arabic nouns, the definite article *al* is usually borrowed along with the noun. If the noun is a member of the *j/j* class, *a* is reinterpreted as the noun class marker and alternates with *e* (or *ɜ* alternates with *i* with higher vowels) in the plural, ex. *a-ləŋgréma* < /al-ʔangareḡb/ has the plural *e-ləŋgréma* and *ɜ-túmi* 'onion' < *atuum* 'garlic' has the plural *i-túmi* 'onions'. If the Arabic word contains mismatched low and high

vowels such as *i* and *a*, it is generally the penultimate vowel or the long vowel that determines the harmony pattern. A good comparison is the word for ‘book’, where /aa/ determines the harmony, and that for ‘church’, where the long /ii/ determines the harmony, and raises other vowels:

- | | | | | |
|------|-----------|--------------------|-----------|-----------------------|
| (41) | áḍámá | ‘book’ < al kitaab | 3lk3nís3 | ‘church’ < al kaniisa |
| | aləŋgréma | ‘bed’ | 3lb3l3ḍiə | ‘country’ |
| | alfásəl | ‘room’ | 3lbúní | ‘coffee’ |
| | alfərára | ‘small hatchet’ | 3túmi | ‘onion’ |
| | almoṭfána | ‘tobacco pipe’ | | |
| | bantalón | ‘trousers’ | | |

Exceptions

- | | |
|-----------|----------|
| tʃiwáfa | ‘guava’ |
| burtugána | ‘orange’ |

5.3 Consonants

5.3.1 Devoicing

Sonorants and /ð/ are the only consonants routinely found word-finally. /ð/ is devoiced in this position:

- | | | |
|------|---------|---------------------------|
| (42) | laməreθ | ‘non-poisonous snake sp.’ |
| | eréθ | ‘piece of clothing’ |

There are only a few cases of other obstruents occurring word-finally, due to a word-final vowel that has been deleted. The /g/, but not the /v/ is devoiced:

- | | | |
|------|---------|------------------------------------|
| (43) | ekworəv | ‘even more, additional’ |
| | ékomák | ‘in the snail’ (cf. omágá ‘snail’) |

Geminate obstruents, with the exception of [ð:], are voiceless. If a geminate is formed by juxtaposition of two identical voiced obstruents, devoicing occurs, as in (24)a-d. This happens with the iterative/durative prefix on verbs, which is takes the shape CaC, where the C is a copy of the first consonant of the root. With respect to /v/, the devoicing is optional, but it is obligatory with the stops and affricates:

5 Phonological Processes

(44)	3PL imperfective	3PL iterative imperfective	
a.	l-a-bár-á	l-a-báp-pər-a	‘touch’
b.	l-a-dórn-a	l-a-dát-tərn-a	‘press’
c.	l-a-ɕóm-á	l-a-ɕáɸ-ɸom-a	‘move’
d.	l-a-vələð-a	l-a-váf-fərleð-a	‘pull’
		l-a-váv-vəleð-a	
e.	l-a-ðəw-á	l-a-ðáð-ðəw-a	‘poke’

5.3.2 Post-nasal hardening

The fricative /ð/ is hardened to [ɖ] following /n/ or /l/. Distributionally, /ð/ only occurs after rhotics, not after nasals or /l/. Evidence that /ð/ hardens comes from singular and plural nouns. Each singular noun begins with a consonant or a vowel, which is the noun class marker; the plural is marked with a different consonant or vowel. The noun class is determined by this prefix, but also by the concord/agreement markers that appear on the verb or modifying elements. The following pairs show that when the root begins with /ð/, and the prefix is /n/, the /ð/ is realized as [ɖ]. Furthermore, the example in c shows that the sequence /l-ð/ can be realized as [nɖ]. This does not always occur, and [ə] may instead intervene to separate the consonants: *ləðwə/ɲəðwə* ‘trunk of tree sg/pl’

(45)	noun class	singular	plural	gloss
a.	g/n	úðópí	ńɖápí	‘tree sp. with white flowers (metaphor for grey hair)’
b.	g/n	oða	nɖwa	‘deer sp.’
c.	l/ɲ	nɖəmana	ɲəðəmana	‘kidney bean’
		əlɖəmáná	nəðəmáná	‘bean’

5.3.3 Stop insertion

The stop [d] is inserted between /n-r/ or /n-r/ sequences.

(46)	singular	plural	
	úrðíə	ńdrðíə	‘gazelle sp.’
	eréθ	ndréθ	‘clothes’
	íríə	ńdríə	‘fence, garden’
	írínɟ	ndrínɟ	‘name’

5.3.4 n-l avoidance

The sequence n-l does not occur in Moro, and when two morphemes come together that juxtapose these two sounds, there are avoidance strategies, where /n/ is unrealized.

There are several prefixes /n-/ or /nə-/ which fail to appear if the root or stem begins with /l/.

The locative prefix n(ə-) cannot appear before a noun beginning with /l/:

- (47) nə-nəmərɿ́á ‘on the horse’
 nə-ðamala ‘on the camel’
 loandra ‘on the stone’ *n-loandra

The complementizer *n(ə)*- cannot appear on words that begin with /l/. This complementizer optionally appears on subjects and verbs in wh-questions and dependent clauses. In a,b, the *nə* can appear, but in c., when the 3PL subject marker is l-initial, it systematically fails to appear. Note that if the plural noun class is changed as in (d), the *nə* appears.

- (48) a. ηwándák:i nə-g-ə-s:-ó
 what.CLg COMP-SM.CLg-DPC2-eat-PFV
 ‘What did he eat?’
 b. ηwándák:i nə-g-ə-s:-ó
 what.CLg COMP-SM.CLg-DPC2-eat-PFV
 ‘What did he eat?’
 c. ηwándák:i l-ə-s:-ó
 what.CLg SM.CLl-DPC2-eat-PFV
 ‘What did they eat?’
 d. ηwándák:i nə-ɲerá nə-ɲ-ə-s:-ó
 what.CLg COMP-SM.CLɲ.girl COMP-SM.CLɲ-DPC2-eat-PFV
 ‘What did the girls eat?’

The consecutive perfective verb form is marked by a complementizer *n(ə)*-. The consecutive perfective is used to indicate an action that sequentially follows another in the perfective. The verb forms below could be used in a construction such as ‘X got mad and X left’. The root is preceded by a subject agreement prefix, and the complementizer, which fails to appear in the 3PL, as the subject marker is *lə*-:

5 Phonological Processes

- (49)
- | | |
|----------|-------------|
| 1SG | n-e-ṭáð-é |
| 1DU.INC. | n-alə-ṭáð-é |
| 1PL.EXC. | nə-ṭa-ṭáð-e |
| 3SG | n-əṇə-ṭáð-é |
| 3PL | lə-ṭáð-e |

5.3.5 Dissimilation and rounding

Moro exhibits dissimilation for rounding or labial features. There are two kinds of rounding dissimilation. The first involves the prefix /v-/ and the second involves round vowels and labialization. Dissimilation can have two effects: a change in the feature or quality of a segment or tone, or the deletion or failure of a segment or tone to appear.

5.3.5.1 Prefix v-

The labial prefix *v-* appears before vowel-initial roots in the proximal imperfective. We gloss *v-* as ‘progressive’, but it is unclear what its exact meaning is; in most instances, its presence does not cause a change in meaning. In many cases it is optional. It is transcribed [b] in ‘Werria’ dialect (Guest 1997)

- (50)
- | Imperfective | Root | |
|----------------------|----------|------------------------|
| a. k-a-v-ád-á | ad | ‘collect water, fruit’ |
| b. k-a-v-áj-á | aj | ‘die’ |
| c. k-a-v-áləṇ-a | aləṇ | ‘sing’ |
| d. k-a-v-árl-a | erl | ‘have’ |
| e. k-3-v-ənd-iə | ənd | ‘catch’ |
| f. k-3-v-ərn-iə | ərn | ‘be named’ |
| g. k-3-v-əg-iə | əg | ‘put’ |
| h. k-3-v-əlið-3 | ilið | ‘buy’ |
| i. k-3-v-əndətfɪn-iə | indətfɪn | ‘try’ |

Note that the *v-* appears before roots that begin with /a e ɜ i/. However, the *v-* systematically fails to appear before any vowel-initial root that contains a round vowel [o] or [u] (typically in initial position):

(51)	Imperfective	Root	
a.	k-ogáḵ-a	ogaḵ	‘light a torch’
b.	k-odáḡ-a	odaḡ	‘squat, kneel’
c.	k-or-a	or	‘mate’
d.	k-urtáð-iə	urtəð	‘pull out’
e.	k-udáð-ə	udəð	‘milk’
f.	k-ug-i	ug	‘fence off’
g.	k-ánduð-ə	ənduð	‘bite’

In addition, *v-* cannot appear before a root containing a labial consonant /p b f v w m/:

(52)	Imperfective	Root	
a.	k-ap:-a	ap:	‘carry’
b.	k-əbər-iə	əbər	‘release’
c.	k-áf:-a	af:	‘build, shoot’
d.	k-avəl-a	avəl	‘be sour’
e.	k-əwút-ə	əwuḵ	‘throw, drop’
f.	k-ámadaḵ-a	amadaḵ	‘help’
g.	k-íb-iə	ib	‘pay dowry’
h.	k-adzəv-á	adzəv	‘not know’
i.	k-ákəm-a	akəm	‘judge’
j.	k-aləf-a	aləf	‘swear’

This restriction is systematic, and it is interpreted as a dissimilation effect, similar to that observed in other languages such as Tagalog, in which the infix *-um-* fails to appear if the initial root consonant is a labial sonorant (Schacter & Otanes 1972):

(53)	pagod	‘tired’	pumagod	‘to fatigue, weary’
	mahal	‘expensive’	*mumahal	

5.3.5.2 Labialized consonants and round vowels

As noted above, labialized consonants in verb roots do not appear directly before suffixes *-o* or *-u*. In nouns, labialized consonants show co-occurrence restrictions with round vowels. Some singular nouns that begin with [o] and [u] correspond to plurals with labialized consonants (noted in Schadeberg 1981:89, Gibbard et al 2009). The vowel-initial nouns are members of the *g*-class. They show concord using *g* or *k*, and historically had a velar initial consonant which

5 Phonological Processes

was lost. The plural is marked by either *n-* or *l-* (*/l/* is realized as [r] preceding liquids). Gibbard et al (2009) argued that the round vowel is not a prefix, but part of the stem based on the behavior of other vowel-initial forms in the same class (cf. Schadeberg 1981, who proposes *u-/l-* and *u-/n-* for *g/l* and *g/n* classes). It reduces to [ə] or deletes after the consonant prefix *n-* or *l-* or *ǵ-*.

(54)

Noun class	singular	plural	
<i>g/n</i>	odəgala	ndəg ^w ala	‘turtle’
<i>g/n</i>	oṭəmba	nṭəmb ^w a	‘ostrich’
<i>g/n</i>	ola	nəlwa	‘covered gourd for milk’
<i>g/n</i>	oba	nəbwa	‘spring, small water hole’
<i>g/n</i>	onda	ndwa	‘leather handcover on stick-fighting stick’
<i>g/n</i>	úmáǵí	nəm ^w áǵí	‘sharp serrated spear’
<i>g/n</i>	umədí	nəm ^w ədi	‘small biting ant’
<i>g/l</i>	ópá	lóp ^w á	‘grandmother’
<i>g/l</i>	óráŋ	rr ^w áŋ	‘gentleman’
<i>g/l</i>	uṭrɜ	ləṭr ^w ɜ	‘pig’
<i>g/l</i>	uṭáǵíə	lṭṭ ^w áǵíə	‘grandfather, elder’

Some class pairings show the opposite pattern with a labialized consonant in the singular and around vowel in the plural. These are members of the noun class pairing *ǵ/g*, which designates the class of trees. It is assumed that the vowel is reduced with the addition of *ǵ-*.

(55)

Noun class	singular	plural	
<i>ǵ/g</i>	ǵəbórwá	óbərá	‘tree sp. with long thin branches’
<i>ǵ/g</i>	ǵəlwára	ólára	‘tree sp.’
<i>ǵ/g</i>	ǵələl:wəjírí	uləl:əjírí	‘tree sp.’
<i>ǵ/g</i>	ǵəlwəndrí	uləndrí	‘tree sp.’

One analysis of these data could be that reduction of the round vowel results in labialization of the following consonant: *ǵolára* → [ǵəlwára] ‘tree sp.’ or another consonant *noṭəmba* → [nṭəmb^wa] ‘ostriches’, a form of preservation of the round feature. However, the following forms demonstrate that reduction can occur without labialization:

(56)	Noun class	singular	plural	
	g/l	um:iə	ləm:iə	‘boy, child’
	g/l	uɖʒi	ləɖʒi	‘person’
	g/l	ome	ləme	‘fish’
	g/l	ómóná	lámóná	‘tiger, leopard’
	g/n	oɸ:a	nəɸ:a	‘milk pot’
	g/n	ondəðéə	ndəðéə	‘louse’
	g/n	oɖəlónǵá	nɖəlónǵá	‘fox’
	g/n	uɖəmiə	nɖəmiə	‘witch doctor’
	ð/g	ðágǵálá	ógǵálá	‘tree type’
	ð/g	ðəlájréa olájréa	‘tree type’	

Some of these forms either have another round vowel in the word, or the labializable consonant is followed by a front vowel, which tends not to co-occur with labialization. However, this still leaves half the words with no clear explanation for their failure to labialize if labialization were the result of reduction. If, however, lack of labialization were due to dissimilation, then labialization would be expected in the forms with no round vowels, but fail to appear if there is a round vowel in the word. The words in (31) have no underlying labialized consonants, so no labialization appears if there is no round vowel. This predicts that labialization should appear in both singular and plural in other noun pairs without initial round vowels, and this is the case.

(57)	Noun class	singular	plural	
	g/l	evartwa	ləvartwa	‘blacksmith’
	g/n	ibəgwǵ	nəbəgwǵ	‘back of knee, raincloud’
	ð/r	ðəbwatǵá	rəbwatǵá	‘groin’
	ð/j	ðərmbég ^{wa}	ərmbég ^{wa}	‘lyre’
	j/j	əmwəríni	imwəríni	‘red necked cobra’

Finally, there are some round vowels that do not reduce and no labialization is observed in either form. It is not clear why there is no reduction.

(58)	Noun class	singular	plural	
	g/n	ógǵǵá	nógǵǵá	‘tool for ploughing’
	g/n	odələ	nodələ	‘small gourd bowl for oil’
	g/n	umiə	numiə	‘shellfish’

However, sequences of *oCwa* and *uCwə* are commonly attested in nouns in non-initial position: (*aɸǵǵwǵá* ‘bird of prey’ or *ləpúǵwǵ* ‘valley’) in both sin-

gular and plural. These do not appear to be due to the vowel triggering labialization, as there are sequences of *oCa* and *uCɜ* with no labialization, ex. *ðoga* ‘root of doleib palm’ or *ðopa* ‘star’ or *ðɜbərɬulɜ* ‘locust’. There are also a few examples of /u/ and /o/ co-occurring with labialized consonants at a distance: *lumbɜlwɜ* ‘calabash bowl’, *órɜpwá* ‘nesthole in tree’, *lɜgundəŋwɜ* ‘drumstick’. We suggest that the *oCwa* and *uCwɜ* are due to rounding of a short central vowel [ə] due to coarticulation with the labialized consonant. If this is correct, then these round vowels will be different in length from those that appear initially. There are two problematic examples for this hypothesis: *omwátá/nəmwátá* ‘centipede’ and *omwarɜŋá/ləmwarɜŋá* ‘Moro person’. These are almost identical to words like *omágá/nəmwágá* ‘snail’.

5.3.6 Dissimilation and voiceless consonants

Thetogovela Moro has a dissimilation pattern involving voiceless stops and affricates. When two voiceless stops or affricates are juxtaposed across an intervening vowel, the first one becomes voiced. This is observed with both prefixes and suffixes, and there is also evidence for word-internal static effects.

5.3.6.1 Locative prefix *ék-*

The locative prefix *é-* has the allomorphs *ék-* or *és-* before vowel-initial nouns, depending on the noun class. The allomorph *ék-* occurs before vowel-initial nouns of the *g*-class:

(59)	Noun		Locative+noun	
	ómóná	‘tiger’	ék-ómón	‘in the tiger’
	ogovélá	‘monkey’	ék-ógovél	‘in the monkey’
	evəðá	‘tree sp.’	ék-əvəðá	‘tree sp.’

However, when it appears before a vowel-initial noun whose first consonant is voiceless, the /k/ dissimilates to [g]:

(60)	Noun		Locative+noun	
	ɜ́ɬríə	‘gums’	íg-ɜ́ɬríə	‘in the gums’
	etám	‘neck’	ég-ətám	‘in the neck’
	aɬ́ŋgʷará	‘bird of prey’	ég-aɬ́ŋgʷár	‘in the bird of prey’
	ɜ́pwɜ	‘stick-fighting place’	íg-ɜ́pwɜ	‘in the stick-fighting place’

The dissimilation pattern is restricted to apply in a local environment of consonant-vowel-consonant (CVC). If another consonant intervenes, no dissimilation applies:

- (61) Noun Locative+noun
 óráp^wá ‘nest hole’ ék-óráp^wá ‘in the nest hole’
 írtí ‘knife’ ík-órtí ‘in the knife’

Finally, it is not clear if fricatives also condition dissimilation. As voiceless fricatives are infrequent in Moro nouns, there is only one noun of the g-noun class and a voiceless fricative after the initial vowel. Speakers were unsure of whether dissimilation applied or not, allowing both possibilities:

- (62) Noun Locative+noun
 úsílá ‘spirit’ ík-úsílá / íg-úsílá ‘in the spirit’

Dissimilation is not triggered by the demonstrative pronoun *-ík:i*, which attaches to nouns, even though it is possible for suffixes to trigger dissimilation (see next section on verbs).

- (63) Noun Locative+noun
 emərɬá ‘horse’ emərɬɜ-k:i ‘this horse’
 ópá ‘grandmother’ ópɜ-k:i ‘this grandmother’

Dissimilation is also triggered by the applicative suffixes *-əɬ* (benefactive) and *-aɬ* (locative/malfactive). The benefactive applicative is illustrated in the examples. This suffix also conditions vowel harmony and palatalization of a final dental stop. The final consonant of the root is voiced if the applicative suffix follows.

- (64)
- | | 3PL-RTC-root-PFV | | 3PL-root-APPL-PFV |
|----|--------------------------------|-----------------|---------------------|
| a. | l-a-log-ó ‘they said’ | l-3-lug-əɬ-ú | ‘they said for’ |
| b. | l-a-waɬ-ó ‘they sewed’ | l-3-wɜɬɜ-əɬ-ú | ‘they sewed for’ |
| c. | l-a-dogaɬ-ó ‘they repaired’ | l-3-dugɜɬɜ-əɬ-ú | ‘they repaired for’ |
| d. | l-a-ləvəɬ-ó ‘they hid’ | l-3-ləvəɬɜ-əɬ-ú | ‘they hid for’ |
| e. | l-ap-ó ‘they carried’ | l-3b-əɬ-ú | ‘they carried for’ |

There are some exceptions to this pattern.

- (65)
- | | 3PL-RTC-root-PFV | | 3PL-root-APPL-PFV |
|----|---------------------------------|----------------|--------------------|
| a. | l-3-murk-ú ‘they rolled’ | l-3-murkw-əɬ-ú | ‘they rolled for’ |
| b. | l-aləf-ó ‘they promised’ | l-3ləf-əɬ-ú | ‘they promised to’ |

The first case may be due to labialization intervening between the voiceless root consonant and the suffix. As for /f/, as previously stated, it is not clear that fricatives participate in the dissimilation process as triggers, and this example may indicate that they are not targets. However, this is a loanword from Arabic, so it may be an exception due to this reason.

The third example is another suffix that resembles the applicatives. This suffix is *-ə́t* or *-et* (harmonized to *-it*) and appears on the imperative form of adjectives. It does not trigger vowel harmony or palatalization.

- | | | | | |
|------|------------------|-------------------|-------------|--------------|
| (66) | 3PL-RTC-root-ADJ | | root-IMPER | |
| a. | l-a-bə́g-á | ‘they are strong’ | bə́g-é́t-ó | ‘be strong!’ |
| b. | l-obəl-á | ‘they are short’ | óbəl-é́t-ó | ‘be short!’ |
| c. | l-a-bə́tʃ-á | ‘they are white’ | bə́tʃ-é́t-ó | ‘be white!’ |
| d. | l-3-tʃ-á | ‘they are bad’ | tʃ-it-ú | ‘be bad!’ |
| e. | l-a-t-á | ‘they are small’ | t-é́t-ó | ‘be small!’ |

There is only one noted case of dissimilation involving this suffix as most adjectives do not end in voiceless consonants. The example in (41)c can be used in the imperative but its meaning is odd, as it means to be white momentarily. A preferred form is that with a durative prefix, as to be white is considered a state. The two adjectives in (41)d and e do not show voicing. This may be due to the consonant being word-initial or due to the fact that it is a single consonant.

The fourth example involves the durative/iterative reduplicative prefix *CaC-*, which attaches to verb roots. The first consonant of the root is copied, and the first root consonant is geminated; the *C* in *CaC* stands for the copied consonant:

- | | | | |
|------|-----------------------------|---------------------------------|--------|
| (67) | 3PL imperfective | 3PL DUR/ITER. imperfective | |
| a. | l-a-m ^w ándəð-eə | l-a-mám-m ^w ándəð-eə | ‘ask’ |
| b. | l-a-ðáw-á | l-a-ðáð-ðəw-a | ‘poke’ |

If the first root consonant is voiceless, one would expect the copy of the consonant to be voiceless as well. However, dissimilation applies to the first consonant of the prefix, changing it to voiced:

- | | | | |
|------|------------------|----------------------------|-----------------|
| (68) | 3PL imperfective | 3PL DUR/ITER. imperfective | |
| a. | l-3-pwə́ll-iə | l-3-bə́p-pwə́ll-iə | ‘hollow a hole’ |
| b. | l-a-távəð-a | l-a-đát-távəð-a | ‘spit’ |
| c. | l-a-təð-a | l-a-dát-təð-a | ‘leave’ |
| d. | l-a-kə́v-á | l-a-gák-kə́v-a | ‘pinch’ |

If the first root consonant is a voiced stop or affricate, the geminate devoices as geminate stops and affricates are voiceless in Moro. The first consonant of the prefix is not voiceless to match that of the geminate. If it were, it would create the environment for dissimilation to apply.

- | | | | |
|------|------------------|----------------------------|---------|
| (69) | 3PL imperfective | 3PL DUR/ITER. imperfective | |
| a. | l-a-bár-á | l-a-báp-pər-a | ‘touch’ |
| b. | l-a-dáŕn-a | l-a-dát-tərn-a | ‘press’ |
| c. | l-a-ɖóm-á | l-a-ɖátʃ-ʃom-a | ‘move’ |

As for voiced fricatives, /ðð/ does not devoice, but /vv/ does, producing [ff]. The voicing of the fricative can either match the [ff] or not, again providing evidence for optionality or ambiguity regarding the participation of fricatives in dissimilation.

- | | | | |
|------|------------------|----------------------------|--------|
| (70) | 3PL imperfective | 3PL DUR/ITER. imperfective | |
| | l-a-váléð-a | l-a-váf-fərleð-a | ‘pull’ |
| | | l-a-fáf-fərleð-a | |

Therefore, due to the devoicing of geminates, the prefix has the same pattern of *voiced-V-voiceless* geminate regardless of the original voicing of the root consonant.

The dissimilation pattern is not observed in the imperative, where the consonants of the prefix are all voiceless. This may be due to the word-initial position of the prefix.

- | | | | |
|------|------------|--------------------|-----------------|
| (71) | Imperative | Durative-iterative | imperative |
| a. | pwáll-í | páp-pwáll-í | ‘hollow a hole’ |
| b. | káv-ó | kák-káv-ó | ‘pinch’ |
| c. | ṭáváð-ó | ṭát-ṭáváð-ó | ‘spit’ |
| d. | ṭáð-ó | ṭát-ṭáð-ó | ‘leave’ |
| e. | bár-ó | páp-pər-ó | ‘touch’ |
| f. | dáŕn-ó | tát-táŕn-ó | ‘press’ |
| g. | ɖóm-ó | ṭátʃ-ʃóm-ó | ‘move’ |
| h. | váléð-ó | fáf-fárléð-ó | ‘push!’ |

There is some evidence that the dissimilation pattern holds within roots as well. From a database of 1200 words, 117 occurrences of stops and affricates co-occurring across a vowel (CVC configuration) were noted in verb, adjective, adverb and noun roots. Observed/Expected ratios were calculated to test whether

there is underrepresentation of particular combinations. An O/E ratio less than one indicates underrepresentation.

(72) Static restrictions

	Voiceless	Voiced
Voiceless	9 (O/E = 0.46)	26 (O/E = 1.70)
Voiced	57 (O/E = 1.23)	25 (O/E = 0.70)

This pattern shows that voiceless-voiceless combinations are underrepresented, but so are voiced-voiced combinations, whereas the combinations of voiceless and voiced are overrepresented. The nine examples of voiceless-voiceless are as follows:

(73) Exceptions to dissimilation

óp:áťó	‘defend!’
ťéťó	‘follow!’
pwáťfáďú	‘fold!’
pwáťú	‘make a shelter, mend (patch), hammer, put out!’
ťéťám	‘truth’
băťukăluŋ	‘long time ago’
eteto	‘always’
etăkwă	‘day after tomorrow’
érékákíi	‘day before yesterday’

However, almost all of these words can be explained as reasonable exceptions. In the verbs, geminates cannot undergo devoicing. The two verbs that begin with [pw] may not meet the adjacency requirement due to the [w]. This leaves only *ťéťó*. The word *ťéťám* has an alternate form *ďéťám*, showing vacillation between respecting dissimilation and respecting a preference for initial voiceless consonants. Finally, all the adverbs show evidence of being compound words. The word *băťukăluŋ* < *băťe* ‘never’ + *ukăluŋ*. The word *érékákíi* < *éréká* ‘yesterday’ + *íkíi*, which is the distal demonstrative pronoun. The word *etăkwă* < may be formed from *eto* ‘every time’ + the same pronoun, with transfer of the labial component of the vowel. Finally, *eteto* < *eto+eto* ‘every time’ reduplicated. Indeed, reduplicated names such as *kúk:u*, *ťúťu* and *kaka* also do not dissimilate.

Part II

Nouns and noun phrases

6 Nouns and nominal morphology

This section surveys the grammatical properties of nouns in Moro, including their distribution into noun classes, kinship terms, and nominal morphology.

Phonologically, most nouns in Moro are two or three syllables long. Single, monosyllabic nouns are infrequent, and are of the form CV, CVC or CCV. There are no single V nouns. Nouns of four or more syllables are also less common than the two or three syllable nouns.

(1) Consonant-initial nouns		Vowel-initial nouns	
ǫí	‘thorn’		
lɜmí	‘beard’	ege	‘house’
ɲaməlá	‘mark, stain’	itɛlí	‘year’
lɜmakóɲé	‘type of dance’	odəlóná	‘fox’

The distribution of tone within the nouns was discussed in section XX on tone.

6.1 Noun classes

Like other Kordofanian languages, Thetogovela Moro has a rich noun class system. Every noun in Moro is assigned to a noun class, which is typically characterized by a single consonant prefix or vowel prefix. Some vowel-initial nouns, however, had consonant prefixes historically, but these have now disappeared. The noun classes correspond loosely to semantic classes, such as humans, animals or trees. Most nouns have singular and plural forms which differ in noun class prefix marking. For example, the word ǫí ‘thorn’ has a plural rí ‘thorns’ with a different consonant. Some nouns, however, have a single invariant form.

In addition to the prefix that appears on every noun, noun class agreement or concord is observed, in which subject markers on the verb and some words or affixes modifying the noun match the noun class prefix found on the noun itself, as illustrated below:

- (2) Noun class concord

6 Nouns and nominal morphology

- a. η - $\acute{\eta}$ n $\acute{\eta}$ - η : $\acute{\eta}$ η - $\acute{\epsilon}$ -t- $\acute{\alpha}$ η -ob $\acute{\epsilon}$ $\acute{\delta}$ - $\acute{\omicron}$
 CL-dog-CL.DEM SM.CL-DPC1-small-ADJ SM.CL-run-PFV
 ‘this small dog ran away’
- b. δ -amal $\acute{\epsilon}$ - δ : $\acute{\eta}$ δ -e-t- $\acute{\alpha}$ δ -ob $\acute{\epsilon}$ $\acute{\delta}$ - $\acute{\omicron}$
 CL-dog-CL.DEM SM.CL-DPC1-small-ADJ SM.CL-run-PFV
 ‘this small camel ran away’
- c. η - $\acute{\eta}$ n $\acute{\eta}$ - η : $\acute{\eta}$ η -e-t- $\acute{\alpha}$ η -ob $\acute{\epsilon}$ $\acute{\delta}$ - $\acute{\omicron}$
 CL-dog-CL.DEM SM.CL-DPC1-small-ADJ SM.CL-run-PFV
 ‘these small dogs ran away’

The noun *η ání* ‘dog’ belongs to the class η , and this consonant is repeated in the demonstrative, the subject marker on the adjective, and the subject marker on the verb (2a). In (2b), a different noun *δ amala* ‘camel’ belongs to the class δ , and this consonant is used throughout the sentence. In (2c), the plural of (2a) is demonstrated. The word *η ání* is the plural ‘dogs’, a member of noun class η .

Each singular noun class is paired with a plural noun class. The following tables illustrate the noun classes, both invariant forms and singular/plural class pairings that we have identified (Gibbard et al 2009). There are eight main class pairings, five minor ones, and five single invariant classes. Note that when the initial sound of the noun is a vowel, the concord prefix is always a consonant:

The following table provides the five invariant classes, many of which are mass nouns or abstract nouns. In addition, the infinitive form is included as a noun class since it can serve as a subject and show noun class concord.

Finally, there are four minor noun class pairings and a single invariant noun class with one member.

These noun classes are similar to the ones identified in Black & Black (1971) in their study of the Umm Dorein dialect of Moro (labeled Werria by the Thetogovela speakers). In both dialects, apart from a handful of irregular nouns, consonant-initial nouns have one of a limited set of class prefixes: /l-, δ -, η -, η -, n-, r-, l-, j-/, all sonorants with the exception of the voiced interdental fricative / δ /. Class concord markers are the same set of prefixes with two additional ones: /g-/, which is used with many vowel-initial nouns as well as a few g-initial irregular nouns and /s-/, which is used with j-initial plurals.

A summary of the major concord consonant class pairings is shown in (6):

Previous research on Kordofanian noun classes (Stevenson 1956-7, Schadeberg 1981, Guest 1997, Norton 2000) identified a number of different classes, many of which occur in Moro. Stevenson (1956-7) proposed a Bantu-like system of numeral labels for nouns classes for the Kordofanian system as a whole. Our

Table 6.1: Table of eight main noun class pairings

Class	Initial segment	Concord segment	Singular	Initial segment	Concord segment	Plural	Gloss
g/l	V	g-/k-	evaja uðʒ	l-	l-	lɔvaja ləð ^w ʒ	poor person worm
l/ŋ	l-/ɿ-	l-	lavəra ləbú	ŋ-	ŋ-	ŋavəra ŋəbú	stick well
l/p	l-/ɿ-	l-	lanwaʔa láwá	p-	p-	panwaʔa páwá	water cup mosquito
ð/r	ð-	ð-	ðaba ðápá	r-	r-	raba rápá	cloud friend
ð/j	ð-	ð-	ðamala ðárá	j-	j-, s-	jamala jára	camel rope
g/n	V	g-/k-	oʔʔ:a eməɾʔá	n-	n-	nəʔʔ:a nəməɾʔá	milk pot horse
ŋ/p	ŋ-	ŋ-	ŋerá ŋusí	p-	p-	perá pusí	girl, child chick
j/j	low V	j-, k-, s-	ajén ʒðúní	high V	j-, s-	ején iðúní	mountain hearthstone

classes do not correspond one-to-one with Stevenson's, entailing gaps and additions to accommodate our data. Instead of numerals, we will refer to the patterns of paired noun classes by their concord segments. In the chart in (7) we compare our classification with Guest's for Umm Dorein Moro, and Stevenson's (1956-57) for the Koalib-Moro group (equivalent to the Schadeberg's Heiban group). The semantic properties listed may apply to some members of each class. Some classes include a range of nouns with no clear semantic connection.

Thotegovela Moro		Guest		Stevenson	
Concord	Semantics	Concord	Semantics	Concord	Semantics

6 Nouns and nominal morphology

g/l	people	g/l	people	1. kw(u)-, gw(u)- ; 2. l(i)-	people
n/a	n/a	n/a	n/a	3. kw(u)-, gw(u)- ; 4. c-, j-, y-	nature
l/ŋ	round, long things, fruit	l, lɾ, ɾr, ŋ	long, hollow, deep, round	5. l(i)-; 6. ŋw(u)-	unit/mass
See g/n	n/a	See g/n	n/a	7. k- ; 8. j-, y	
ð/r	some animals, long things	ð/r	long things	-	long things
ð/j	?	ð/j	harmful, large	11. t, d- ; 12. c-, j-, y-	harmful, large
g/n	?	g/n	common things	13. k-, g- ; 14. ny-, n-	hollow, deep
ŋ/p	small animals	ŋ/p	small animals	15. ŋ-; 16. p-	small animals
n/a	n/a	n/a	n/a	15a. t-, tr-	diminutive
n/a	n/a	n/a	n/a	17. ŋ	augmentative
ð	infinitive, abstract, nature	ð	abstract nouns, emotions	19. t(i)-, ð(i)-	infinitive
ŋ	liquids, mass nouns, abstract nouns	ŋ	liquids, abstract nouns	20. ŋ-	liquids, abstract
r/j	goat, etc.	r/j	goat, etc.	21. ŋ- ; 22. y-, j-	goat, etc.
l/n	tooth	n/a	n/a	23. l- ; 24. y-, j-	eye, etc.
j/j	?	j/j	foreign words	25. vowel ; 26. y-, j-, i-	miscellaneous

l/ɲ	animals, body parts, objects	l/ɲ	animals and body parts	n/a	n/a
ð/g	trees, derivatives of trees	ð/g	trees, parts of trees	n/a	n/a

Table 6.5: Noun class semantics and comparison

Because the vowel-initial nouns present particular difficulties in determining the prefix nature of the initial vowel, we will first present the consonant-initial nouns and discuss each noun class in turn with examples.

6.1.1 l/ɲ class

The l/ɲ class contains a variety of round or long objects, some pertaining to water, as well as fruit. Examples are given below:

(3) l/ɲ nouns

- | | | | |
|----|----------------------|----------------------|--|
| a. | laɲwaɬa | ɲaɲwaɬa | ‘watercup’ |
| b. | lórá | ɲórá | ‘creek’ |
| c. | ləbónɲ | ɲəbónɲ | ‘lake’ |
| d. | ləbú | ɲəbú | ‘well’ |
| e. | léd ^w ónɲ | ɲéd ^w ónɲ | ‘back’ |
| f. | ləpér | ɲəpér | ‘tail’ |
| g. | lénna | ɲénna | ‘room’ |
| h. | ləðe | ɲəðe | ‘bone’ |
| i. | ləbreá | ɲəbreá | ‘walking stick’ |
| j. | lavəra | ɲavəra | ‘stick’ |
| k. | ləvəgeá | ɲəvəgeá | ‘anklet’ |
| l. | loandra | ɲoandra | ‘stone’ |
| m. | lúwɟə | ɲúwɟə | ‘type of tree’ (plural is fruit of tree) |
| n. | lavəðá | ɲavəðá | ‘fruit of evəðá tree’ |
| o. | lérúðí | ɲérúðí | ‘grape’ |
| p. | loana | ɲoana | ‘ear of corn, grain’ |
| q. | ləməneá | ɲəməneá | ‘fruit like a big grape’ |

In addition to words beginning with /l/, there are also words in this class that have initial /ɾ/ in the singular:

6 Nouns and nominal morphology

Table 6.2: Table of five invariant single noun class pairings

Class	Initial segment	Concord segment	Singular	Initial segment	Concord segment	Plural	Gloss
η	η-	η-	ηaga ηgára ηaðəna	*	*	*	bottle gum salt arrogance
ð	b-/p-, m-, ð-	ð-	mogwátá	*	*	*	peanut
j	V/s-	j-, k-, s-	ðəbára ibug ^w á	*	*	*	cotton fog
g	V	g-/k-	aveja eveá áηálá	*	*	*	liver sand haze
ð	ð-	ð-	ðáwárðáη ðávóléðáη	*	*	*	writing milking

- (4) a. ɾdjá ηədjá ‘dalib fruit’
b. ɾdó ηədó ‘group’
c. ɾréa ηóréa ‘earth, ground’
d. ɾútuá ηúɾtuá ‘knot’

These words all have a concord consonant /l/, ex. *ɾdjá-la* ‘with dalib fruit’ or *ɾdjá-li* ‘this dalib fruit’.

The word for ‘head’ is also in this class due to its concord properties, as shown for the instrumental suffix:

- (5) a. nda ηg^wa ‘head’
b. nda-la ηg^wa-ηa ‘with head’

The sound /ɾ/ is rarer in Thetogovela Moro than in Umm Dorein, and many /ɾ/ are now realized as /g/ in Thetogovela Moro, such as *ege* ‘house’ which is *ɛɾe* in Umm Dorein. Given the /g/ in the plural, it may be that the singular had /ɾ/

Table 6.3: Table of six minor noun classes/noun class pairings

<i>Class</i>	<i>Initial segment</i>	<i>Concord segment</i>	<i>Singular</i>	<i>Initial segment</i>	<i>Concord segment</i>	<i>Plural</i>	<i>Gloss</i>
j/ŋ	V-	j-, k-	úlǎðí	ŋ-	ŋ-	ŋúlǎðí	termite
l/j	l-	l-	lǎŋáθ	front V	j-, s-	eŋáθ	tooth
r/j	r-	r-	rlo	front V	j-, s-	ego	female goat
ð/ɲ	ð-	ɲ-	ðegǎmé	ɲ-	ɲ-	ɲǎgǎmé	cheek
ð/g	ð-	ð-	ðǎrliǎ	round vowel	k-, g-	urliǎ	root
l	l-	l-	laja	*	*	*	honey

Table 6.4: Major noun class pairings

<i>Singular</i>	<i>Plural</i>
g-k	l
	n
l	ŋ
ŋ	ɲ
ð	r
j s	j s

6 Nouns and nominal morphology

which is now realized as [d] after the nasal. Another word like this is *ng̃ɔmana* ‘kidney’, whose plural is *ɲəðɔmana*.

Finally, there are some words in this class that begin with [ə]. This vowel is epenthetic, as these words have the ability to be pronounced with the first two sounds switched: *lɔ́d̥ámáná* / *əl̥d̥ámáná*.

- | | | | | |
|-----|----|------------|----------|-----------------|
| (6) | a. | əl̥d̥ámáná | ɲəðɔmáná | ‘bean’ |
| | b. | əl̥t̥ámíá | ɲət̥ámíá | ‘termite mound’ |
| | c. | əltú | ɲətú | ‘shelter’ |
| | d. | əlná | ɲəná | ‘room’ |
| | e. | əltúlé | ɲótúlé | ‘cheek’ |

6.1.2 l/p class

The l/p class consists of animals, insects, body parts and some useful objects.

- | | | | | |
|-----|----|-------------------------|-------------------------|-----------------------|
| (7) | a. | lɔ́rí | ɲɔ́rí | ‘calf (of leg)’ |
| | b. | lɔ́mí | ɲɔ́mí | ‘beard, chin’ |
| | c. | lómóná | ɲómóná | ‘finger, day’ |
| | d. | ɾdónɲ | ɲədónɲ | ‘pointy back of head’ |
| | e. | lloa | ɲolloa | ‘elbow’ |
| | f. | ɾrá | ɲərá | ‘lizard’ |
| | g. | láwá | ɲáwá | ‘mosquito’ |
| | h. | lútí | ɲútí | ‘owl’ |
| | i. | lókógónɲ | ɲókógónɲ | ‘scorpion’ |
| | j. | líŋg ^{w3} | ɲíŋg ^{w3} | ‘frog’ |
| | k. | ɾrúma | ɲərúma | ‘ram’ |
| | l. | lɔ́búnɲw3 | ɲɔ́búnɲw3 | ‘water pot, bottle’ |
| | m. | lád̥jile | ɲád̥jile | ‘bicycle’ |
| | n. | lɔ́nɔ́rəð ^{j3} | ɲɔ́nɔ́rəð ^{j3} | ‘blanket’ |
| | o. | logopájá | ɲogopájá | ‘cup’ |

As with the l/ɲ class, some words in this class begin with /ɾ/, but the concord consonant is /l/: *ɾrá-lá* ‘with lizard’. Also, some words show initial [əl]: *əltúr* (sg.) *ɲətúr* (pl.) ‘umbilical hernia’.

6.1.3 ð/r class

The ð/r class is a small class that consists of some animals, body parts, and long things, but is otherwise not well-defined semantically.

- (8)
- | | | | |
|----|----------|---------|-------------------------|
| a. | ǫ́ej | réj | ‘hand’ |
| b. | ǫ́áǫ́á | ráǫ́á | ‘road, path’ |
| c. | ǫ́álá | rólá | ‘grave / horn, trumpet’ |
| d. | ǫ́egǫ́mé | regǫ́mé | ‘jaw’ |
| e. | ǫ́ǫ́viǫ́ | rǫ́viǫ́ | ‘leopard’ |
| f. | ǫ́ugi | rugi | ‘wood plank’ |
| g. | ǫ́aba | raba | ‘cloud’ |

6.1.4 ɲ/p class

The ɲ/p class consists of (generally) small animals as well as young humans.

- (9)
- | | | | |
|----|-------------|-------------|--------------------------------|
| a. | ɲusí | pusí | ‘chick’ |
| b. | ɲártǫ́máǫ́á | pártǫ́máǫ́á | ‘small lizard’ |
| c. | ɲow:a | pow:a | ‘young person (age 15 and up)’ |
| d. | ɲǫ́mǫ́ná | pǫ́mǫ́ná | ‘kid (baby goat)’ |
| e. | ɲǫ́ǫ́m | pǫ́ǫ́m | ‘squirrel’ |
| f. | ɲíní | píní | ‘dog’ |
| g. | ɲiǫ́ǫ́niǫ́ | pǫ́ǫ́niǫ́ | ‘rabbit’ |
| h. | ɲerá | perá | ‘child, girl’ |

Note that *ɲow:a* could be related to *ǫ́w:á* ‘woman’, although the tones are different.

6.1.5 ɲ class

In addition to the noun class pairings, there are also some classes that are unpaired. The noun class ɲ consists of abstract nouns, mass nouns and liquids.

- (10)
- | | | |
|----|-------------|------------|
| a. | ɲǫ́ǫ́ǫ́ | ‘speed’ |
| b. | ɲǫ́ǫ́ǫ́miǫ́ | ‘darkness’ |
| c. | ɲǫ́ǫ́ǫ́ni | ‘blood’ |
| d. | ɲǫ́ǫ́ǫ́á | ‘water’ |
| e. | ɲǫ́ǫ́ǫ́ǫ́ | ‘grass’ |
| f. | ɲǫ́ǫ́ǫ́ǫ́ǫ́ | ‘dirt’ |

6.1.6 ǫ́ class

The ǫ́ class is another unpaired class. It consists of mass nouns and verbal nouns or gerunds, classes of words that do not have plurals. The tone of the gerunds are either low-toned (Angelo) or high-toned (Elyasir).

6 Nouns and nominal morphology

- (11)
- | | | |
|----|-----------|-----------------|
| a. | ðoálá | ‘money, cattle’ |
| b. | ðává | ‘chaff’ |
| c. | ðəbára | ‘cotton’ |
| d. | ðílí | ‘manure’ |
| e. | ðəvələðəŋ | ‘pulling’ |
| f. | ðəwarðəŋ | ‘writing’ |

The ð-class also includes words that begin with consonants that do not match any of the noun class consonants. Words that begin with stops (p b t k) and the consonant [m] belong to the ð class. There is also one word beginning with [s], although usually s-initial words belong to the j class.

- (12)
- | | | |
|----|----------|----------|
| a. | bətiə | ‘butter’ |
| b. | botʃa | ‘ashes’ |
| c. | mogwáta | ‘peanut’ |
| d. | músí | ‘banana’ |
| e. | paðólwa | ‘jute’ |
| f. | kúrɜ | ‘ball’ |
| g. | ʈrəmbíli | ‘car’ |
| h. | ʈəbwɜ | ‘bamboo’ |
| i. | sɜndúgi | ‘box’ |

There is one exception. The word *matfó* ‘guy, man’ is classified as g-class. As humans usually belong to g-class, this means that the ‘human’ classification outweighs the classification based on the initial consonant. The plural of this word is *matfánda* rather than a change in the initial consonant.

Even if some of these words are countable (ball, car, banana), there are no plural forms, not even with a suffix. The noun class membership is determined by concord:

- (13)
- | | |
|-----------|------------------|
| botʃa-ða | ‘with the ashes’ |
| ʈəbwɜ-ð:i | ‘this bamboo’ |

6.1.7 l class

The l-class has only three members. The first two are mass nouns, whereas the third is not. Like the word *nda* for ‘head’, it begins with an [nd] cluster but belongs to the l-class.

- (14)
- | | | |
|----|-------|----------------------------------|
| a. | lájá | ‘honey’ |
| b. | lugma | ‘porridge’ |
| c. | ndogá | ‘stick inserted under lower lip’ |

6.1.8 g/l class

We now turn to nouns which are vowel-initial. The g/l class pairing is a large group, containing most human nouns as well as a few small animals or insects. The plural is marked with the consonant /l/, but the singular has an initial vowel, one of the five vowels /i e o u ɜ/. There are no a-initial nouns in this class; instead there are stems that begin with the sequence [wa] Historically, the singular was g- or gw- initial, but the velar consonant [g] has been lost, leaving a vowel initial or w-initial stem in most cases. The single word gwanjá ,thing‘ is the only indication of the former structure of this class.

- | | | | | |
|------|----|-----------------------|------------------------|-----------------------|
| (15) | a. | evaja | lɔvaja | ‘poor person’ |
| | b. | emaðén | ləmaðénanda | ‘peer of same age’ |
| | c. | íðíá | láðíá | ‘son’ |
| | d. | imɜgəniə | ləmɜgəniə | ‘excrement’ |
| | e. | ɜgiá | lɜgiá | ‘mentally ill person’ |
| | f. | ɜwíjɜ | lɜwíjɜ | ‘friend’ |
| | g. | ome | ləme | ‘fish’ |
| | h. | om ^w arəŋá | ləm ^w arəŋá | ‘Moro person’ |
| | i. | uɖjí | ləɖjí | ‘person’ |
| | j. | um:iə | ləm:iə | ‘boy’ |
| | k. | útɜdiá | lɜtɜwɜdiá | ‘uncle’ |
| | l. | wára | lárá | ‘chicken’ |
| | m. | wájá | lájá | ‘fly/bee’ |
| | n. | gwanjá | lanjá | ‘thing’ |

The word *emaðén* is one of several kinship terms that show inherent possession, so the singular shown here is marked for 3rd person possession *-én*: ‘his/their peer’ whereas the plural has the plural suffix *-énanda* (§??).

The plural marker /l-/ triggers vowel reduction to [ə] for the stem-initial vowels /i e o u/. When the round vowels /o u/ are reduced, rounding surfaces elsewhere in the stem: ex. /l-útɜdiá/ → [lɜtɜwɜdiá]. See section XX on dissimilation for an explanation. The central vowel /ɜ/ shows no reduction.

The noun class concord properties of the singular are either /g/ or /k/. The /k/ form occurs in the demonstrative and with the locative prefix. The /g/ appears in the instrumental and as a subject agreement marker on the verb.

- (16) um:jǝ-k:i ‘this boy’
 ík-úm:iǝ ‘in the boy’
 um:iǝ-ga ‘with the boy’
 um:iǝ gas:ó ‘the boy ate’

The distribution of [k] and [g] as concord markers parallels those of [s] and [j] for the j-class. The [k] appears in the same forms as the noun class concord marker [s], and the [g] appears in the same forms as the noun class concord marker [j].

6.1.9 g/n class

The g/n class pairing is similar to g/l in that the singular class is vowel initial, while the plural class is marked with a consonant, in this case /n/. Some examples are given below. Unlike the g/l/ class, this class has the full range of vowels in the initial position of the singular stem, including /a/. In addition, there are a few words that are w-initial; the [w] is retained instead of replaced in the plural. Finally, there are three g-initial words in this class, which have [n] in the plural:

- (17) a. áǰámá náǰámá ‘book’
 b. ala nala ‘grinding stone’
 c. eǰapəǰá nǰapəǰá ‘nail’
 d. evəlla nəvəlla ‘wild cat’
 e. iǰəvíní nǰəvíní ‘shoe’
 f. ǝdí nǝdí ‘skin’
 g. odəlónǰá ndəlónǰá ‘fox’
 h. omágá nəmágá ‘snail’
 i. umədí nəmədí ‘small biting ant’
 j. uríθ ndríθ ‘chain’
 k. wará nwará ‘baobab tree’
 l. wílí nwílí ‘dream, picture’
 m. gálá nálá ‘bead’
 n. gí ní ‘farm, field’
 o. gəla nəla ‘bowl’

With central vowels a/ǝ, there is no modification of the initial vowel in the plural, as the following examples show:

- (18)
- | | | | |
|----|----------|-----------|----------------------|
| a. | abugwala | nabugwala | ‘paper’ |
| b. | ándámé | nándámé | ‘flea’ |
| c. | álúŋ | nálúŋ | ‘promiscuous person’ |
| d. | ənəŋiá | nənəŋiá | ‘ear’ |

In contrast, when the singular has an initial front vowel, the front vowel does not appear in the plural. There may be no vowel between the prefix /n-/ and the next consonant (a-e), or a vowel [ə] follows the prefix (f-j):

- (19)
- | | | | |
|----|--------|---------|----------------------|
| a. | édeá | nédeá | ‘dalib tree’ |
| b. | erél | ndrél | ‘side of face’ |
| c. | eréθ | ndréθ | ‘promiscuous person’ |
| d. | etám | ntám | ‘neck’ |
| e. | iṭəli | nṭəli | ‘year’ |
| f. | ebamba | nəbamba | ‘drum’ |
| g. | eləŋe | nələŋe | ‘king, leader’ |
| h. | emertá | nəmərtá | ‘horse’ |
| i. | evəla | nəvəla | ‘wild cat’ |

Unlike the forms beginning with central vowels, the front vowels are prone to reduction to [ə] or deletion. The front vowel is deleted between the prefix n- and a following coronal consonant from the set [t̪ t ɖ d n ɾ/r] (a-e), thus creating a nasal-consonant cluster. Note that the n+ɾ combination results in [ndr], where the [d] is a transitional sound. The front vowel is not deleted but reduced to [ə] when it appears before [l] or a labial [b m v] (f-i). Loss of the front vowel would result in an unacceptable cluster: *nvəða, so reduction occurs. There is one form with a front vowel that shows no reduction and no deletion of the initial vowel: *ege* ‘house’ (plural *nege* ‘houses’). The [g] derives historically from *t̪, but this does not explain the lack of reduction/deletion.

The final subgroup within the g/n class has initial back round vowels [o] and [u]. Those with first coronal consonants [d nd ɾ ð] as well as [g] have no vowel in the plural. These [g] derived historically from *t̪, a coronal consonant; in the plural the alveolar [d] appears after the nasal prefix. The lack of the initial vowel before coronal consonants is parallel to the pattern of front vowels in (a-e). In addition to the lack of the initial round vowel, some plural nouns have labialization of a root consonant (f-g).

6 Nouns and nominal morphology

- (20)
- | | | | |
|----|----------|----------|--------------------------|
| a. | odəlónjá | ndəlónjá | ‘fox’ |
| b. | ogómá | ndámá | ‘thief’ |
| c. | ogəvélá | ndəvélá | ‘monkey’ |
| d. | ondəðé | ndəðé | ‘lice’ |
| e. | uríθ | ndríθ | ‘chain’ |
| f. | odəgala | ndəgwala | ‘turtle’ |
| g. | oða | ndwa | ‘kind of deer, antelope’ |

The second group are those that have reduction of the round vowel to schwa. Almost all of these forms show labialization somewhere in the stem. However, many of them have alternate forms with no reduction, and also no labialization, ex. *nomágá* is attested as well as *nəm^wágá*.

- (21)
- | | | | |
|----|---------|------------------------|--------------------|
| a. | oʃ:a | nəʃ:a | ‘milk pot’ |
| b. | oʃele | nət ^w ele | ‘spider’ |
| c. | oʃamba | nətəmb ^w a | ‘ostrich’ |
| d. | uməní | nəm ^w əní | ‘type of tree’ |
| e. | óməʃáðá | nəm ^w əʃáðá | ‘afterbirth’ |
| f. | omágá | nəm ^w ágá | ‘snail’ |
| g. | ombətea | nəmb ^w ətea | ‘back of shoulder’ |
| h. | uw:ɜ | nəw:ɜ | ‘moon, month’ |

There are some nouns with round vowels that show no reduction:

- (22)
- | | | | |
|----|--------|---------|----------------------------------|
| a. | umədí | numədí | ‘small biting ant’ |
| b. | úməðní | núməðní | ‘bank, silo for grains / pocket’ |
| c. | wára | nwára | ‘animal pen, enclosure’ |

This corresponds to class pairs 13/14 and 7/8 in Stevenson’s classification, which have a velar consonant prefix *k-* or *g-* for singular. It appears that Moro lost the initial velar in the singular nouns, but retained velar consonants as concord. The word ‘ear’ *ənəɲiɔ* / *nənəɲiɔ* has initial [g] in related languages: *g-öni* / *ny- öni* (Heiban) and *g- öni* / *n- öni* (Otoro). In addition, there are a few nouns that retain the initial [g] in the singular: *gí* / *ní* ‘field, farm’ or *gálá* / *nálá* ‘bead’.

6.1.10 ð/g class

The ð/g class contains trees and derivatives of trees. The singular begins with ð and the plural begins with a round vowel, either [o] or [u], depending on vowel harmony. Historically, these nouns began with [g]; in one noun, the [g] is still present.

- (23)
- | | | | |
|----|------------|-----------|------------------------------------|
| a. | ðábórwá | óbára | ‘tree sp. with long thin branches’ |
| b. | ðágə́ɲá́lá | ógə́ɲá́lá | ‘tree sp.’ |
| c. | ðeɽeá | oɽeá | ‘big branches, sticks’ |
| d. | ðəlwəndrí | uləndrí | ‘tree sp.’ |
| e. | ðów:ɛ́nə́ɲ | úw:ɛ́nə́ɲ | ‘tree sp.’ |
| f. | ðudədílíə | gudədílíə | ‘tree sp.’ |

6.1.11 j/j class

In Stevenson’s chart of Koalib-Moro classes (1957:152), the j/j class is listed with an initial vowel in the singular in Stevenson’s Koalib-Moro chart, but with a front vowel, glide or palatal stop for the plural. In Thtogovela Moro, the j/j class is characterized by a central vowel (either [a] or [ɜ]) in the singular and by a front vowel (either [e] or [i]) in the plural. The choice of vowel in each number category is determined by vowel harmony. Examples are shown below:

- (24)
- | | | | |
|----|-----------|-----------|--------------------|
| a. | ajén | ején | ‘mountain’ |
| b. | árómá | érómá | ‘black biting ant’ |
| c. | ɜbulúkriə | ibulúkriə | ‘dove’ |
| d. | ɜtúmi | itúmi | ‘onion’ |

This class contains a number of borrowings, particularly from Arabic, which treat the definite article *al* as part of the stem, converting it to *el* in the plural: ex. *aləŋgréma* (sg.) *eləŋgréma* (pl.) ‘bed’ < Sudanese Arabic /al-ʕangare:b/. However, not all words in the j/j class are borrowed. A prefix analysis of these forms is straightforward: prefixes are /a-/ in the singular and /e-/ in the plural; allomorphs [ɜ] and [i] are created by vowel harmony. This explains why the initial vowel of the singular is restricted to being /a/. We conclude that the j/j/ class is characterized by prefixes, *a-* in the singular (with allomorph [ɜ]) and *e-* in the plural (with allomorph [i]).

6.1.12 ð/j class

The ð/j consists of some animals but is otherwise not well-defined semantically. In this class, the plural prefix is *j-*. It appears before all vowels, but if the first vowel is front, either /e-/ or /i-/ , the [j] does not appear. In the related dialect, Werria, the [j] is often present, ex. *érá* is written *yəra*, with reduction of /e/ to [ə].

6 Nouns and nominal morphology

- (25)
- | | | | |
|----|--------------------|-----------|--------------------------------|
| a. | ðərmbégwa | ermbégwa | ‘lyre’ |
| b. | ðəbarəla | ebarəla | ‘river, stream’ |
| c. | ðərá | érá | ‘vine of gourd’ |
| d. | ðərðiə | irðiə | ‘type of water rat’ |
| e. | ðəbəgwə | ibəgwə | ‘thread’ |
| f. | ðə ^w lí | júlí | ‘giraffe’ |
| g. | ðomónɣ | jomónɣ | ‘big, lazy, light-colored rat’ |
| h. | ðwaleə | jwaleə | ‘green bird sp.’ |
| i. | ðamala | jamala | ‘camel’ |
| j. | ðəbərɬulə | jəbərɬulə | ‘locust sp.’ |

The noun class concord for the plural is either /j/ or /s/ depending on the concord context (see Chapter 8). For example, the proximal demonstrative, which always shows noun class concord, is –ís:i, whereas the instrumental (b) and subject concord (c) use /j/:

- (26)
- | | | |
|----|--------------|------------------|
| a. | jamalə́-s:i | ‘this camels’ |
| b. | jamala-ja | ‘with camel’ |
| c. | jamala jas:ó | ‘the camels ate’ |

The inessive marker /é-/ (§6.3.3) is realized [és-] if attached to a vowel-initial stems with j-initial plurals. Note that the attachment of this prefix triggers reduction of the initial vowel to [ə]. Compare this with the j-initial nouns in (c-d).

- (27)
- | | | | |
|----|--------|-----------|--|
| a. | evəra | és-ə́vərá | ‘inside the line’ |
| b. | irðiə | ís-ə́rðiə | ‘inside the water lizard with the long tail’ |
| c. | jamala | é-jámálá | ‘inside the camels’ |
| d. | júli | í-júli | ‘inside the giraffes’ |

6.1.13 r/j class

This class is very small, consisting of only four items. The plural behaves the same way as the other plural *j*-class. It is not clear if there is a prefix *e-* or *i-* that replaces the /r/ of the singular, or if this is the vowel realization of a *j-* prefix.

- (28)
- | | | | |
|----|--------------------|-------------------|-------------------|
| a. | rða | eða | ‘meat’ |
| b. | rlo | ego | ‘goat’ |
| c. | rəm ^w ɔ | im ^w ɔ | ‘God, snake, sky’ |
| d. | diə | iriə | ‘cow’ |

6.1.14 l/j class

This class consists of only one item. The plural behaves the same way as the other plural j-class. The concord for the plural *eṇáθ* is either [j] or [s] depending on context.

- (29) *lənjáθ* *eṇjáθ* ‘tooth’

6.1.15 j/η class

This class is also very small, consisting of only one item.

- (30) *úlódí* *ṇúlódí* ‘termite’

This may be an adaptation from the word *lulúḏ* (SG.) / *ṇwulúḏ* (PL), which is a ‘termite species or white ant’. If the initial [l] was lost, the word may have been reassigned to the j noun class.

6.1.16 g class

There are two unpaired class forms with initial vowels. Like the paired vowel-initial class forms, they are divided between the g- and j- concord classes. The first of these is the g-class, which is like the singular g-class that occurs in the g/n or g/l classes. All initial vowels are attested, and there are also forms beginning with /w/. These words include mass nouns. It also includes some words that could be countable, but still have no plural counterpart.

- (31)
- | | | |
|----|------------------|-----------------------------------|
| | g-class | |
| a. | <i>áfṣv́á(ṇ)</i> | g ‘food, sorghum porridge’ |
| b. | <i>ánálá</i> | g ‘sweat’ |
| c. | <i>ʒndiə</i> | g ‘leather’ |
| d. | <i>eveá</i> | g ‘sand’ |
| e. | <i>ókóra</i> | g ‘sap’ |
| f. | <i>ole</i> | g ‘sound, voice, words, language’ |
| g. | <i>il:iə</i> | g ‘stranger (other Nubans)’ |
| h. | <i>ulʒṇgi</i> | g ‘night’ |
| i. | <i>wálá</i> | g ‘wool, braids’ |
| j. | <i>wíjʒ</i> | g ‘dry dirt, ground’ |

6.1.17 j class

The j-class also contains words that are mass nouns. All the initial vowels in the j-class are central or front.

- (32) j-class
- | | | | |
|----|--------------------|---|----------------|
| a. | aróbá | j | ‘whey’ |
| b. | aveja | j | ‘liver’ |
| c. | ɜlbúni | j | ‘coffee’ |
| d. | étoá | j | ‘dew’ |
| e. | ibug ^{wɜ} | j | ‘fog’ |
| f. | iriniə | j | ‘snot, mucous’ |

Those words beginning with a central vowel (such as *aveja* ‘liver’) have a locative form with [k] like the singulars of the j/j class pairing (*ékávėja*). On the other hand, those words beginning with a front vowel (such as *ibag^{wɜ}* ‘fog’) have a locative form with [s] like the plurals of the j/j class (*ís-ibag^{wɜ}*). Based on these similarities, the j-class may actually be two separate classes, the two classes that make up the j/j class pairing. Determining whether these forms have prefixes or root vowels is complicated by the fact that there is no plural pairing; a prefix analysis can only be hypothesized based on the analysis given to the j/j class pairing.

The j-class also includes words that begin with strident consonants, namely /s ʃ tʃ/, some of which are borrowings from Arabic. Those nouns which begin with [tʃ] sometimes vary between ɔ-class and j-class.

- (33) j-class
- | | | | |
|----|-----------|---|--------------------------------|
| a. | súra | j | ‘picture’ |
| b. | ʃorba | j | ‘soup’ |
| c. | tʃaŋgwéra | j | ‘rhinoceros, huge boulder’ |
| d. | tʃéŋge | j | ‘cobra, slang for S. Sudanese’ |

This concludes the description of noun classes in Thetogovela Moro.

6.2 Nominalizing morphology

Moro has two different kinds of nominalization. Gerundive nominalization and property concept nominalization. Gerundive nominalization derives a mass noun from a verb, resulting in a nominal which describes an event. Property concept nominals...

6.2.1 Gerundive nominalization

Gerunds are formed with a circumfix $\delta\partial$ - $a\eta$, δ - before vowel initial roots. Gerunds also are marked with all-H tone:

Table 6.6: Gerundive nominalization

Verb root	Gerund (δ -class	
-dərw-	$\delta\acute{\partial}$ -dərw-á η	‘stopping’
-ðəw-	$\delta\acute{\partial}$ -ðəw-á η	‘poking’
-ndr-	$\delta\acute{\partial}$ -ndr-á η	‘sleeping’
-noan-	$\delta\acute{\partial}$ -nóán-á η	‘watching’
-erl-	δ -érl-á η	‘walking’

There is no plural form of gerund nouns; they are mass nouns. There is dialectal variation in the form of the gerund. In Wërria and Written Moro, $-a\eta$ is $-a$, and the all H melody is an all L melody.

Gerunds are in the δ -class corresponding to the initial segment of their prefixal component. They trigger δ -class agreement on verbs in subject position:

- (34) $\delta\acute{\partial}$ -wáðá- η δ -a η ará
 CL δ .NOM-poke-NOM CL δ -good.ADJ
 ‘Poking is good.’

Gerunds seem to be looser than their verbal counterparts in requiring arguments, as neither objects nor subjects need to be present with gerundive nominals.

Gerunds can take locative case prefixes, and must do so when they are the complement of subject and object control verbs and adjectives:

- (35) í-g- Λ -dər-ú é- $\delta\acute{\partial}$ -nóán-á η ðamala
 1SG-CLg-RTC-stop-PFV LOC-CL δ .NOM-watch-NOM camel
 ‘I stoped watching the camel.’
- (36) í-g- Λ -tʃ- $\acute{\Lambda}$ nano é- $\delta\acute{\partial}$ -nóán-á η jamala
 1SG-CLg-RTC-bad-ADJ at LOC-CL δ .NOM-watch-NOM camels
 ‘I’m sad to watch the camels.’
- (37) é-g-a-mədat-ó kúku- η é-ðá-nóán-á η ðamala
 1SG-CLg-RTC-help-PFV Kuku-ACC LOC-CL δ .NOM-watch-NOM camel
 ‘I helped Kuku watch the camel.’

Verbs and adjectives which take gerundive complements include implicatives, evaluative adjectives, and aspectual verbs. Most seem to involve obligatory, exhaustive control, and with the exception of negative verbs such as ‘prevent’, introduce existence presuppositions on their complements.

- (38) Verbs and adjectives which take gerundive complements
- Aspectual verbs: -*ŋgitʃ*- ‘finish’, -*dúr*w- ‘stop’
 - Implicative: -*ámadaʃ*- ‘help’, -*wátʃ*- ‘prevent,’ -*láləŋədʒətʃən*- ‘remember’
 - Evaluative adjectives: -*tʃ*- *nano* ‘sad’ (Adj.), -*tʃ*- ‘bad,’ -*ŋər*- ‘good’

See section 14.6 for more on control with infinitive clauses.

6.2.2 Property nouns

A number of nouns in Moro see an alternation between a *g/l*-noun, which describes a person with a particular property, and a *ŋ*-class noun derived from this noun which describes the property concept possessed by this individual. This alternation is illustrated in Table 6.7. Property nouns lack a plural counterpart; they are mass nouns.

Table 6.7: Property nominals

Singular (<i>g</i> -class)	Plural (<i>l</i> -class)		Property (<i>ŋ</i> -class)	
aməda	laməda	‘joker(s)’	ŋaməda	‘joke’
aðəna	laðəna	‘deceiver(s)’	ŋaðəna	‘deceit’
um:ia	lɜm:ia	‘boy(s)’	ŋɜm:ia	‘boyhood’
ɜdum	lɜdum	‘attractive person’	ŋɛðəmwa	‘beauty’

When these concepts occur as the main predicate of a clause, the predicate nominal copula -*d*- takes the human-referring *g/l*-class as its complement (§9.1.1). The property noun itself cannot occur in these predicative contexts, but rather is only used in argument positions to refer to the abstract concepts.

6.3 Case and locative morphology

Moro nouns mark a six-way distinction between nominative, accusative, genitive, two locative cases, inessive and adessive, and instrumental. Case paradigms

for several nouns are provided in Table 6.8. Variation in the form of the different modifiers is discussed in each of the corresponding sections below. The genitive prefix is not included in this table, and is described separately in Section 8.2.2 as it patterns with other nominal modifiers in agreeing with the noun it modifies. There is also a vocative form for proper names, which we ignore here but introduce in Section 6.4.1, and discuss the use of in Section ??, a discussion of greetings.

Table 6.8: Nominal case morphology

Nominative	Accusative	Inessive	Adessive	Instrumental	
ɲaw	ɲaw-a	é-ɲáw	ne-ɲaw	ɲaw-əɲa	‘water’
ðəbér	ðəbér-á	é-ðəbér	ne-ðəbér	ðəbér-əðá	‘wind’
ómón	ómón-á	ék-ómón	n-ómón	ómónə-gá	‘leopard’
lámón	lámón-á	é-lámón	ne-lámón	lámón-əlá	‘leopards’
ogovél	ogovél-á	ék-ógovél	n-ogovél	ogovél-əgá	‘monkey’
ndəvél	ndəvél-á	é-ndəvél	né-ndəvél	ndəvél-əná	‘monkeys’
ðamala	ðamala	é-ðamala	nə-ðamala	ðamala-ðá	‘camel’
jamala	jamala	é-jamala	nə-jamala	jamala-ja	‘camels’
ɲgon	ɲgón	é-ɲgón	nə-ɲgón	ɲgón-əɲá	‘squirrel’
ɲəɲgón	ɲəɲgón	e-ɲəɲgón	ɲəɲgón-əɲá	‘squirrels’	
ðəbára	ðəbára	é-ðəbára	nə-ðəbára	ðəbára-ðá	‘cotton’

Besides the nominative-accusative distinction, it may not be obvious that the other cases in Moro should be described as ‘case’ rather than adpositions. Particularly as many adpositions in Moro are clitics which fuse with the noun (§??).

There are several arguments that these are case markers rather than adpositions. The clearest argument comes from the locative cases, which cannot occur with the accusative suffix *-a*, but instead have the bare root which is characteristic of the nominative in these cases. In contrast, the enclitic adpositions described in Section ?? freely occur with accusative marked nouns.

Here the instrumental poses somewhat of a problem, because the form of the instrumental is *-əCa* with many consonant final roots, and an argument could be made that the initial vowel of this suffix is the accusative. Yet the fact that this vowel is absent in forms such as *ɲaw-ɲa* ‘with the water’ indicates that there is no accusative suffix in these cases, and hence that the instrumental too is a bona fide case marker. Instead, the schwa occurs in the instrumental to break up phonotactically prohibited consonant clusters.

Syntactic evidence that these are case markers comes from the observation that they always mark locative arguments of verbs rather than simple locative adjuncts, which typically occur with full adpositions. See §12.8 for a discussion of locative objects.

Finally, the locative clitic =*u* and the instrumental clitic =*ja* are found when a locative or instrumental argument is passivized, extracted, or pronominalized (§11.6). While these enclitics are similar to stranded prepositions, they clearly differ in form from their counterparts which affix to nouns. Because of this, there is no doubt that the nominal affixes are just that, affixes on the nouns which mark location.

6.3.1 Nominative case

Nominative case is found only in subject position of finite clauses. It is an unmarked form, consisting of a bare nominal root. While it is the citation form of proper nouns, the citation form of those common nouns which mark a nominative-accusative distinction is the accusative, as discussed in the following section.

The boundary between subjects and verbs is an environment which allows schwa-epenthesis (§5.2.3). Because of this, sonorant-final nominative nouns such as *ómón* leopard in subject position, e.g. *ómón gogəná* ‘the leopard is big’ is realized as [ómónə gogəná], nearly identical to its accusative *ómón-á*. Whistling provides an important clue that the schwa is epenthetic in these cases, inserted rather late: while Mr. Julima clearly whistles three high tones for the accusative *ómón-á* (=HHH), the epenthetic schwa is ignored when whistling, hence [ómónə gogəná] is whistled HH LLH.

6.3.2 Accusative case

There are two distinct accusative markers in Moro. The suffix *-a* occurs on common nouns, while human proper nouns take a distinct case suffix *-ŋ/-o*, the latter forms being conditioned by phonological properties of the stem. The accusative form of common nouns is the citation form, while the nominative form of proper nouns is the citation form.

Close relatives of Moro in the Heiban group such as Ebang and Koalib still have a robust, though complex, system of accusative case marking, including addition of vocalic suffixes. The Moro accusative, by comparison, is somewhat marginal. The accusative suffix *-a* is simply absent on many nouns. First, it simply not marked on some nouns, somewhat unpredictably. For example, while *ómón* vs. *ómón-á* ‘leopard’ marks accusative, *ŋgón* ‘squirrel’ does not, though both end in

/ón/. Some nouns have roots ending with /a/, and these too are identical in the nominative and accusative; compare *ḍabér* vs. *ḍabér-a* ‘wind’ to *ḍabára* ‘cotton’ above. Hence, accusative nouns are not fully predictable from the nominative nor are nominatives predictable from accusatives.

Names of people (§6.4.1) consistently occur with accusative case, taking the suffix *-ŋ* if they end in a vowel and *-o* if they end in a consonant (Table 6.9). A small number of common nouns, including *matfo* ‘man’ and *ḍap:a* ‘friend’ also fall into this pattern.

Table 6.9: Case on proper names

Nominative	Accusative
Jasir	Jasir-o
Bitər	Bitər-o
Yosev	Yosev-o
Kúk:u	Kúk:u-ŋ
Kák:a	Kák:a-ŋ
ḍa:pa	ḍap:a-ŋ

The distribution of accusative case is discussed in Jenks & Sande (2017). Accusative case occurs on all nominal objects that mark case, and does so regardless of their semantic role relative to the noun. In the case of multiple objects, accusative case occurs on all of them:

- (39) é-g-a-nac-ó ŋál:o-ŋ kódza-ŋ
 1SG-CLg-RTC-give-PFV Ngallo-ACC Koja-ACC
 ‘I gave Ngallo to Koja.’ / ‘I gave Koja to Ngallo.’

Accusative case also occurs in non-object positions. For example, accusative occurs on the second conjunct of coordinated nouns, even in subject position:

- (40) a. kúk:u na ŋál:o-ŋ l-aŋer-á
 Kuku and Ngalo-ACC CLL.RTC-good-ADJ
 ‘Kuku and Ngalo are nice.’ (Jenks & Sande 2017, (4a))
 b. ogovél na ómón-á l-aŋer-á
 monkey and leopard-ACC CLL.RTC-good-ADJ
 ‘The monkey and the leopard are nice’

Accusative case can also occurs on complements of kinship nouns (§6.4.3) when they do not agree with the noun:

- (41) a. ləŋge kúk:u-ŋ
 mother Kuku-ACC
 ‘mother of Kuku’ ləŋg-en gʷ-kúk:u
 mother-3.POSS CLG.GEN-Kuku
 ‘Kuku’s mom’ (Jenks & Sande 2017, (6a-b))

Thus, accusative case in Moro cannot be associated primarily with the syntactic function of objecthood. Jenks & Sande 2017 suggest it is a dependent case, meaning it occurs when two noun phrases are in a particular structural configuration.

6.3.3 Inessive *é-*

The inessive case *é-* attaches to nouns and conveys general location, as well as a sense of concealed enclosure. It has a range of different forms, particularly in front of vowel-initial nouns.

When the inessive prefix occurs on vowel-initial nouns, a consonant intervenes between the two vowels. The consonant agrees for a class, but is different depending on the singular or plural nature of the class, as illustrated in Table 6.10. The form of the prefix is *ék-* with singular vowel initial nouns of either the g- or j- class, and *és-* with plural vowel initial nouns of either the g- or j- class. With unpaired noun classes, those usually reserved for mass nouns or words beginning with other consonants, such as sibilants ([s, ʃ ʒ]) for the j-class, the pattern is *ék-* with g-class and *és-* with j-class. It is of historical relevance that s-initial words are very uncommon in Moro, mostly found in borrowings such as *sura* ‘picture’, *suk* ‘market’, both j-class (§6.1.17). This point suggests that *s may have been lost word-initially at some point in the relatively recent past, but that it was preserved by the inessive prefix.

The inessive prefix *é-* is raised to [i] when attached to nouns with higher vowels /i ɜ u/. In (a-d), the nouns contain lower vowels and the prefix is [é]. In (e-h), the nouns have higher vowels, and the prefix is raised to [i]

- (42) Vowel harmony
- | | | | | | |
|----|--------|---------------------|----|---------|------------------------|
| a. | é-lórá | ‘in the creek’ | e. | í-nódí | ‘in the skins’ |
| b. | é-ndeó | ‘in the dalib tree’ | f. | í-rútuó | ‘in the knot’ |
| c. | é-ŋáná | ‘in the milk’ | g. | í-lérí | ‘in the calf (of leg)’ |
| d. | é-wárá | ‘in the chicken’ | h. | í-lútí | ‘in the owl’ |

6 Nouns and nominal morphology

- (45) a. ómóná ‘tiger’ ék-ómón ‘in the tiger’
 ogovélá ‘monkey’ ék-ógovél ‘in the monkey’
- b.
- | | | | |
|-------------------------|------------------|---------------------------|--------------------------------------|
| ʒ́ríǎ | ‘gums’ | íg-ʒ́ríǎ | ‘in the gums’ |
| etám | ‘neck’ | ég-ətám | ‘in the neck’ |
| aʃ́ónɡ ^w árá | ‘bird of prey’ | ég-aʃ́ónɡ ^w ár | ‘in the bird of prey’ |
| ʒ́pwɜ | ‘stick-fighting’ | íg-ʒ́pwɜ | ‘in the stick-place, fighting place’ |
- c. órǎp^wá ‘nest hole’ ék-órǎp^wá ‘in the nest hole’
 írtí ‘knife’ ík-ártí ‘in the knife’

Since there are so few nouns that have [s], there is only one word that has the right configuration to test whether [s] triggers voicing dissimilation, too. In this case, there is variable voicing: *ík-úsílá* or *íg-úsílá* ‘in the spirit’.

6.3.4 Adessive *n*-

There is another locative prefix *n*-, which we label adessive case for reasons discussed in the introduction to this section. The general meaning of the locative *n*- is ‘on’, but it can also convey other senses such as ‘off, from, over’.

- (46) a. é-g-a-daŋ-ó *n*-deté
 I-sat on-branch
 ‘I sat on the branch’
- b. loandra lɜmurkú *n*-ajn
 rock rolled on-hill
 the rock rolled down the hill
- c. k-aŋɡ-aʃ́-ó *n*-ɜlbɜmbəriǎ
 CL-?-LOC.APPL-PFV on-stool
 ‘he moved off the stool’?? 6/16/2011
- d. kɜmurǎɟǎʃ́i *n*-alétǎ
 rock rolled on-hill
 ‘he passed it over the wall’

To determine: is this prefix /*n*/ or /*nə*-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

6.3.5 Instrumental

The instrumental or comitative marker is $-(ə)Ca$, with the schwa only occurring after consonant final noun roots. The C in these suffixes stands for noun class concord – a consonant that agrees in noun class with the noun to which the suffix is attached, one of the eight class markers: /n ɲ ŋ l r j g ð/. The suffix is used to indicate an instrument or tool, or accompaniment. In addition, the object of some verbs are required to have an instrument suffix.

The following words illustrate noun class agreement with the instrumental suffix:

(47) Noun class agreement with instrumental

- | | | | | | |
|----|-------------|------------------|----|-----------------------|-----------------------|
| a. | nəbamba-na | ‘with the drums’ | e. | rəm ^w a-ra | ‘with God’ |
| b. | ɲogopáj-əjá | ‘with the cups’ | f. | ʒɲoŋ-əja | ‘with the mouth’ |
| c. | ɲavəra-ɲa | ‘with sticks’ | g. | wálá-gá | ‘with braids’ |
| d. | liǰí-lá | ‘with people’ | h. | ðugi-ða | ‘with a wooden plank’ |

The tone of the instrumental suffix matches the tone of the final vowel of the noun stem. It is high-toned if the preceding vowel is high-toned, as in (1b,d,g); otherwise, it is low-toned. In some cases, the final vowel can be reduced or deleted: ex. *ðəgívi* ‘bread’ forms its instrumental by dropping the final vowel: *ðəgíváðá*. The high tone of the second syllable is copied or spread onto the instrumental suffix.

The instrumental prefix does not undergo vowel harmony, as illustrated by the examples (1d), (1f) and (1h), which all contain higher vowels. The final vowel remains [a], and is not raised to [ɜ].

Instrumental nouns have both instrumental and comitative meanings. The following sentences illustrate uses of the instrumental suffix as an instrument.

- (48) g-adʒəv-á (k-é-n:-a) n3niŋʒ-ná
 SM.CLg-not.know-IPFV (SM.CLg-DPC1-hear-IPFV) CLn.ear-CLn.INST
 ‘he doesn’t know how to hear with his ears’ = he has a hearing problem

The following sentences illustrate use of the suffix as a comitative, indicating accompaniment:

- (49) a. Kúku l-erl-ó tútu-ga
 CLg.Kuku CLl-walk-PFV CLg.Tutu-INST
 ‘Kuku walked with Tutu.’

- b. *ɲá-g-a-dwat-ó* *kúk:u-ga*
 1PL-CLg-RTC-speak-PFV CLg.Kuku-CLg.INST
 ‘We talked with Kuku.’
- c. *l-abáǎ-á* *ɲǎní-ɲá*
 CLl-pet/play-IPFV CLɲ.dog-CLɲ.INST
 ‘They are petting/playing with the dog.’
- d. *báté* *ɲá-g-an:-á* *ɲá-bolw-a* *kodza-ga*
 never 1PL.SM-CLg-not-PFV 1PL.SM-wrestle-INF Koja-CLg.INST
 ‘We never wrestle with Koja’

Proper names such as Kuku, Tutu, and Koja are human class g, and therefore the instrumental suffix is *-ga*. The presence of a comitative which accompanies the subject typically triggers plural agreement on the verb, even if the subject is singular, as (49a) demonstrates. This seems to be a subcase of a more general phenomenon in Moro whereby nouns are able to occur discontinuously from their modifiers, which occur post-verbally.

6.4 Names and kin

This section describes terms used for familiar human reference, including names and kinship terms. It also includes a discussion of the associative plural, which is limited to this class of entities.

6.4.1 Names

Humans typically have two kinds of proper names in Moro used for familiar reference: the first is their given name, often of Christian or Muslim origin, the second is a name which indicates their sex and birth order. The numbering is inclusive of both genders, hence the second girl in a family will be *Nni* regardless of whether she has an older brother or sister. Surnames are patrilineal, typically the given name of one’s father, and one typically has as many surnames as patrilineal ancestors can be remembered.

The birth order names are provided in Table 6.11. These names typically have a consistent CVC:V template with HL tone. These names all have several nickname variants as well, many of which involve some minimal phonological change, such as dropping the first consonant in the name, e.g. *káka* vs. *áka*, and *kál:o* *ɲálo* , *tǎl:o* *ál:o*

Table 6.11: Birth order names in Moro

	Boys	Girls
1	Kúk:u	Kák:a
2	Kwári	Kán:i
3	Kál:o	Kwátfe
4	Tút:u	Kátfi
5	Káw:Δ	Káw:Δ
6	Kója	Kója

A common nickname for mother is *nán:a* and father is *áp:a*, both of which can take the proper name accusative suffix: *nán:a-η* and *áp:a-η*.

6.4.2 Associative plural

In addition to marking plurals inflectionally via noun class prefixes, Moro has an associative plural suffix *-andá*, *-ηándá* after most vowel-final stem, which can attach to proper names, kinship nouns, and certain high animacy nouns.

(50)

jasər	‘Elyasir’ (name)	jasər-andá	‘Elyasir and company’
dzordʒ	‘George’ (name)	dzordʒ-andá	‘Elyasir and company’
kúkú	‘Kuku’ (name)	kúk:u-ηándá	‘Kuku and company’
áp:a	‘dad’	áp:a-ηándá	‘dads’
emað-ájɪ	‘my peer’	lamað-ájɪ-andá	‘my peers’
umurt-ájɪ	‘my co-spouse’	ləmurt-ájɪ-andá	‘my co-spouses’
matfó	‘guy’	matf-ándá	‘guys’

This suffix also been incorporated into the plural agreement paradigm and plural pronouns, most clearly in the marking of first person inclusive plural and second person plural forms (see Chapter ?? and Section ??).

The semantics of the associative plural suffix in the examples above is not always the same. For proper nouns, the associative plural can refer to a group of individuals associated with the named individual. For example, *Kúk:u-ηándá* would refer to Kuku and his family or friends, or a contextually relevant group of individuals associated with Kúk:u. Another meaning available for birth order names like Kúk:u is the group of first born boys, in this case, or the group of people named ‘Kuku.’ With kinship terms and nouns like *matfó*, which do not

mark a plural inflectionally, the associative plural has this ‘true’ plural meaning, referring to multiple men or multiple mothers, which would typically.

6.4.3 Kinship and inalienable possession

Kinship terms, nouns describing family relations, form a distinct morphological class of nouns in that they can, and in some cases must, occur with a set of possessive agreement suffixes. Kinship terms uniformly fall into the human g/l class, and they pattern with proper nouns and a few other human nouns in their ability to take the associative plural suffix.

We have identified eleven inalienably possessed kinship terms. These nouns actually fall in three different groups grammatically. One group must occur with a possessive suffix, a second group does not need a possessive suffix but must have a possessor internal to the noun, and the third group can occur as an unpossessed noun with a general meaning:

(51) Kinship nouns in Moro

Group 1: Obligatory possessive suffix

eváŋg-áɲ	‘my husband’	*eváŋga
emað-áɲ	‘my peer (sg.)’	*emaða
iðjəŋg-áɲ	‘my offspring (sg.)’	*ið ¹ əŋga
ib-áɲ	‘my sibling-in-law (sg.)’	*ibɜ
umərt-áɲ	‘my co-spouse’	*umurtɜ

Group 2: Obligatory possession

lɜŋg-áɲ	‘my mother’	lɜŋgə Kukuɲ	‘Kuku’s mother’
eɬ-áɲ	‘my father’	eɬə Kukuɲ	‘Kuku’s father’
uɖɜr-áɲ	‘my uncle’	uɖuruwa Kukuɲ	‘Kuku’s uncle’

Group 3: Optional suffix and possession

was-áɲ	‘my wife’	wasə	‘a brother’s wife’
or-áɲ	‘my sibling/cousin’	orəwa	‘a relative’
un-ɜɲ	‘my parent/child in-law’	unɜ	‘an in-law’

While they cannot appear without suffixes, nouns in Group 1 can be nominalized by the nominalizing *ŋ*-prefix (SECTION?) and occur as a nominal predicate, as shown below. Similarly, nouns in all groups can occur without possessive marking when they are plural, illustrated with the subject in the second example below, which must be possessed in the singular:

- (52) a. alə-g-a-d-o-r ŋ-əmurtu
 1PL-CLG-RTC-be.PRED-PFV-PL CLŋ.NOM-co.spouse
 ‘We are married to the same family.’
- b. lətənia l-a-w:o l-a-d-ó ŋ-əmaða
 fathers CLL-RTC-PAST.AUX CLL-RTC-be.PRED-PFV CLŋ.NOM-peer
 ‘The fathers who were peers.’

Not all nouns which are notional kinship terms can take a possessive suffix. For example, the nouns *utɛɛɪ* ‘old man, grandfather’ and *opa* ‘old woman, grandmother’ cannot take any kinship suffixes.

The meanings of these kinship terms are more inclusive than their English translations. For example, ‘father’ can refer to a father’s brother, a point which explains the meaning of the plural forms below. Uncle/aunt is used for mother’s brother or sister. The word for sibling, as indicated, can also refer to a cousin. ‘Mother’ can refer to a married woman of good standing in the community. Additionally, *umərtáŋ* ‘my co-spouse’ could be used either by a woman to refer to her husband’s other wives, if he has more than one. Alternately, it can refer to another individual of the same gender as me who has married into the same family, either my wife’s sister’s husband if I am a man or my husband’s brother’s wife if I am a woman. Note that in either case my co-spouse will always be the same gender as I am.

The possessor agreement suffixes are summarized below. Unlike verbal agreement and other pronominal paradigms, possessive suffixes do not distinguish between 2nd and 3rd person singular and plural, and there is a single form used for 1st person singular and 1st person plural exclusive. There are, however, separate suffixes for 1st dual inclusive and 1st plural inclusive, the latter of which is built off the 1st dual inclusive, with the addition of another suffix which is clearly related to the associative plural:

- (53) Inalienable possessive suffixes
- | | | | |
|--------|-------|--------|------------|
| 1(EX) | -aŋ | | |
| 1IN.DU | -ɛləŋ | 1IN.PL | -ɛləŋ-óńdr |
| 2 | -aló | | |
| 3 | -én | | |

Possessive suffixes are identical to the plural forms of possessive pronouns minus class agreement (Section 7.4), a portion of which is reproduced below. The first portion marking possession is the same segmental material (with some tone differences and vowel reduction /o/ → [ə]):

(54) Possessive pronouns (for comparison)

1EX.PL	ík:-áŋ-k-áŋ		
1IN.DU	ík:-álóŋ-óki	1IN.PL	ík:-əndɛ́-ki
2PL	ík:-aló-k-e		
3PL	ík:-en-k-en		

The 1SG-2-3 possessive suffixes all contain low vowels, whereas the 1DUAL and 1PL inclusive suffixes contain the high vowel [ɜ]. This difference will play a role in vowel harmony.

Of the eleven inalienably possessed kinship nouns that have been identified, six have vowels belonging to the lower set. The vowels are raised by the two suffixes which have the high vowel [ɜ]. This suffix conditions raising of the vowels of the root (e, a, o → i, ɜ, u). It is the only nominal suffix that triggers raising.

(55) Singular kinship nouns with low vowel harmony

	father	mother	sibling/cousin
root	eɛ-	ləŋg-	or-
1ex	eɛ-áŋ	ləŋg-áŋ	or-áŋ
1in.du	iɛ-álóŋ	ləŋg-álóŋ	ur-álóŋ
1in.pl	iɛ-álóŋ-óndr	ləŋg-álóŋ-óndr	ur-álóŋ-óndr
2	eɛ-aló	ləŋg-aló	or-aló
3	eɛ-én	ləŋg-ín	or-én
	wife	husband	peer
root	was-	eváŋg-	emað-
1ex	was-áŋ	eváŋg-áŋ	emað-áŋ
1indu	wɜs-álóŋ	iváŋg-álóŋ	emað-álóŋ
1inpl	wɜs-álóŋ-óndr	iváŋg-álóŋ-óndr	emað-álóŋ-óndr
2	was-aló	eváŋg-áló	emað-áló
3	was-én	eváŋg-ín	emað-én

The five other kinship terms have high vowels. In these cases, vowel harmony extends from the root, but only in a limited manner. If the root contains a single vowel and the suffix a single vowel, harmony applies, as seen with *un-ín*. However, if the suffix contains two vowels, harmony does not apply: *un-aló*. If the root contains two vowels, no harmony extends, as seen with *uɛɛr-áŋ*. This restriction can be interpreted as harmony operating in the rightward or progressive direction in a non-iterative manner, so only one vowel to the right. If harmony

is restricted to apply in this manner, then application to a form like *un-aló* would render the suffix disharmonic (*-3ló*), and harmony is blocked.

Table 6.12: Singular kinship nouns with high vowel harmony

	Parent-in-law	Sibling-in-law	Mat. uncles/aunts
root	un-	ib-	uɖʒr-
1ex	un-ʒɪ	ib-ʒɪ	uɖʒr-áɪ
1indu	un-ʒlɔŋ	ib-ʒlɔŋ	uɖʒr-ʒlɔŋ
1inpl	un-ʒlɔŋ-ʒ́ndr	ib-ʒlɔŋ-ʒ́ndr	uɖʒr-ʒlɔŋ-ʒ́ndr
2	un-aló	ib-aló	uɖʒr-aló
3	un-ín	ib-ín	uɖʒr-én
	Offspring	Co-spouse	
root	iðjəŋg-	umərt-	
1ex	iðjəŋg-áɪ	umurt-áɪ	
1indu	iðjəŋg-ʒlɔŋ	umurt-ʒlɔŋ	
1inpl	iðjəŋg-ʒlɔŋ-ʒ́ndr	umurt-ʒlɔŋ-ʒ́ndr	
2	iðjəŋg-aló	umurt-aló	
3	iðjəŋg-én	umərt-ín	

Restricting vowel harmony in this manner is not attested in verbs. For example, if a verb root has two or more vowels, the aspect mood suffix always harmonizes: compare *k-a-ʃfombəð-ó* ‘he tickled’ with *k-ʒ-murnin-ú* ‘he pretended, acted like’. Furthermore, harmony also applies to intervening extension suffixes such as the locative *-aɫ* (see Section ??).

The number of first person exclusive, second, and third person possessors can be disambiguated by adding possessive pronouns (Section ??), which do make the relevant distinctions in number marking:

- (56) a. ləŋg-áɪ k-əŋkəŋ b. ləŋg-áɪ k-apkəŋ
 mother-1EX SCL-1SG.POSS mother-1EX SCL-1PLEX.POSS
 ‘my mother’ ‘my mother’

This example also shows that although the word for ‘mother’ begins with [l], it is a class-g noun, conditioning concord with [k] on the possessive, as all the singular kinship terms belong to class-g. Additionally, the observation that possessive suffixes co-occur with possessive pronouns demonstrates that these are agreement suffixes rather than incorporated possessive pronouns.

Furthermore, the genitive construction can be used to refer to a particular person's kin:

- (57) was-én g-↓ǎ-↓kúk:ú
 wife-3 CL-POSS-1SG.POSS
 'Kuku's wife'

In this case, the [g] concord is used rather than [k], so the strong concord iC:- is not used, presumably because of the presence of the specific inalienable possession marker. On the other hand, when kinship terms occur without any possessive suffix, as in the examples in Table 6.12, the possessor can be bare, without any genitive marking at all.

The number of the kinship term is marked by pluralizing the stem itself and by adding an associative plural suffix, illustrated in Table ???. In most cases, pluralizing the stem consists of adding the plural class marker for humans *l-* along with the predictable vowel changes for a g/l class noun, for example *ib-* 'sibling-in-law' to *lǎb-* 'siblings-in-law' (Section 6.1.8). However, in the case of father and mother, there is a suppletive form used. For father, singular *et-* is replaced with plural *er-*, and for mother singular *lǎŋg-* is replaced with plural *el-*. There are also additional changes for the forms for husband and uncle. The singular form for 'husband' *evanŋ-* corresponds to plural *lǎvǎl-*, where the final [ŋg] is replaced with [l]. The singular form for 'maternal uncle/aunt' *uḍʒr-* corresponds to *ǎldwǎrl-*, also with a final [l].

- Is the assoc suffix obligatory? can it follow a possessor?

Table 6.13: Plural kinship nouns: Full paradigms

	Fathers	Mothers	Siblings/cousins
Root	er-	el-	lor-
1ex	er-áṅ-andá	el-áṅ-andá	lorl-áṅ-andá
1indu	ir-ṣlṣṅ-andá	il-ṣlṣṅ-andá	lurl-ṣlṣṅ-andá
1inpl	ir-ṣlṣṅ-ṣṇdr	il-ṣlṣṅ-ṣṇdr	lurl-ṣlṣṅ-ṣṇdr
2	er-ál-andá	el-ál-andá	lorl-ál-anda
3	er-én-andá	el-én-andá	lorl-énandá
	Wives	Husbands	Peers
Root	lwas-	ləvál-	lamað-
1ex	lwas-áṅ-andá	ləvál-áṅ-andá	lamað-áṅ-andá
1indu	lwəs-ṣlṣṅ-andá	ləvṣṅ-ṣlṣṅ-andá	lamað-ṣlṣṅ-andá
1inpl	lwəs-ṣlṣṅ-ṣṇdr	ləvṣṅ-ṣlṣṅ-ṣṇdr	lamað-ṣlṣṅ-ṣṇdr
2	lwas-ál-andá	lavál-ál-andá	lamað-ál-andá
3	lwas-é'n-andá	lavál-én-andá	lamað-en-andá
	Parents-in-law	Sibling-in-law	Mat. uncles/aunts
Root	lṗw-	ləb-	lḍwʒrl-
1ex	lṗw-áṅ-andá	ləb-áṅ-andá	lḍwʒrl-áṅ-ənda
1indu	ln ^w -ṣlṣṅ-andá	ləb-ṣlṣṅ-andá	lḍ ^w ʒrl-ṣlṣṅ-andá
1inpl	ln ^w -ṣlṣṅ-ṣṇdr	ləb-ṣlṣṅ-ṣṇdr	lḍ ^w ʒrl-ṣlṣṅ-ṣṇdr
2	ln ^w -ál-andá	ləb-ál-andá	lḍ ^w ʒrl-ál-andá
3	ln ^w -ín-andá	ləb-ín-andá	lḍ ^w ʒrl-én-andá
	Offspring (pl.)	Co-spouses	
Root	lið'əṅg-	ləmurt-	
1ex	lið'əṅg-áṅ-andá	ləmurt-áṅ-andá	
1indu	lið'əṅg-ṣlṣṅ-andá	ləmurt-əḷəṅ-andá	
1inpl	lið'əṅg-ṣlṣṅ-ṣṇdr	ləmurt-əḷəṅ-andá	
2	lið'əṅg-ál-andá	ləmurt-al-andá	
3	lið'əṅg-én-andá	ləmurt-in-andá	

7 Pronouns

Moro possesses five series of pronouns: independent personal pronouns, object markers, reflexive pronouns, and predicative and attributive possessive pronouns. This chapter provides a descriptive overview of these pronouns with a focus on their morphological makeup and their syntactic distribution.

Moro is a pro-drop language, meaning that pronouns are often omitted in subject position. In addition, non-emphatic object pronouns, which we call object markers, are incorporated into the verb and appear as either prefixes or suffixes on the verb stem (See Section ?? and Jenks & Rose 2015). However, these object markers do not correspond to all pronominal objects, many of which have no overt pronominal correlate (see below and Section ??).

Moro pronominal and subject agreement paradigms distinguish eight different forms, schematized below:

Table 7.1: Person-number distinctions in pronouns

	Singular/Dual	Plural
[+Speaker, −Addressee]	1st (exclusive) singular	1st exclusive plural
[+Speaker, +Addressee]	1st inclusive dual	1st inclusive plural
[−Speaker, +Addressee]	2nd singular	2nd plural
[−Speaker, −Addressee]	3rd singular	3rd plural

Moro marks four first person forms, including a distinction in clusivity. “Inclusive” refers to the speaker and the addressee (the person being spoken to), whereas “exclusive” excludes the addressee. When a speaker uses the inclusive dual they are referring to ‘me and you (sg.)’, whereas when a speaker uses the inclusive plural they are referring to ‘me, you and person X’ or ‘me and all of you.’ The exclusive plural references ‘me and person or persons X, but not you.’ The person-number distinctions in Moro can be generated by cross-cutting all eight values for three binary features \pm speaker, \pm addressee, and \pm plural.

While independent pronouns in Thetogovela Moro do not reflect gender, Moro third person pronouns of all series only occur when they are anaphoric to a

particular subset of human nouns: proper names, kinship terms, and subset of class g human nouns such as *matfe* ‘man.’ This is the same of nouns which take the associative plural suffix in Moro (Section 6.4.2. Thus, for example, an object pronoun anaphoric to the noun *ɲera* ‘child, girl’ is null. Compare the following examples:

- (1) a. kúku g-war-ó ɲalló na náɲ-ɲú-bug-i
 kuku CLg-insult-PFV Nalo and 3SG.CONS-3SG.OM-punch-CONS.PFV
 ‘Kuku yelled at Ngallo_i and then punched him_i.’
 b. kúku g-war-ó ɲera na náɲá-búg-í
 kuku CLg-insult-PFV child and 3SG.CONS-punch-CONS.PFV
 ‘Kuku yelled at the child_i and then punched him_i.’

As a proper name, the object of the first sentence, *ɲalló*, triggers an anaphoric object marker *ɲú-*. In contrast, when this name is replaced by *ɲerá* ‘girl,’ there is no overt object marker or object pronoun in the consecutive clause. Because of this restriction, we will abbreviate 3rd person pronouns in Moro as 3HUMSG.

The five series of pronouns in Moro are presented in Table 7.2 for reference. Possessive forms are given in their Class g- form. Possessive pronouns share the 3PL formative with 3rd person inalienable possessive suffixes (Section ??), while the object markers series most closely resemble subject agreement (Section ??).

Table 7.2: Comparison of pronoun paradigms

	Indep.	Obj.	Refl.	Poss Pred.	Poss. Attr.
1SG	ɲɲí	=ɲé	ɲé-vágá	g3-k-ʒɲ	ík:-ʒɲ-kʒɲ
2SG	ɲɲá	=ɲá	ɲá-vágá	ga-k-ó	ík:-o-k:e
3SGHUM	ɲɲúɲ	=ɲó	ɲó-vágá	ga-k-óɲ	ík:-oɲ-kon
1INDU	ndʒlɲ	=ndə/nda	lá-vágá	g3-k-ʒlɲ	ík:-ʒlɲá-ki
1INPL	ndr	=ndr	lá-vágá	g3-k-əndɪ	ík:-əndɪ-ki
1EXPL	ɲɲandá	=lánda	ɲá-vágá	ga-k-áɲ	ík:-aɲ-kap
2PL	ɲánɲandá	=nda	ɲánɲá-vágá	ga-k-aló	ík:-alá-ke
3PL	ɲúlɰwó/ɲúlandá	=lo	ɲúlɰwó-vágá	ga-k-én	ík:-en-ken

7.1 Independent personal pronouns

Independent pronouns are pronouns that can occur in the same position as full noun phrases, including as subjects or objects. Moro has the following set of independent pronouns.

(2)	sg/dual	plural
1EX	ǰǰí	ndr
1IN	ndǰliŋ or lǰliŋ	ǰǰandá
2	ǰǰá	ǰǰǰǰnda
3HUM	ǰǰǰǰ	ǰǰwúlwó or ǰǰwánda

In subject position, independent pronouns are typically used for emphasis to introduce a new or unexpected topic:

- (3) Independent pronouns
- ǰǰí e-g-a-v-ǰǰǰ-a
1SG.PRO 1SG-CLG-RTC-PROG-sing-IPFV
'As for me, I can sing.' (3/17/2010)
 - ǰǰí tǰom
1SG.PRO also
'Me too!' (said in response)
 - ǰǰwúlǰ al-ǰǰǰ-e
3SG.PRO 3PL-INF-sing-JUSS
'They, let it be that only they sing.'

In non-emphatic contexts subject independent pronouns are not used, and a null subject is used instead.

In object positions, independent pronouns can be used together with affixal object markers to indicate focus on their referent:

- (4) k-a-bwǰp-ǰ g-ǰ-ndǰ-duǰd-ǰt-ǰǰ ǰǰǰǰnda
SM.CLG-RTC-want-IPFV SM.CLG-DPC1-2PL.OM-speak-APPL-IPFV 2.PL
'He wants to talk to you all.'

Otherwise, the normal realization of object pronouns is as object markers (Section ??).

Independent pronouns can also occur in cleft constructions (Section 17.2). When an object pronoun is clefted, a resumptive object marker appears on the verb:

- (5) ηwá-ndr k-é-bwáɲá
 CLEFT-1pl.EXC SM.CLg-DPC1-want-IPFV
 g-í-ndə-duʒd-əɬ-ia-r
 SM.CLg-DPC1-1PLEXCLOM-speak-APPL-IPFV-PL
 ‘it is us that he wants to talk to’

Independent personal pronouns can be emphasized with the addition of an *-é* suffix. This suffix is realized as [j] following [a], and does not appear on the 1sg marker.

- | | | | |
|-----|------|---------|---------|
| (6) | | sg/dual | plural |
| | 1EX | ɲɲí | ndre |
| | 1IN | lɔ́ɲɲé | ɲɲándé |
| | 2 | ɲɲaj | ɲáɲánde |
| | 3HUM | ɲɲúɲé | ɲwúlwáj |

7.2 Object markers

Object markers are object pronouns that have been incorporated into the verb as affixes or clitics. Object markers are the normal realization of pronominal objects in Moro. Object markers distinguish the same eight person-number combinations as other pronoun and agreement series in Moro. Object markers have a complex distribution, occurring in one of two positions or series. In the first series, object markers are realized as enclitics, which are only loosely attached to the verb:

- (7) Suffixal object markers on perfective verb (from Rose 2013)
- | | | |
|--------|--------------------|----------------------------|
| 1SG | g-a-ɬɔmbəð-ə=ɲé | ‘(s)he tickled me’ |
| 2SG | g-a-ɬɔmbəð-á=ɲá | ‘(s)he tickled you (sg.)’ |
| 3SG | g-a-ɬɔmbəð-ó=ɲó | ‘(s)he tickled her/him’ |
| 1IN.DU | g-a-ɬɔmbəð-ə=nda | ‘(s)he tickled you and me’ |
| 1IN.PL | g-a-ɬɔmbəð-ə=nd-r | ‘(s)he tickled us (incl.)’ |
| 1EX.PL | g-a-ɬɔmbəð-á=lánda | ‘(s)he tickled us (excl.)’ |
| 2PL | g-a-ɬɔmbəð-ə=nda | ‘(s)he tickled you (pl.)’ |
| 3PL | g-a-ɬɔmbəð-ó=lo | ‘(s)he tickled them’ |

The underlying form of the perfective final vowel is /-ó/ (Section ??), and the changes in vowel quality are due to peripheral vowel reduction and local rounding harmony.

The second set of object markers are realized either as prefixes or as circumfixes:

(8) Prefixal object markers on proximal imperfective verb (from Rose 2013)

1SG	g-a-ɲá-ʈɔmbəð-a	‘(s)he is tickling me’
2SG	g-a-ɲá-ʈɔmbəð-a	‘(s)he is tickling you (sg.)’
3SG	g-a-ɲó-ʈɔmbəð-a	‘(s)he is tickling her/him’
1IN.DU	g-á-ńdə-ʈɔmbəð-a	‘(s)he is tickling you and me’
1IN.PL	g-á-ńdə-ʈɔmbəð-a-r	‘(s)he is tickling us (incl.)’
1EX.PL	g-a-ɲá-ʈɔmbəðá-lánda	‘(s)he is tickling us (excl.)’
2PL	g-á-ńdə-ʈɔmbəð-a	‘(s)he is tickling you (pl.)’
3PL	g-a-ʈómbəð-a-lo	‘(s)he is tickling them’

Both third person plural forms show circumfixal object markers, but certain pieces of the circumfixes show a distinct distribution. The plural *-r* suffix in the 1IN.PL is attested in a number of other constructions such as plural imperatives, and note that the prefixal *ɲá-* component of the 1EX.PL also occurs with the 1SG, both of which are [+Speaker, -Addressee].

The 3PL object marker is unique in always occurring as an enclitic in Thetogovela Moro. Written Moro is different in this regard, with a 3PL prefix *lá-*, and one of our consultants can place this OM in prefixal position, even though he is a Thetogovela Moro speaker. Different dialects have other differences forms elsewhere in their object marker paradigm, for example in Written Moro based mostly on the Wërria dialect the 3SG.HUM form is *ma-/=ma* (tone unknown).

Whether a particular verb form is prefixal or suffixal is dependent on the morphological category of the verb to which it attaches. The different verb forms triggering prefixal and suffixal object markers are listed below:

(9) Verb forms with suffixal object marker (w/3SG object)

a.	PFV	g-a-ʈɔmbəð-á-ɲó	‘s/he tickled her/him’
b.	DIST.IPVFV	g-á-ʈɔmbəð-á-ɲó	‘s/he is about to tickle her/him there’
c.	PROX.IMP	ʈómbəð-á-ɲó	‘tickle her/him!’
d.	DIST.IMP	ʈɔmbəð-á-ɲó	‘tickle her/him there!’

(10) Verb forms with prefixal/circumfixal object markers (w/3SG object)

a.	PROX.IPFV	g-a-ŋó-ʈfombəð-a	‘s/he is about to tickle her/him’
b.	PROX.INF1	(n)-án-ŋó-ʈfombəð-e	‘that s/he tickles (him/her)’
c.	DIST.INF1	(n)-án-ŋó-ʈfombəð-a	‘that s/he tickles her/him) (there)’
d.	DIST.INF2	(n)-án-ŋó-ʈfombəð-ó	‘that s/he tickles her/him there’
e.	PROX.CONS.PFV	n-əŋ-ŋó-ʈfombəð-e	‘and then s/he tickles her/him’
f.	DIST.CONS.PFV	n-əŋ-ŋó-ʈfombəð-a	‘and then s/he tickles her/him there’
g.	NEG	gan:á án-ŋó-ʈfombəð-a	‘s/he doesn’t/ didn’t tickle her/him)’
h.	NEG.IMP	án:á á-ŋó-ʈfombəð-a	‘don’t tickle her/him!’

These groups of morphemes seem arbitrary, but they form natural classes based on their tonal behavior: the verb forms in 10 all have the default verb tone pattern of a left-aligned H tone on the verb root (Section ??). Thus, Jenks & Rose (2015) argue that grammatical constraints on the distribution of tone predict whether object markers are prefixal or suffixal.

Vowel harmony provides evidence that the suffixal forms of the verb are less tightly incorporated into the stem than the prefixal forms. Consider the following pair (Jenks & Rose 2015 ex. 22):

(11) Vowel harmony with object markers

é-g-a-veð-ə-ŋá	‘I slapped you (SG.)’	é-g-a-ŋá-veð-a	‘I am about to slap you SG.’
í-g-3-bug-ə-ŋá	‘I hit you (SG.)’	í-g-3-ŋá-bugw-3	‘I am about to hit you (SG.)’

The verb roots *veð* ‘slap’ and *bug* ‘hit’ differ in triggering low and high vowel harmony respectively. As the examples above show, only the prefixal object marker is subject to high vowel harmony.

In normal declarative clauses with no focus on the object, object markers cannot occur with coreferential object noun phrases:

- (12) Kúku g-a-ləvəʈf-ó(*-ŋó) ŋerá
 CLg.Kuku CLg.SM-RTC-hide-PFV CLŋ.girl
 ‘Kuku hid the girl’

The complementarity of object markers and coreferential object noun phrases provides evidence for the pronominal status of object markers. However, object markers do occur with focused object pronouns, as we saw in the previous section. Object markers also occur as resumptive pronouns in a number of extraction constructions such as clefts (Section ??).

7.3 Reflexive pronouns

Reflexive pronouns are formed by prefixing one or two syllables to *vəga* ‘self’. The singular prefixes resemble object markers rather than pronouns, whereas the 1st and 2nd plural forms use the first syllable of the independent pronoun. 3PL is the 3PL pronoun, not the object marker *-lo*.

- (13) Prefixal object markers on proximal imperfective verb (from Rose 2013)

1SG	ɲé-vəɡá	‘myself’
2SG	ɲá-vəɡá	‘yourself’
3SG	ɲó-vəɡá	‘herself/himself’
1IN.DU	lá-vəɡá	‘yourself and myself’
1IN.PL	lá-vəɡá	‘ourselves (incl.)’
1EX.PL	ɲá-vəɡá	‘ourselves (excl.)’
2PL	ɲáɲá-vəɡá	‘yourselves’
3PL	ɲúlwó-vəɡá	‘themselves’

Reflexive pronouns occur in two (three?- reciprocal?) syntactic contexts. First, they occur along with the reflexive extension suffix *-nə* on the verb (identical to the passive, Section ??):

- (14) ɲ3-g3-p-ən-u ɲa-vəɡa
 1EX.PL-CLg-beat.rt-pass-pfv 1EXPL-self
 ‘We (excl.) hit ourselves.’

(Second, plural reflexive pronouns can serve as reciprocal pronouns along with a reciprocal suffix *-əð* on the verb (identical to the antipassive, Section ??)

Additionally, reflexive pronouns can serve as emphatic pronouns, as in the following examples:

- (15) a. é-g-a-kal-ó ɲé-vəɡa
 1SGSM-CLg-RTC-chop-PFV 1SG-self
 ‘I chopped it myself’
 b. k-a-kal-ó ɲó-vəɡa
 SM.CLg-RTC-chop-PFV 3SG-self
 ‘He chopped it himself’
 c. l-a-kal-ó ɲwúlwá-vəɡa
 SM.CLg-RTC-chop-PFV 3SG-self
 ‘they chopped it themselves’

- d. íð-ú ηəməgəniə ηá-vəga Jan. 30, 2013
do-IMP CLη.work 2SG-self
‘do the work by yourself!’

7.4 Possessive pronouns

Possessive pronouns take two different forms depending on whether they are in predicative or attributive positions, as summarized in Table 7.3. Predicative possessive pronouns are simpler (see Section 10.3 for more on possessive predicates), consisting of a verbal prefix, and weak concord with the subject which occurs on the possessor itself. Attributive uses of possessive pronouns typically occur with strong concord (Section 8.1) and always involve a partial reduplication process. The plural possessive roots in Table 7.3 are also found as suffixes on inalienably possessed kinship nouns (Section ??).

Table 7.3: Possessive pronoun forms

	Pronoun root	Predicative	Attributive
1SG	-ʒɪŋ	gɜ-k-ʒɪŋ	ík:-ʒɪŋ-kɜŋ
2SG	-ó	ga-k-ó	ík:-o-k:e
3SG	-óŋ	ga-k-óŋ	ík:-oŋ-kon
1IN.DU	-ʒlɔŋ	gɜ-k-ʒlɔŋ	ík:-ʒlɔŋʒ-ki
1IN.PL	-əndɪ	gɜ-k-əndɪ	ík:-əndɪ-ki
1EX.PL	-áŋ	ga-k-áŋ	ík:-aŋ-kaŋ
2PL	-aló	ga-k-aló	ík:-alá-ke
3PL	-én	ga-k-én	ík:-en-ken

The full paradigm of attributive possessive forms is given in Table 7.4, including the full range of noun class agreement. The second row in that table shows the phonological schema for each pronominal form, where C represents noun class concord. Schwa epenthesis occurs before sonorants, except when they are identical.

Although there is no vowel harmony between the strong concord íC: element and the rest of the possessive, vowel harmony does appear to be operable within the rest of the construction, as *ʒlɔŋʒki* and *aláke* demonstrate. Some identifiable pronominal elements are also contained within some of these forms. The sequence *ndr* in 1INPL is the same as the 1INPL object marker. The sequence *ʒlɔŋ*

Table 7.4: Attributive possessive pronoun paradigm

	1SG íC:-3ŋ-C-3ŋ	1INDU íC:-3lǎŋ-(ǎ)C-i	2SG íC:-o-C:-e	3SG íC:-oŋ-C-oŋ
g	ík:3ŋk3ŋ	ík:3lǎŋǎki	ík:ok:e	ík:oŋkoŋ
l	íl:3ŋǎl3ŋ	íl:3lǎŋǎli	íl:ol:e	íl:oŋǎloŋ
n	ín:3ŋǎn3ŋ	ín:3lǎŋǎni	ín:on:e	ín:oŋǎnoŋ
ŋ	íŋ:3ŋ3ŋ	íŋ:3lǎŋŋi	íŋ:oŋ:e	íŋ:oŋoŋ
ɲ	íɲ:3ŋǎɲ3ŋ	íɲ:3lǎŋǎɲi	íɲ:oŋ:e	íɲ:oŋǎɲoŋ
ð	íð:3ŋǎð3ŋ	íð:3lǎŋǎði	íð:od:e	íð:oŋǎðoŋ
r	ír:3ŋǎr3ŋ	ír:3lǎŋǎri	ír:ore	ír:oŋǎroŋ
j	ís:3ŋs3ŋ	ís:3lǎŋsi	ís:ose	ís:oŋsoŋ
	1EXPL íC:-aŋ-C-aŋ	1INPL íC:-ndǎ-C:-i	2PL íC:-alǎ-C-e	3PL íC:-en-C-en
g	ík:aŋkaŋ	ík:əndǎki	ík:alǎke	ík:enken
l	íl:aŋlaŋ	íl:əndǎli	íl:alǎle	íl:enlen
n	ín:aŋnaŋ	ín:dǎni	ín:alǎne	ín:en:en
ŋ	íŋ:aŋŋaŋ	íŋ:ndǎŋi	íŋ:alǎŋe	íŋ:enəŋen
ɲ	íɲ:aŋaŋ	íɲ:əndǎɲi	íɲ:alǎɲe	íɲ:enəɲen
ð	íð:aŋðaŋ	íð:əndǎði	íð:alǎðe	íð:enðen
r	ír:aŋraŋ	ír:ndǎri	ír:alǎre	ír:endren
j	ís:aŋsaŋ	ís:əndǎsi	ís:alǎse	ís:ensen

in 1INDU is connected to the 1INDU pronoun *ndǎliŋ* or *lǎliŋ*.

When they modify nouns, possessive pronouns often fuse with the final vowel of the noun, as do all nominal modifiers with strong concord:

- (16) a. [lavəra] b. [lavəɾǎl:3ŋǎl3ŋ]
 lavəra lavəra-íl:-3ŋ-l-3ŋ
 CLL.stick CLL.stick-SCLL-1SGPOSS-CLL-1SGPOSS
 ‘the/a stick’ ‘my stick’

The final vowel of the noun raising from /a/ to [ǎ] due to fusion with the initial /i/ of the strong concord prefix, which also contributes a high tone to the final vowel of the noun.

8 Noun phrases

This section describes the morphological marking and syntactic distribution of nominal modifiers in Moro, including adjectives, numerals, demonstratives, genitive phrases, and relative clauses. Additional discussion of adjectives can be found in Chapter ??, while relative clauses are discussed in more detail in section 16.2. Previous descriptions of Moro noun phrase syntax include Jenks (2013), from which this chapter draws.

8.1 Weak and strong nominal concord

Most nominal modifiers in Moro agree with the head noun in noun class, an instance of what is commonly called nominal concord. Moro has two distinct sets of nominal concord prefixes, which we call weak and strong concord. Weak concord is identical to noun class subject agreement on verbs, and is simply the concordial prefix *C-*. Strong concord is of the shape *íC-*, where *C-* is the geminated noun class concord marker. Both series are illustrated in Table 8.1.

Table 8.1: Weak versus strong concord

Weak concord (CL)	Strong concord (SCL)
g-	ík:-
l-	íl:-
n-	ín:-
ŋ-	íŋ:-
ɲ-	íɲ:-
ð-	íð:-
r-	ír:-
j-	ís-

The geminated variant of *j-* concord is realized as [s]. In fact, all surface realizations of [s] in Moro are analyzable as geminated underlying /j/. Strong concord can only occur in definite noun phrases, and only once, on the leftmost element

in that noun phrase, while all other modifiers take weak concord. Strong concord is obligatory on demonstratives, the proximal form of which it closely resembles. Weak concord is the only form which surfaces on numerals and indefinite modifiers.

Strong concord closely resembles the proximal demonstrative *iC:i*, and likely is derived from it historically. In fact, in written Moro, strong concord is always written as a separate word *iCi* distinct from the noun and modifier. It is unclear if this orthographic decision reflects any dialectal differences in this area. It could be that Moro speakers intuitively feel that strong concord and the proximal demonstrative are identical, or that other dialects of Moro such as Werria might not surface with the same phonological fusion processes described below for Thetegovela.

8.2 Nominal modifiers

This section surveys the syntax and morphological marking on nominal modifiers. All nominal modifiers follow the head noun in Moro. The basic syntactic arrangement of complex noun phrases in Moro is Noun-Demonstrative-Adjective-Numeral, illustrated below:

- (1) *náḍám ʼín-ʒtín:ə n-əgəʃan n-óré*
 CLn.books SCL-that CL-two CL-SRC.red-ADJ
 ‘those two red books’

This example also illustrates the distribution of strong and weak concord, with strong concord occurring on the leftmost modifier and weak concord on the following modifiers.

In addition to occurring immediately after nouns, nominal modifiers frequently occur in extraposed positions farther to the right than the noun they modify, as shown in the following textual examples. In such cases, the modifier typically occurs with strong concord:

This pattern is especially common with relative clauses, likely an effect of their syntactic heaviness. In most cases, concord on the extraposed modifier is sufficient to disambiguate its reference.

8.2.1 Demonstratives

There are three degrees of demonstrative determiners in Moro. The C indicates noun class agreement:

(2) Demonstrative series in Moro

íC:i	‘this’	proximal
íC:3j	‘that’	medial
íC:3tiC:3	‘that over there’	distal

The initial *íC:-* of all demonstratives is strong concord; note that the distal form reduplicates the strong concord component of the stem.

Demonstratives can occur independently as demonstrative pronouns, in which case they occur in the forms above.

When they modify nouns, demonstratives fuse with the noun in normal speech, a process which extends to all modifiers exhibiting strong concord. Phonologically, this means that the initial [i] of the strong concord marker is reduced, fused or dropped. If the noun ends in a consonant, the first vowel of the suffix may be dropped or is reduced to [ə]. If it is dropped, the consonant is not geminated. However, for the *g*-class, it is still realized as [k]:

(3) etám ‘neck’ etám-ki ‘this neck’

NEED MORE

If the noun ends in a vowel, there is fusion of the two vowels, often resulting in [ə]. In the following example, the noun ends in an [i] with high tone (*wədʒí*), and the demonstrative begins with the same vowel, so they are fused to form an identical vowel [i]. However, this vowel is subject to vowel reduction, and surfaces as [ə]. The C is filled with [k].

- | | | |
|-----|--------------|-------------------------|
| (4) | wədʒí | ‘(the) woman’ |
| | wədʒək:i | ‘this woman’ |
| | wədʒək:3j | ‘that woman’ |
| | wədʒək:3tik3 | ‘that woman over there’ |

In the following example, the final [a] of the noun and the initial [i] of the determiner fuse to form [ɜ]. The high tone of the demonstrative appears on this vowel:

- | | | |
|-----|----------------|-------------------------|
| (5) | ǎamala | ‘(the) camel’ |
| | ǎamalɜð:i | ‘this camel’ |
| | ǎamalɜð:3j | ‘that camel’ |
| | ǎamalɜð:3tið:3 | ‘that camel over there’ |

Vowel hiatus resolution patterns for other vowel endings are below. The combinations resulting from final peripheral vowels /i e o u/ reduce to [ə], whereas the combinations resulting from central vowels /a ɜ/ fuse to [ɜ]:

8 Noun phrases

- (6)
- | | | | |
|-------------|--------------|---------------|---------------|
| /e-i/ → [ə] | ome-ík:i | [omák:i] | ‘this fish’ |
| /u-i/ → [ə] | ʒðu-ís:i | [ʒðós:i] | ‘this breast’ |
| /o-i/ → [ə] | ɲombogó-ín:i | [ɲombogósɲ:i] | ‘this calf’ |
| /ɜ-i/ → [ɜ] | ðuw:ɜ-íð:i | [ðuwósð:i] | ‘this smoke’ |
| /eə-i/ → | | | |
| /iə-i/ → | | | |

Noun class agreement paradigms are shown in Table 8.2. The g-class may have either [g] or [k] concord, and the j-class may have either [k] or [s]. In this case, the [k] and [s] versions are selected.

Table 8.2: Demonstrative paradigms

	proximal	medial	distal
g-class	ík:i	ík:ɜj	ík:ɜtikɜ
l-class	íl:i	íl:ɜj	íl:ɜtilɜ
n-class	ín:i	ín:ɜj	ín:ɜtinɜ
ɲ-class	ínɲ:i	ínɲ:ɜj	ínɲ:ɜtɲɜ
ɲ-class	ínɲ:i	ínɲ:ɜj	ínɲ:ɜtɲɜ
ð-class	íð:i	íð:ɜj	íð:ɜtiðɜ
r-class	ír:i	ír:ɜj	ír:ɜtirɜ
j-class	ís:i	ís:ɜj	ís:ɜtisɜ

8.2.2 Genitive phrases

Genitive constructions in Moro are marked by strong or weak concord in addition to a possessive prefix on the possessor. There are two prefixes, *Cá-* and *Ca-*. Note that possessive pronouns are discussed in Section 7.4.

Beginning with the *Cá* possessor, the structure is possessee SCLX.á-possessor, as shown below:

- (7)
- | | | |
|-----------------------------|---------------------|---------------|
| ɲ-ədər:əə | ɲá-ɲerá | ɲ-aɲər-á |
| CLɲ-nursing | SCLɲ.GEN-SCLɲ.child | SCLɲ-good-ADJ |
| ‘Nursing of babies is good’ | | |

Note that this noun phrase involves generic reference to an activity. In definite noun phrases modified by a single possessor, the possessor occurs with strong

concord. As with demonstratives, strong concord fuses with the noun, resulting in the template possessee-ísCLX:ǎ-possessor:

- (8) áŋǎnó ís-um:iǎ j-a-daŋ-ǎ
 CLj.body SCLj.GEN-CLg.boy SM.CLj-RTC-dirty-ADJ
 the boy's body is dirty

A full possessive paradigm with a proper noun possessor is provided below:

- (9)
- | | | |
|---|-------------------|-------------------|
| g | udʒǎ-k:-ǎ-tútu | 'Tutu's person' |
| l | lidʒǎ-l:-ǎ-kúkú | 'Kuku's people' |
| n | nǎmertǎ-n:-ǎ-kúkú | 'Kuku's horses' |
| ŋ | ŋerǎ-ŋ:-ǎ-kúkú | 'Kuku's child' |
| ɲ | ɲerǎ-ɲ:-ǎ-kúkú | 'Kuku's children' |
| ǎ | ǎáp:ǎ-ǎ:-ǎ-kúkú | 'Kuku's friend' |
| r | ráp:ǎ-r:-ǎ-kúkú | 'Kuku's friends' |
| j | ájén-s:-ǎ-kúkú | 'Kuku's mountain' |

Proper names lack the accusative suffix -ŋ in the possessive. This is no mistake: genitive is a particular case-marked form of the noun. Thus, nouns which show a surface alternation for nominative versus accusative case can only exhibit the nominative form, the root, with the possessive prefix:

- (10)
- | Nominative | Accusative | | Genitive | |
|------------|------------|-----------|----------|------------------|
| ŋaw | ŋaw-a | 'water' | gǎ-ŋaw | 'of the water' |
| ómón | ómón-a | 'leopard' | g-ómón | 'of the leopard' |

In case the noun is also modified by a demonstrative or multiple genitive phrases, only the leftmost modifier occurs with strong concord, while the other modifiers take weak concord:

- (11)
- | | | | |
|----|-------------------------------------|-----------|-------------------------------|
| a. | jamal -ǎs:i | jǎ-kúk:u | |
| | camel SCLj-this CLj.GEN-Kuku | | |
| | 'these camels of Kuku's' | | |
| b. | ogǎŋ -ǎk:-ǎj | gǎ-kúk:u | |
| | hoe SCLj-that CLg.GEN-Kuku | | |
| | 'that hoe of Kuku's' | | |
| c. | súr -ǎs:-ǎ-kúkú | jé-ǎamala | 'Kuku's picture of the camel' |
| | picture SCLj.gen-Kuku CLj.GEN-camel | | |

The genitive is also the main way that compounds are formed in Moro. We have only noted compounds composed of two nouns with genitive marking. In these cases, the relationship is not clearly possessed-possessor, but can be part-whole or some other relational meaning. In the last two examples, there is also a locative on the noun, so the order is GEN-LOC-NOUN.

(12) Cə forms

- a. loðeə l-ánó
CLl.bone CLl.GEN-CLg.inside
‘spine’
- b. ŋal:ə́tʃa ŋə-láj
CLŋ.sweet.substance CLŋ.GEN-CLl.bee
‘honey’
- c. ʒniŋé g-úgi
CLg.ear CLg.GEN-CLg.tree
‘leaf’
- d. ðəpúndri ð-é-ŋáw
CLð.wooden.object CLð.GEN-LOC-CLŋ.water
‘boat’ (lit. ‘wooden thing of in the water’)
- e. kwaŋ k-é-ŋáŋá
CLg.thing CLg.GEN-LOC-CLŋ.grass/forest
‘animal’ (lit. ‘things of in the forest’)

(13) Ca forms:

- ŋene ŋa-ðeʔam 2/24/2012
CLŋ.word CLŋ.GEN-CLð.truth
truth (words of truth)

8.2.3 Numerals

The Moro numeral system uses a quinary (base-five) system until nine, and then switches to a decimal (base-ten) system. The numbers for 1-5 are as follows. Noun class marking is observed with numbers 1-3. The following basic numerals use the default g/l noun class pairing, so ‘one’ is marked with g(w)-, and ‘two’ and ‘three’ with l-. ‘Four’ and ‘five’ are invariant and never agree with the noun they modify.

- (14)
- | | |
|---|----------|
| 1 | gwənto |
| 2 | ləgətʃan |
| 3 | ləgətʃin |
| 4 | marlon |
| 5 | ðénəŋ |

The numbers for 6-9 are composed of 5, the conjunction *nə*- ‘and’ and the number required to add up to the desired numeral, so 6= 5 and 1, 7 = 5 and 2, 8 = 5 and 3, 9 = 5 and 4. Note that the conjunction *nə*- does not appear before words beginning with [l] in 7 and 8, due to a phonotactic restriction against *n(ə)*-l sequences. If a different noun class were used, it would be present, ex. *ðénəŋ nə-ləgətʃan*

- (15)
- | | |
|---|-----------------|
| 6 | ðénəŋ nə-gwənto |
| 7 | ðénəŋ ləgətʃan |
| 8 | ðénəŋ ləgətʃin |
| 9 | ðénəŋ nə-marlon |

The word *reð* is 10, and subsequent numbers use the formula 10 and 1, 10 and 2, etc..

- (16)
- | | |
|----|------------------------|
| 10 | reð |
| 11 | reð nə-gwənto |
| 12 | reð ləgətʃan |
| 13 | reð ləgətʃin |
| 14 | reð nə-marlon |
| 15 | reð nə-ðénəŋ |
| 16 | reð nə-ðénəŋ nə-gwənto |
| 17 | reð nə-ðénəŋ ləgətʃan |
| 18 | reð nə-ðénəŋ ləgətʃin |
| 19 | reð nə-ðénəŋ nə-marlon |

The words for 5 and 10 may be derived from the word for ‘hand’. The singular for ‘hand’ in Thetogovela is *ðéj* and the plural is *réj*.

The word for 20 is the plural of 10 with a following numeral 2, literally ‘two tens’. The numerals 2 and 3 that follow 10 to convey multiples of 10 agree with the plural form of ‘ten’ for noun class, which is *n-*, so *nəgətʃan* and *nəgətʃin*. Beyond 20, the decimal system begins again, culminating with 100, which is 10 (x) 10. There is no Moro number for 1000; the Arabic term *ʔlf* is used. The Arabic word *mijz* can also be used for 100.

8 Noun phrases

- (17)
- | | |
|------|----------------------------|
| 20 | ńdréðeə nəgətʃan |
| 21 | ńdréðeə nəgətʃan nə-gwənto |
| 22 | ńdréðeə nəgətʃan ləgətʃan |
| ... | |
| 30 | ńdréðeə nəgətʃin |
| 40 | ńdréðeə marlon |
| 50 | ńdréðeə ðénəŋ |
| 60 | ńdréðeə ðénəŋ nəgwənto |
| 70 | ńdréðeə ðénəŋ ləgətʃan |
| 80 | ńdréðeə ðénəŋ ləgətʃin |
| 90 | ńdréðeə marlon |
| 100 | ńdréðeə reð |
| 200 | ńdréðeə reð ləgətʃan |
| 1000 | ɜlf |

Numerals follow the noun in Moro, and the lower numbers (1-3) agree in noun class with the noun via weak concord. The numbers 4, 5 (and derivatives of base 5) and 10 do not agree with the head noun at all. The numeral ‘one’ agrees with the singular noun class, and ‘two’ and ‘three’ agree with the plural form of the noun. The weak concord prefix *j-* is realized as [e] in the numeral ‘two’ and [i] in the numeral ‘three’, determined by the vowel height of the numeral root:

- (18)
- | | | |
|----|-----------------|----------------|
| a. | ðamala ðənto | ‘one camel’ |
| | jamala egətʃan | ‘two camels’ |
| | jamala igətʃin | ‘three camels’ |
| | jamala marlon | ‘four camels’ |
| | jamala ðénəŋ | ‘five camels’ |
| | jamala reð | ‘ten camels’ |
| b. | india gənto | ‘one drum’ |
| | nəndia nəgətʃan | ‘two drums’ |
| | nəndia nəgətʃin | ‘three drums’ |
| | nəndia marlon | ‘four drums’ |
| | nəndia ðénəŋ | ‘five drums’ |
| | nəndia reð | ‘ten drums’ |

The complete paradigm of the numerals 1-3 are given in Table 8.3 for the nine main noun class pairings. The plurals of ‘two’ and ‘three’ surface with an initial /ŋ/ in the plural *n*-class rather than /ɲ/, e.g. ŋgətʃan, due to nasal assimilation to the following velar stop. The agreement forms above are instances of weak concord.

Table 8.3: Numeral paradigms

noun class	one	two	three
g/l	gwənto	ləgətʃan	ləgətʃin
g/n	gwənto	nəgətʃan	nəgətʃin
j/j	ento	egətʃan	igətʃin
l/ŋ	l(ə)nto	ŋgətʃan	ŋgətʃin
l/ɲ	l(ə)nto	ɲəgətʃan	ɲəgətʃin
ŋ/ɲ	ŋwənto	ɲəgətʃan	ɲəgətʃin
ð/r	ðənto	rəgətʃan	rəgətʃin
ð/g	ðənto	gəgətʃan	gəgətʃin
ð/j	ðənto	egətʃan	igətʃin

Numerals allow H tone to spread from the last syllable of a preceding H-toned noun onto the first two syllables of L-toned numerals:

- (19) ebəl egətʃan ‘two birds (species that hang upside down)’
 ején égətʃan ‘two mountains’

Like other modifiers, numerals can be used elliptically, without a head noun, where they occur with weak concord. The noun ‘horse’ belongs to the class g/n:

- (20) a. á-g-a-bwáɲ-á nəmərtá ↓mənáw
 2SG.SM-CLg-RTC-want-IPFV CLn.horse how.many
 ‘How many horses do you want?’
 b. (é-g-a-bwáɲ-á) gwənto
 1SG.SM-CLg-RTC-want-IPFV CLg.one
 ‘(I want) one (horse)’
 c. (é-g-a-bwáɲ-á) nəgətʃan
 1SG.SM-CLg-RTC-want-IPFV CLn.two
 ‘(I want) two (horses)’

Recall that elliptical possessors and demonstratives occurred with strong concord in these contexts. As expected, the distribution of strong versus weak concord in these elliptical anaphora correspond to the definiteness of the anaphor.

8.2.4 Adjectives and subject relative clauses

Adjectives in Moro are a predicative category that can occur as the main predicate of a clause (Chapter ??) As such, when adjectives are used to modify a noun, they have the structure of subject relative clauses, in that both follow the noun, use the *é*-dependent clause prefix, and agree with the head noun. The adjectives below occur with strong concord, as evident by the raising of the final vowel of the noun: *emərṭá* → *emərṭ́* or *jamala* → *jamaĺ*, as well as by the use of [k] and [s] instead of [g] and [j] as noun class concord:

- (21) a. *é-g-a-bwáŋ-á* *emərṭ́* *-g-é-bəg-á*
 1SG.SM-CLg-RTC-want-IPFV CLg.horse SCLgSM.DPC1-strong-ADJ
 ‘I want the strong horse’
- b. *é-g-a-bwáŋ-á* *emərṭ́* *-g-í-munw-á*
 1SG.SM-CLg-RTC-want-IPFV CLg.horse SCLgSM.DPC1-black-ADJ
 ‘I want the black horse’
- c. *í-g-3-s3ṭf-ú* *jamaĺ* *-s-é-bəg-á*
 1SG.SM-CLg-RTC-see-PFV CLj.camel SCLjSM.DPC1-strong-ADJ
 ‘I saw the strong camels’

The dependent clause prefix *é*- is the same one used in subject cleft and relative clause constructions (Chapter *relative*), so the attributive adjective may be analyzed as a type of relative clause. Compare the following two structures:

- (22) a. *í-g-3-s3ṭf-ú* *jamaĺ* *-s-é-bəg-á*
 1SG.SM-CLg-RTC-see-PFV CLj.camel SCLjSM.DPC1-be strong-ADJ
 ‘I saw strong camels’
- b. *í-g-3-s3ṭf-ú* *jamaĺ* *-s-é-kər-ó* *íríə*
 1SG.SM-CLg-RTC-see-PFV CLj.camel SM.SCLj.DPC1-break-PFV CLg.fence
 ‘I saw the camels who broke the fence’

If the adjective is vowel-initial, the clause prefix *é*- does not appear due to vowel hiatus (the first vowel is deleted), but its H tone is recuperated on the first vowel of the adjective. The root *ogən* has no H tone in the predicate version of the adjective, but acquires a H tone when it is used attributively in the ‘relative’ form:

- (23) a. *tərəbésá* *ḏ-ogən-á*
 CLḏ.table SM.CLḏ-be big-ADJ
 ‘the table is big’

- b. k-a-daŋ-ó tərəbésá ékáré ð-ógən-á
 SM.CLG-RTC-sit-PFV CLð.table under SM.CLð-DPC1.be big-ADJ
 ‘s/he sat under the big table’

Like other modifiers, adjectives and subject relative clauses can occur without a head noun, in which case strong concord shows up in its full form, in this case *ís:-*:

- (24) a. ŋw-ajén j-áŋga n-ʒ-sɜ́tʃ-ú?
 FOC-CLj-mountain CLj-which COMP-2SG.SM-see-PFV
 ‘which mountain did you see?’
 b. í-g-ɜ́-sɜ́tʃ-ú ís:-!-ógən-á
 1SG.SM-CLg-RTC-see-PFV CLjDEM-be big-ADJ
 ‘I saw the big one’

Table 8.4 provides the paradigm for an adjectival subject relative with strong concord. The same observations apply as before: a final H is inserted on all-L nominal roots, and final /a/ undergoes raising.

Table 8.4: Moro adjective/subject relative clause inflection: *bəgá* ‘strong’

Class	SG.N	SCL-SRC-A	PL.N	SCL-SRC-A	Gloss
g/l	udʒí	↓k-é-bəgá	lidʒí	↓l-é-bəgá	‘strong person(s)’
g/n	emertʒ	↓lébəgá	nəmertʒ	↓nébəgá	‘strong horse(s)’
j/j	ajén	↓sébəgá	ején	↓sébəgá	‘strong mountain(s)’
l/ŋ	ləvərɜ́	↓lébəgá	ŋəvərɜ́	↓ŋébəgá	‘strong stick(s)’
l/l	láv	↓lébəgá	ɲáv:	↓ɲébəgá	‘strong mosquito(s)’
ŋ/ɲ	ŋerɜ́	↓ŋébəgá	ɲerɜ́	↓ɲébəgá	‘strong child(ren)’
ð/r	ðáp:ɜ́	↓ðébəgá	ráp:ɜ́	↓rébəgá	‘strong friend(s)’
ð/j	ðamalɜ́	↓ðógəná	jamalɜ́	↓sébəgá	‘strong camel(s)’

Like possessives (cf. 10-11), relative clauses can occur without strong concord. This occurs in two contexts: if other modifiers intervene between relatives and their head noun, and in object position. The first context is shown below with an intervening demonstrative:

- (25) *jamalá -s:3tís:ə j-é-bəg-á j-a-j-ó*
 PL.camel SCL.that CLj-SRC-big-ADJ CL-RTC-die-PFV
 ‘Those camels that are big died.’

In object position the presence of strong concord marks definiteness:

- (26) a. *é-g-a-bwáŋ-á jamalá -↓s:-é-bəgá*
 1SG-CLg-RTC-like-IPFV PL.camel SCL-SRC-strong-ADJ
 ‘I like the camels that are strong.’
 b. *é-g-a-bwáŋ-á jamala j-é-bəgá*
 1SG-CL-RTC-like-IPFV PL.camel CL-SRC-strong-ADJ
 ‘I like camels that are strong.’

The absence of geminate concord in (23b) correlates with normal tone and vowel quality on the final syllable of *jamala* ‘camels’, as expected. However, the modifier *jébəgá* ‘which are strong’ is still identifiable as a subject relative clause based on the *é-* prefix.

8.2.5 Non-subject relative clauses

Relative clauses formed on objects, oblique arguments, and adverbs such as ‘when’ and ‘how’ form a grammatical class. An example of an object relative clause is provided below:

- (27) *jamalá-s:-ə (nə=↓)kúk:u g-ə-s3tʃ-ú*
 PL.camel-SCL-this COMP2=Kuku CLg-DPC2-see-PFV
 ‘The camel that Kuku saw.’

The clause vowel *ə* in object relatives, distinguishing them from the *a*- of main clauses or *é-* of subject relatives (See Section ??). Additionally, the head noun of an object relative takes a suffix segmentally identical to the proximal demonstrative (Section 4). The final /i/ of this demonstrative reduces to schwa before an object relative. Last, relative clauses include the proclitic *nə=*, analyzed as a complementizer due to the fact that it also introduces certain subordinate clauses (Chapter ??). With full nominal subjects, *nə=* can appear before both the subject and the verb phrase, although such multiple occurrences are unattested in texts. For more details on the subject agreement paradigm in non-subject relative clauses see Section 16.2.

8.3 Definiteness and quantification

This section surveys the expression of definiteness and quantification in Moro. This includes discussion of the semantic properties of bare nouns, the marking of indefiniteness, and the scope of various quantifiers, including the interactions between quantifiers and negation.

8.3.1 Bare nouns

Definiteness is not a major grammatical category in Moro. The two main means of marking definiteness are syntactically, as subjects of verbal predicates are typically definite, and via the strong concord markers reviewed above. The following example demonstrates that bare nouns in Moro can be used both as indefinite expressions in subject position but also as anaphoric definite expressions in subsequent clauses:

- (28) a. éréká í-g-3-s3tf-ú ów:á n-óránj
 yesterday 1SG-CL-RTC-see-PFV SG.woman and-SG.man
 ‘Yesterday I saw a woman and a man.’
 b. óránj gá-g-oval-á n-ów:á gá-g-obəl-á
 SG.man PST-CL-tall-ADJ and-SG.woman PST-CL-short-ADJ
 ‘The man was tall, but the woman was short.’ EJ

Similarly, uniquely identifiable objects are translated with bare nouns. When shown a picture of a single bird in a single tree, a speaker chose to refer to them both via bare singular nouns:

- (29) ug3fiə g-a-w-ó ík-ugi
 bird CLg-RTC-be.loc-PFV LOC-tree
 ‘The bird is in the tree.’ AN

While bare nouns can be definite or indefinite, we saw in the previous section that strong concord plays a role in marking definiteness. Basically, demonstratives always occur with strong concord while genitive phrases and relative clauses only surface strong concord when the noun phrase is definite. Thus, because strong concord can only occur once in a noun phrase, strong concord can be seen as a definite marker which is restricted to modified noun phrases.

The interplay between definite bare nouns and strong concord can be clearly seen in texts. One story in the *Moro Story Corpus* focuses on two men, one disabled and another blind. When the identity of the blind versus disabled man is

8 Noun phrases

in question, strong concord is always used (the examples below have been translated into Thetogovela Moro):

- (30) *maje* *ik-i* *g-irmɜtu* *n-əŋ-ɜit-i* *maje*
 man CLg-this CLg-be.blind COMP2-3SG.CONS-say.to-CONS.PFV man
ik-i *g-é-kər-o* *undr ʔa* ...
 sCLg-this CLg-DPC1-break-PFV waist COMPL
 ‘The blind man said to the crippled man...’

But when the identity of the referent is clear in the story, whether the blind man or the disabled one, the bare noun *maje* ‘man’ is used.

Generic nouns, which are a kind of indefinite, seem to require plural marking in Moro. Singular nouns in generic contexts seem to result in definite readings:

- (31) a. *eða* *j-a-ŋər-á*
 PL.meat CL-RTC-good-ADJ
 ‘Meat is good.’
 b. *rða* *r-a-ŋər-á*
 SG.meat CL-RTC-good-ADJ
 ‘The piece of meat is good.’ EJ
- (32) a. *ŋénéə ná-ŋe-d-ó* *úm:iə*, *é-g-a-bwáŋ-á* *eða*
 when CMP-1SG-be-PFV SG.boy 1SG-CL-RTC-like-IPFV PL.meat
 ‘When I was a boy, I liked meat.’
 b. # *ŋénéə ná-ŋe-d-ó* *úm:iə*, *é-g-a-boáŋ-á* *rða*
 when CMP-1SG-be-PFV SG.boy 1SG-CL-RTC-like-IPFV SG.meat
 ‘When I was a boy, I liked the piece of meat.’ EJ

In object position, bare singular nouns can receive indefinite interpretations, as the following example and example 28a show:

- (33) *i-g-3-dwɜdɜ-iʔ-u* *kúku ádáma*
 1SG-CLg-RTC-send-APPL-PFV Kuku book
 ‘I sent Kuku a book.’ AN

With the exception of with certain copula, however, indefinite bare nouns do not seem to occur preverbally. Instead, preverbal indefinite expressions tend to have overt indefinite modifiers, described in section ??.

8.3.2 Universal quantifiers

The general purpose universal quantifier is *ododo* ‘all.’ This quantifier has a generally adverbial distribution, but it must follow the noun phrase that it takes as its restriction. In the examples below, curly brackets represent the possible positions that a single word can occupy, though the word can only occupy one of these positions:

(34) Context: A tree with four birds in it (Bruening #1)

- a. ugi g-ert-ó { *ododo } ndəfi-ano {ododo}
 tree CLG-have-PFV {all} birds-inside {all}

‘The tree has all the birds in it.’

- b. ndəfi {ododo} n-a-w-ó ik-ugi {ododo}
 birds {all} CLN-RTC-be.loc-PFV LOC-tree {all}

‘All the birds are in the tree.’

AN(date)

While often in an extraposed position after its restriction, *ododo* can occur in a position between the noun and its modifiers:

- (35) dw3d3-3t-i-ni nibrmir ododo íp:-i-ogəná
 send-LOC.APPL-PFV-1SG.OM barrels all sclp-this-big
 ‘Send me every barrel that is big.’

The quantifier *ododo*, is typically ambiguous with respect to negation in subject position

- (36) Context: Four men catching four fish, but two fish remain in the water
 (Bruening # 16) ləme {ododo} l-enná 3l-3nd-ən-iə {ododo}
 fish {all} CL-NEG.AUX 3PL-catch-PASS-IPFV {all}
 ‘Every fish was not caught’

4. *ndem* ‘both’

also: all three, all four

Ləŋŋulu ndəm lafo laɾo ləðəm,

Both of them were young men,

oro dəge eloman lomən təŋ alidi aləɾe ləŋəndəm,

then the next time we will go both of us,

8.3.3 Indefinites

This section describes five adjectives in Moro which are always indefinite:

- (37)
- | | |
|---------|---------------|
| -ʒn:əŋ | ‘some (SG.)’ |
| -ʒmən | ‘some (PL.)’ |
| -ʒmɛtɜŋ | ‘a bit of’ |
| -érto | ‘a different’ |

These modifiers typically occur in indefinite noun phrases. They always agree with the noun they modify, and are always marked with weak concord. The fact that they can never occur with strong concord provides evidence that they are inherently indefinite modifiers.

The plural indefinite *-ʒmən* ‘some (pl.)’ also provide evidence for the mass/-count distinction in Moro, as it can only occur with plural count nouns but not mass nouns:

The indefinite modifier *-ənəŋ* is impossible in a context where there is a unique identifiable referent:

- (38) # Context: Four birds in one tree (Bruening #1)
- | | | | | | |
|-------|-------|------|--------------------|----------|-----------|
| ndəfi | ododo | nawó | | ík-ugi | g-ənəŋ |
| birds | all | | CLn-RTC-be.loc-PFV | LOC-tree | CLg-INDEF |
- ‘All the birds are in a tree’
- Comment: “It’s strange because there’s only one tree.”

Compare example 34 above, where a bare noun for tree is used in this same context, as it is a definite environment.

The textual examples below show that *-ənəŋ* can have specific indefinite uses with singular nouns, as these examples are ones where the indefinite is referring to a specific referent. In the first example, the indefinite is making reference to a specific river flowing from a region of the Nuba mountains. In the second example, the indefinite is used in a partitive context, which are always specific due to their association with a contextually supplied set:

- (39) a. Loman-nəŋ maj-anda l-a-fo l-əmən ndəjan
- | | | | | |
|-----------|--------------|------------------|-----------|-----|
| day-INDEF | men-ASSOC.PL | CLl-RTC-PAST.AUX | CLl-INDEF | two |
|-----------|--------------|------------------|-----------|-----|
- l-ə-ləŋ-ən-u alo Nayan Ende,
- | | | | |
|---------------------------------|-------|-----------|------|
| CLl-DPC2-give.birth.RT-PASS-PFV | place | mountains | Ende |
|---------------------------------|-------|-----------|------|
- Once upon a time there were two brothers who lived in the Ende Mountains,

- b. maje g-ənəŋ g-a-b-ër-n-ia Kwəlira
 man CLg-INDEF CLg-RTC-PROG-be.called.RT-IPFV Kolira
 one of them was called Kolira

Below we see *-əmən* used as a specific indefinite, which seems to be its only possible interpretation, and only with plural or mass nouns:

(40) Textual examples

- a. Na leḁa l-əmən n-lde-ɽəɽ-e alo Ekau, na
 and people CLL-some COMP2-CLL.inf-stop.RT-CONS.PFV place Ecw and
 l-əmaɽan n-lḁ-f-eɽ-e alo Noge.
 CLL-INDEF COMP2-CLL.INF-be.LOC-LOC.APPL-CONS.PFV place Noge
 Some families moved to Ecw village and other settled in Noge
 village,
- b. n-an-ēbəd-ən-i ɲaca-ɲa ɲ-əmən
 COMP2-cln.INF-build.RT-PASS-CONS.PFV mud-CLɲ.with CLɲ-some
 ɲ-ore ɲ-ə-ḁam-o ɲawa ɲə-ḁania,
 CLɲ-red CLɲ-DPC-resist.RT-PFV water CLɲ.POSS-rains
 it is build with a red colored mud which resisted rain,

However, *-ənəŋ* also has existential or narrow scope indefinite uses. This is seen both in the invitation context in the first example as well as the fact that the indefinite scopes under a conditional in the second example:

(41) Textual examples

- a. Abalimi n-əŋ-eɽəd-e Apadud ɽa
 Abalimi COMP2-3SG.INF-ask.RT-CONS.PFV Apadud COMP1
 aŋ-iḁi aŋ-el-a loman-nəŋ
 3SG.INF-FUT.AUX 3SG.INF-come.RT-IPFV day-INDEF
 Abalimi invited Apadud to come and visit him one day
- b. ɲenɲanta ndə eḁa g-ə-ḁēm-ən-u g-ənəŋ,
 because if man CLg-DPC-defeat.RT-PASS-PFV CLg-INDEF
 For when somebody is defeated,

Additionally, *-ənəŋ* occurs with plural nouns in limited contexts, all of which seem to be episodic existential environments:

(42) Textual examples

8 Noun phrases

- a. “I-g-afo i-g-ot-ət-o i-ləbu
 1sg-CLg-PAST.AUX 1sg-CLg-go.RT-LOC.APPL-PFV LOC-well
 n-ən-arr-əbəc-e ñere ñ-ənəŋ
 COMP-clj-INF-ITER-raise.RT-CONS.PFV girls clj-INDEF
 ñ-ə-ɽ-o ñowa,
 clj-DPC-be.RT-PFV young women
 ”I went down the well and helped some young women to climb up,
- b. I-liga l-akəl leða l-ənəŋ l-a-fo
 LOC-time scll-that people CLl-INDEF CLl-RTC-PAST.AUX
 l-a-ɽəñ-əd-ia ɽur-ða id-i dore
 CLl-RTC-kill.RT-AP-IPFV Turkish.government-with scll-this CLd.red
 At that time some people were fighting with the Turkish army

In many examples, *-ənəŋ* scopes below negation, forming negative indefinite expressions. This is done in two ways. First, the negative copula *-ero* can occur as a nominal modifier immediately before indefinite *-ənəŋ*, resulting in a negative indefinite quantifier:

(43) Textual examples

- a. na eða g-ero g-ənəŋ g-ero ŋəmaða.
 and person CLg-not.have CLg-INDEF CLg-not.have.RT peer
 and nobody who did not have a peer group.
- b. na eða g-ero g-ənəŋ g-idi
 and man CLg-NEG.AUX CLg-INDEF CLg-FUT.AUX
 aŋ-ŋa-nac-e wag-ənəŋ bipi kwai kwai,
 3sg-INF-3sg.OM-give.RT-CONS.PFV something only never never
 no one can give you something generously.
- c. ŋen ŋ-ero ŋ-ənəŋ ŋ-ə-b-əd-ən-ia
 talk CLŋ-NEG.AUX CLŋ-INDEF CLŋ-DPC-PROG-do.RT-PASS-IPFV
 dəmətianəða,
 without
 Nothing is done without money.

(44) Elicited example

- matfó g-eró g-ənəŋ g-eɽ-o ega dɜŋgaŋ
 man CLg-not.have CLg-INDEF CLg-come.to-PFV house CL??-OUR??
 ‘Nobody came to our house.’

Alternately, the negative auxiliary auxiliary *-nna* can be used. The indefinite modifier *-ənəŋ* can scope under negation regardless of whether it precedes the auxiliary in subject position or is extraposed to a position after the auxiliary, a common occurrence in texts:

(45) Elicited examples

- a. matfó g-enná g-ét-ó ega dɜŋgaŋ g-ənəŋ
 man CLg-NEG.AUX CLg-come.to-PFV house CL??-OUR?? CLg-INDEF
 ‘Nobody came to our house.’
- b. matfó g-ənəŋ g-enná g-ét-ó ega dɜŋgaŋ
 man CLg-INDEF CLg-NEG.AUX CLg-come.to-PFV house CL??-OUR??
 ‘Nobody came to our house.’

(46) Textual examples

- a. na eða g-ənəŋ aŋ-erte g-iði
 and man CLg-INDEF 3SG-INF-not CLg-FUT.AUX
 aŋə-m-ënt-i nano kwai kwai.
 3SG-INF-3SG.OM-enter.RT-CONS.PFV near never never
 ‘and nobody is allowed to enter near her at all.’
- b. Na eða n-aŋ-erte g-ənəŋ g-ə-ləŋet-o
 and man COMP2-3SG.CONS-NEG.AUX CLg-INDEF CLg-DPC-know.RT-PFV
 ŋəɽwata eŋen!
 speech 3PL.POSS
 ‘...and no one was able to understands their language!’
- c. Nanda ña-g-a-b-er ña-g-ə-fa-fið-ia
 1EX.PRO 1EX-CLg-RTC-PROG-NEG.AUX 1EX-CLg-DPC2-ITER-find.RT-IPFV
 ŋəsa alo y-enəŋ
 food down CLy-INDEF
 ‘We didn’t find any food anywhere.’

On the other hand, *-ənəŋ* is capable of scoping above negation. When it is extraposed, *-ənəŋ* must receive surface scope under negation:

(47) Context: Three birds in three of four trees, one bird is on the ground and one tree is empty (Bruening #3)

- a. ugufia g-ənəŋ g-enná aŋə-v-ea ik-ugi
 bird CLg-INDEF CLg-neg.AUX 3SG-be.LOC-INF2 LOC-tree
 ‘A bird isn’t in the tree.’

- b. # ugufia genná anjave { *gónəŋ } ikugi
bird CLg-neg.AUX 3SG-be.LOC-INF2 {CLg-INDEF} LOC-tree
{gónəŋ}
{CLg-INDEF}
'No bird is in the tree'
Comment: 'means all the birds are on the ground.'

This scopal restriction does not hold of negative existential sentences, however (Section ??). In these sentences, indefinite modifiers scope above the negative copula even when they follow it:

- (48) irtá g-eró g-ən:əŋ
knife CLg-not.be CLg-INDEF
'Some knife isn't here/there.' ŋáwá ŋ-eró ŋ-əmat:əŋ
water CLŋ-not.be CLŋ-INDEF
'Some (of the) water isn't here/there.'
Comment: You bought a bunch of bottles of water and some of them
were left behind. EJ72116

To generalize, then, $-\partial n \partial \eta$ is able to scope above or below negation in subject position, but when extraposed to a position after the verb it must receive low scope. Indefinite objects under negation also seem to surface with obligatory low scope, as several examples in 46 indicate.

-emən occurs below negation in the following example:

- (49) g-ə-b-er g-ə-b-aḏ-ia lanʒe l-əmən,
CLg-DPC-PROG-NEG.AUX CLg-DPC-PROG-do.RT-IPFV things CLl-INDEF
not doing any cooking,

Indefinite expressions occur before all other modifiers except for negative *-ero* (example ??), and never occur with demonstratives:

- (50) n-əŋə-rmat̪-e wara nano g-ənəŋ g-oʃra,
COMP2-3SG.COMS-arrive.RT-CONS.PFV tabaldi.tree at CLG-INDEF CLG-big,
he arrived at a big tabaldi tree,
- (51) Loman-nəŋ maj-anda l-a-fo l-əmən ndəjan
day-INDEF men-assoc.PL CLL-RTC-PAST.AUX CLL-INDEF two

l-ə-ləŋ-ən-u alo Nayen Ende,
CLL-DPC2-give.birth.RT-PASS-PFV place mountains Ende
Once upon a time there were two brothers who lived in the Ende
Mountains.

- (52) n-an-ëbəð-ən-i ηaca-ηa η-əmən η-ore
COMP2-cln.INF-build.RT-PASS-CONS.PFV mud-CL_η.with CL_η-some CL_η-red
η-ə-ðam-o ηawa ηə-ðania,
CL_η-DPC-resist.RT-PFV water CL_η.POSS-rains
it is build with a red colored mud which resisted rain.

8.3.4 Indefinite pronouns

Indefinite pronouns are not really pronouns, but rather are modified nouns. Specifically, they are formed by attaching the singular indefinite modifier *-əŋən* (Section 8.3.3) to a generic common noun. These expressions are the only contexts where the indefinite modifier does not occur with a class marker, as it is completely fused into the expression:

- (53) Indefinite pronouns
- | | | |
|--------------|------------------|-------------|
| ɪḍ-ʒn:əŋ | ?-INDEF | 'somebody' |
| kwaŋa-gʒn:əŋ | thing SCLg-INDEF | 'something' |
| an-ʒjəŋəŋ | place-INDEF | 'somewhere' |
| nʒɪwəʔtjə | INDEF-how | 'somehow' |
| ɲómən ɲáməŋ | times INDEF.PL | 'sometimes' |
| lómən lén:əŋ | day INDEF.SG | 'someday' |

‘Somehow’ differs from the other forms in that the expression ‘how’ occurs after the indefinite marker. This enclitic distribution is typical for =*tia* ‘how’ (See section 17.5.6)

- (54) orn n-ld-ert̚e l-ə-fid̪-ia eḁa g-ənəŋ
but COMP2-CLL-INF-not.aux CLL-DPC-find.RT-IPFV man CLg-indef
l-ə-ləŋet̚-ə-ma,
CLL-DPC-know.RT-PFV-3SG.om
but they did not find anyone they knew,
- (55) na n-əŋ-ert̚ ŋ-idi əŋ-oɽəbaɫ-e
and COMP2-3SG.CON-SNEG.AUX CLŋ-FUT.AUX 3sg.INF-come.RT-INF1

8 *Noun phrases*

i-gi loma-nəŋ təŋ.

LOC-field day-indef again.

And he did not come back to the field anymore.

Part III

Simple clauses

9 Copular clauses

This chapter describes predicational and non-predicational copular clauses in Moro. Copular clauses in Moro are clauses that are headed by a copula, an element connecting a subject, typically a noun phrase to a nonverbal predicate or another noun phrase. There are two kinds of copular clauses in Moro, predicational copular clauses and non-predicational copular clauses. Predicational copular clauses are headed by one of two copular verbs, one of which selects for nominal predicates and the other of which selects for locative predicates:

- (1) Predicate nominal copular clause

kúku g-a-d-ó udží g-é-ŋerá g-é-lɜŋgitʃ-in-ú
 Kuku CLg-RTC-be-PFV person CLg-DPC1-good CLg-DPC1-know-PASS-PFV
 ‘Kuku is a good person to know.’ EJ61213

- (2) Locative copular clauses

logopájá l-a-w-ó n-tərəbésá
 cup CLl-RTC-be.loc-PFV loc-table
 ‘The cup is on the table.’ AN62413

Non-predicational copular clauses lack verbs and serve the function of either identification or equation between two individuals, marked with a non-verbal copular clitic.

- (3) Identificational copular clause

údʒó-k:ɜ́tíkɜ kətʃó-k:i
 person-CLg.2D Kachi-ID
 ‘That person is Kachi.’ EJ61013

- (4) Equative copular clause

Kúku ɲún eləŋ
 Kuku COP:EQ chief
 ‘Kuku is the chief.’ AN111015

The apparent copula is different in these two examples. In the identificational clause in 3, it is an enclitic on the second noun phrase which resembles the proximal demonstrative *iki*, glossed ID. In the equative sentence in 4, it is the word *ɲúŋ*, which is optional and resembles the third person human pronoun.

Predicational versus non-predicational copular clauses differ in the extent to which they exhibit syntactic properties of verbal clauses. While predicative copula show normal verbal morphology, the complement of predicate nominal copula show special syntactic restrictions which indicate they are predicates rather than normal nominal objects. In contrast, non-predicational copula are not verbs, and these clauses lack many of the morphosyntactic distinctions available in normal verbal clauses.

9.1 Predicational copular clauses

There are two predicational copula in Moro. Both are verbs, but they differ in whether they select for nominal or locative predicates:

(5)

Predicational copula	Complement type
-d-	Nominal predicate
-w-	Locative predicate

This section describes copular clauses headed by each of these predicates.

9.1.1 Predicate nominal copular clauses

The copula *d* ‘be’ patterns with other verbal predicates in Moro, agreeing with a referential subject and inflecting for the basic perfective-imperfective aspect distinction, both diagnostic properties of verbs:

- (6) Predicate nominal copular clause in perfective and imperfective
- é-g-a-d-ó oraŋ
 1SG-CLg-RTC-be-PFV man
 ‘I am a man.’
 - é-g-a-v-ád-eá oraŋ
 1SG-CLg-RTC-PROG-be-IPFV man
 ‘I am about to be a man.’

As these examples show, the meaning of *d* ranges between ‘be’ and ‘become’ in English, relative to the aspectual form of the verb. The alternation between a present tense stative and inchoative reading is typical of stative verbs in general (Section ??).

Further evidence for the verbhood of the copula *d* also comes from its ability to occur after negative and inceptive auxiliaries (7a, 7b), and its ability to occur in the imperative (7c):

(7) Evidence for verbal nature of predicate nominal copular clausees

- a. $\eta\acute{e}r\acute{a}$ η -a-n:á $\eta\acute{a}$ -d-e oraŋ
 child CL η -RTC-not.aux.pfv 3SG.INF-be-PFV man
 ‘A child is not a man.’
- b. $\eta\acute{e}r\acute{a}$ η -a-v\acute{o}l\acute{a} á $\eta\acute{a}$ -v\acute{o}d-é oraŋ
 child CL η -RTC-incep.aux 3SG.INF-be-INF1 man
 ‘The child is going to be a man.’
- c. \acute{o}d\acute{o} oraŋ
 be.IMP man
 ‘Be a man!’

EJ81214

Two instances of agreement hold in predicate nominal copular clauses. The copula itself shows normal subject agreement. Additionally, the noun following the complement must have the same number specification as the subject:

- (8) kúku nə $\eta\acute{a}l\acute{o}$ - η l-a-d-ó l\acute{a}d\acute{z}-l\acute{á}l-l\acute{i}-t\acute{f}-l\acute{á}
 Kuku and $\eta\acute{a}l\acute{o}$ -ACC CLl-RTC-be-PFV people-sCLl-DPC1-bad-ADJ
 ‘Kuku and Ngalo are bad people’

EJ72116

However, predicate nominal copular clauses are subject to several restrictions which show they are distinct from clauses with normal transitive verbs. First, they cannot occur in the periphrastic causative (Section ??), which is otherwise fully productive:

- (9) # kúku g-3- $\eta\eta$ git-ú \acute{o}amal\acute{o}-\acute{o}t\acute{i}t\acute{i}\acute{o} \acute{o}-a-d-ó oraŋ
 Kuku CLg-RTC-cause-PFV camel-cl\acute{o}.that CL\acute{o}-RTC-be-PFV man
 ‘Kuku made that camel be male.’ (intended)

EJ8814

This restriction indicates that predicate nominal copular clauses lack an external argument or semantic causer, a necessary precondition for causative formation.

9 Copular clauses

Additionally, the nominal complement of *d* must be interpretable as a predicate. This predicative requirement can be seen in several restrictions which do not obtain for normal argumental objects.

First, this nominal cannot be referential:

- (10) a. * Kúku g-a-d-ó udʒə-kətíkə
 Kuku CLg-RTC-be-PFV person-CLg.2D
 ‘Kuku is that person.’ (intended)
- b. * Tútu g-a-d-ó Shone
 Tutu CLg-RTC-be-PFV Sean
 ‘Tutu is Sean.’ (intended) EJ8714

Additionally, nominal predicates cannot be modified by indefinite quantifiers, such as the indefinite modifiers discussed in Section ??:

- (11) a. * Kúku g-a-d-ó umiə g-ənəŋ g-é-ŋer-á
 Kuku CLg-RTC-be-PFV boy CLg-indef CLg-DPC1-good-ADJ
 ‘Kuku is a good boy.’ (intended)
- b. * Kúku nə ŋálo-ŋ l-a-d-ó lámia l-əmən
 Kuku and Ngalo-ACC CLg-RTC-be-PFV boy CLl-indef
 l-é-ŋer-á
 CLl-DPC1-good-ADJ
 ‘Kuku and Ngalo are good boys.’ (intended) EJ8116

Both of the sentences above are fine when the indefinite modifier is omitted. These semantic restrictions on the nominal complement reveal that it is not a normal object, but is in fact a semantic predicate which is applied to the subject of the copular clause.

Along with the semantic restriction on the nominal complement are several morphosyntactic ones. First, the object is not case marked. To see this, we must look at the restricted set of human common nouns which mark accusative case such as *matfo* ‘man’:

- (12) Kúku g-a-d-ó matfo-(*ŋ)
 Kuku CLg-RTC-be-PFV man-(ACC)
 ‘I am a man.’

Additionally, the “object” or predicate nominal cannot be promoted in the passive 14b or extracted in a cleft or content question 14:

- (13) * oraŋ g-a-d-ən-ó
 man CLg-RTC-be-caus-PFV
 ‘The male was made to be.’ (intended) EJ8814
- (14) a. ðamala g-a-d-ó wánde íðə́tíðə́
 camel CLg-RTC-be-PFV what clð.that
 ‘What (gender) is that camel?’
 b. * ɲwənd(ə́ki) ðamalə́-ðə́tíðə́ g-ə́-d-ó
 foc-what-? camel-clð.that CLg-nsrc-be-PFV
 ‘What (gender) is that camel?’ (intended) EJ8814

Together, these restrictions on the nominal complement of *d* are due to its status as a predicate, rather than a normal internal argument of a verb.

Finally, predicate nominal copula can occur with a number of specific classes of predicts. First, and somewhat unsurprisingly, *d* can also take nominals which describe a person with a particular property as their complement (§6.2.2):

- (15) a. g-a-d-ó aməda
 CLg-RTC-be-PFV joker
 ‘(S)he is a joker.’
 b. g-a-d-ó ðaŋ kaŋ
 CLg-RTC-be-PFV useless very
 ‘(S)he is very useless.’
 c. g-a-d-ó ywarra
 CLg-RTC-be-PFV clueless
 ‘(S)he is incapable.’

The copula *d* also occurs with predicative uses of numerals, which agree with the subject where possible:

- (16) a. ɲerá ɲ-a-d-ó ɲ-egetʃaŋ
 girls CLg-RTC-be-PFV CLɲ-two
 ‘The girls are two.’ (= ‘There are two girls.’)
 b. ɲerá ɲ-a-d-ó marlon
 girls CLg-RTC-be-PFV four
 ‘The girls are four.’ (= ‘There are four girls.’)

Finally, the predicate nominal copula *d* can be followed by ideophones:

9 Copular clauses

- (17) a. $\eta g w \eta \eta$ η -a-d-ó $t f i r b i b i$
 letters CL η -RTC-be-PFV IDPH
 ‘The letters are hard to read as the writing is small and compressed’
- b. $\acute{a} t f \acute{a} v \acute{a}$ g-a-d-ó $t r \acute{a} b e b e b e$
 food CLg-RTC-be-PFV IDPH
 ‘The food is very soft, like liquid.’
- c. $\eta \acute{a} \delta \acute{a} m a n a$ η -a-d-ó $g \acute{a} j a$ $g \acute{a} j a$
 CL η .bean SM.CL η -RTC-be-PFV IDPH
 ‘the beans are crunchy’ Naser & Rose (To appear)

These examples clearly demonstrate that ideophones are predicates. However, it is not clear that ideophones should be considered nouns, so these examples potentially constitute an exception to the generalization that *d* must be followed by a noun. For more details on ideophones, including in these contexts, see Chapter 19.

9.1.2 Locative copular clauses

Locative copular clauses are clauses containing the locative copula *v* ‘live, be at.’ When this copula has an intransitive subjects, it expresses a simple spacial relationship. When *v* occurs with an animate subject, it is best translated as ‘live.’ The locative copula is a normal verb, meaning it takes all verbal prefixes and marks an aspectual distinction between perfective and imperfective. Note that like other instances of the phoneme /v/, this copula is realized as [w] before round vowels (Section 2.2.12):

- (18) $n a l a$ n -a-w-ó $\acute{e} g$ -ó $\acute{t} \acute{a} m$
 necklace CLn-RTC-be.loc-PFV loc-neck
 ‘The neckace is on (my) neck.’
- (19) a. $k \acute{u} k u$ g-a-w-ó $l \acute{a} m \acute{u}$ / n -a $\acute{j} \acute{e} n$
 Kuku CLg-RTC-be.loc-PFV Khartoum / on-mountain
 ‘Kuku lives in Khartoum/in the mountains.’
- b. $k \acute{u} k u$ g-a-v-eá $l \acute{a} m \acute{u}$ / n -a $\acute{j} \acute{e} n$
 Kuku CLg-RTC-be.loc-PFV Khartoum / on-mountain
 ‘Kuku is about to live in Khartoum / in the mountains.’

Like with stative verbs more generally (Section ??), the imperfective form of -v- has an inchoative meaning.

Locative copular clauses are normal transitive clauses. They form imperatives, and can be embedded under negation and other auxiliaries:

- (20) áwó lɜ́mú
live.IMP Khartoum
'Live in Khartoum!'
- (21) a. é-g-a-nná é-v-á ɜ́nni
1SG-CLg-RTC-not.PFV 1SG-live-INF2 here
'I don't live here.'
- b. í-g-iðí ɟe-v-é lɜ́mú
1SG-CLg-will 1SG-be.loc-INF1 Khartoum
'I'll be in Khartoum.'

Further evidence that locative copular clauses are normal transitive sentences comes from their ability to be passivized:

- (22) ajén j-e-v-ən-ú-u
mountains CLj-rtc-be.loc-pass-pfv-loc
'The mountains are lived in.'

Similarly, the object of locative copula can be extracted in a cleft:

- (23) a. Kuku n-a-w-ó ɲgá
k. CLg-RTC-be.loc-PFV where
'Kuku lives where?'
- b. ɲɲgwa ná= kúku g-ə-w-ó-u
foc.where comp2= K. CLg-rtc-be.loc-PFV-LOC
'Where does Kuku live?'

Like all locative objects, passivization or extraction of the object of the locative copula leaves behind a locative clitic on the verb.

9.2 Non-predicational copular clauses

This section describes two kinds of non-predicational copular clauses: identificational copular clauses and equative copular clauses. These clause types are distinct from other clause types in Moro in that they lack predicates, and also because they lack any elements which agrees with the subject. Instead, these

clauses equate or identify two nominal expressions as referring to the same individual.

Equative clauses are distinguished from identificational clauses largely based on their information structural profile. In order to see the profile more clearly most of these examples will be embedded in question-answer pairs.

9.2.1 Identificational copular clauses

Identificational copular clauses are those where a known referent is supplied with a contextually new identity. In these clauses, a clitic which looks just like a proximal demonstrative occurs on the referential noun phrase which supplies the new identity, for example, on a proper name. I will call this element the identificational clitic. Identificational copular clauses can either have an overt subject, or they can simply include the focused material and identificational clitic. An example is given in (24) and (25). In both of these examples, the element hosting the identificational clitic corresponds to the word which in the question hosts the focus clitic η^w = (on which see the following section and Chapter 17):

(24) Identificational answer to question

Q: η^w - $\acute{z}d\acute{z}i$ = $k:3tik3$
 FOC -who ScLg.2d
 ‘Who is that?’

A: $\acute{u}d\acute{z}i$ = $k3tik3$ $k\acute{a}t\acute{f}\acute{a}$ - $k:i$
 person-clg.2d Kachi-ID
 ‘That person is Kachi.’

(25) Identificational confirmation request

Q: η^w - $k\acute{a}t\acute{f}i$ $k\acute{a}tik3$
 FOC -Kachi ScLg.2d
 ‘Is that Kachi?’

A: aa, $k\acute{a}t\acute{f}\acute{a}$ - $k:i$
 yes Kachi-ID
 ‘Yes, it’s Kachi’

(AN62413)

Identificational clitics are distinct from normal adnominal demonstratives (see Section 8.2.1). Unlike demonstratives, the identificational clitic only occurs in the proximal form = $iC:i$, but it lacks deictic semantic content. Additionally, the identificational clitic can occur on referential expressions such as names, which

demonstratives cannot. Identificational clitics also occur in clefts (Section ??) and resemble demonstrative relative operators (Section 8.2.5), suggesting that these constructions are syntactically related, possibly by ellipsis of an embedded clause in the case of identificational copular clauses.

In the following example, we see that the information structure of the question is inverted from (25), as the pronoun whose identity is being sought is in its focused form. Nevertheless, the answer looks like other identificational copular clauses as the new, focused information hosts the identificational clitic:

(26) Identity crisis

Q: níní ń^w-3dʒ3-ki?
 1SG.PRO. FOC FOC -who-ID
 ‘Who am I?’

A: (ɲɲá) kúkə-ki
 2SG.PRO Kuku-ID
 ‘You’re kuku’

AN111015

Identificational clefts often make use of independent personal pronouns, as in (26), both because pronouns are often focused in these contexts and because there is no verbal agreement to track subject reference.

Identificational copular clauses cannot be negated with a negative auxiliary verb in the same clause. Instead, these clauses must be negated by a special subordination construction:

(27) Identificational copular clause under negation

Q: ń^w-kətfi kətíkə
 FOC -Kachi SCLg.2d
 ‘Is that Kachi?’

A: ndo, k-an:á =tá kətfə-k:i
 no, CLg-neg.aux =COMP1 Kachi-ID
 ‘No, it’s not Kachi.’

(AN62413)

In the special subordination construction, the negative auxiliary occurs alone in a clause before the complementizer *tá*.

9.2.2 Equative copular clauses

Equative copular clauses identify two individuals. We have found two variants of equative copular clauses which are preferred by one or the other one of the

Moro consultants on this project; the exact distribution of these forms requires further study. In the first variant, in 28, the equative clause is headed by the copula *ɲún*, which resembles the third person human independent pronoun and does not agree with its subject or mark any inflection of any kind:

(28) Equative copular clause

- a. *umiʒ-kɪ g-é-ɲer-á ɲún kúku*
 boy-SCLg CLg-DPC1-good-ADJ COP:EQ Kuku
 ‘The best boy is Kuku.’
- b. *matʃ-ʒk-ʒtikʒ ɲún kúk:u*
 man-SCLg-that COP:EQ Kuku
 ‘That man is Kuku’
- c. *Kúku ɲún élàɲ*
 Kuku COP:EQ chief
 ‘Kuku is the chief.’

AN111015

The second variant of equative copular clause is with no copula at all, but two juxtaposed noun phrases:

(29) Bare equative copular clause

- a. *matʃ-ʒk-ʒtik:ʒ kúku*
 man-SCLg-that Kuku
 ‘That man is Kuku’
- b. *kúk:u élàɲ*
 Kuku chief
 ‘Kuku is the chief.’

EJ081516

These sentences have neutral information structure, meaning that the existence of, say, ‘that man’ and ‘Kuku’ have already been established, and this sentence serves only to identify the two.

The proclitic *ɲ^w*, which also occurs in clefts and questions, is arguably a variant of the equative copula which emerges when one of the identified individuals is focused. Notice that the question below has both the proclitic equative copula and the identificational clitic:

(30) Identity confusion

- Q: *(ɲ^w=)kúku ɲw-ʒdʒ!ʒ-kɪ?*
 FOC -Kuku FOC -who-ID
 ‘Who is Kuku?’

A: ńw=!íni kúku(*=íki).

FOC -1SG.PRO Kuku(-ID)

'I am Kuku.'

AN111015

When the speaker identifies himself in the response above, the name *Kúku* is already part of the common ground, which is why the identificational clitic is impossible. Additionally, the pronoun itself also cannot be new information. However, the pronoun 'I' is contrastively focused as the correct identity of Kuku, and as such, we see the fronted, arguably focused variant of the equative copula and pronoun in this context.

To see this more clearly, compare (30) with the 'identity crisis' context from the previous section (??), which form a minimal pair in terms of their information structure. In the response clause in (??), the identity *Kúku* is new information, while in the response clause in (30) there is no new information, making an equative clause appropriate, here with contrastive focus on one of its arguments.

10 Verbs and verbal morphology

Main verbs in Moro are morphologically complex, inflecting for subject agreement, tense, clause status, aspect, mood, and deixis marking, finiteness, and valence-affecting processes such as passive and causative. This section provides a detailed description of these inflectional markers on the verb, the internal structure of the Moro verb, as well as providing a description of the semantics of themorphological distinctions on the main verbs. The most comprehensive earlier description of verbal morphology in Moro is Rose (2013), which many parts of the discussion below draws from.

The most reliable morphological diagnostic of main verbs in Moro is the presence of aspect/mood/deixis (AMD) inflection (Section ??), in particular the presence of a final suffix which is a portmaneteau marker of finiteness, aspect, and verbal deixis. Only verbs can occur with valence-changing extension suffixes such as passive and causative. Other aspects of verbal morphology, particularly agreement and clause vowel marking, occur not only on verbs but also on non-verbal predicates (Chapter ??) and verbal auxiliaries (Chapter ??).

This chapter is organized as follows: Section 11.1 provides a general overview of the Moro verb, laying out the main inflectional distinctions. Section 11.2 describes the preverb, which includes subject agreement. Section 11.3 describes the inflectional distinctions on finite verb stems, which section 11.4 describes the semantics of. Section 11.5 describes the shape and grammatical effect of valence-affecting extension suffixes, including passives and causatives. Section 11.6 describes

10.1 Basics of verbal inflection

The maximal morphological template of a Moro verb is below:

- (1) Finite verb template:

$$\underbrace{\underbrace{\text{S.AGR} - \text{CLAUSE}}_{\text{preverb}} - \underbrace{\text{AMD} - \text{OM/PROG} - \text{ITER} - \sqrt{\text{ROOT}} - \text{EXT} - \text{AMD}}_{\text{macrostem}}}_{\text{morphological verb}} =$$

$\overbrace{\text{OM} - \text{INST} - \text{LOC}}$
clitic group

In order, the abbreviations stand for subject agreement, finite clause vowel, aspect/mood/deixis, object marker, iterative, verb root, extension suffixes (voice or valence-affecting processes), aspect/mood/deixis, object marker (again), and locative and instrumental clitics. This template does not include complementizer proclitics (see Chapter ??), which can appear separated from the verb, or the one subject agreement suffix *-r* which is part of 1IN.PL agreement. Additional discussion of clause vowels is in Chapter ??, full paradigms and the distribution of object markers is discussed in Section 7.2, and imperatives verbs are discussed in Chapter 18.

The division between preverb and macrostem is important for phonological reasons. The macrostem is the domain of verbal tone assignment, in particular the division between melodic and default tone (Section 11.3). In contrast, the prefixes in the preverb surface with their own tone pattern. The division between the morphological verb and the clitic group at the end is relevant for vowel harmony: affixes in the entire morphological verb undergo vowel height harmony (Section ??), while those in the clitic group do not.

Moro verbs can be put into one of three categories depending on its syntactic context and clause type. These three categories are finite, infinitive, and imperative verb forms. Here, the term ‘infinitive’ refers to both infinitive verb forms as well as consecutive and simultaneous verb forms (Section 15.2). While the macrostem is mostly the same in the three categories, they feature different morphological patterns in the preverb. The maximal preverb of finite verbs contain three separate prefixes for person/number, noun class, and finite clause type, and, for some speakers, past tense reduplication. Infinitive preverbs consist of an infinitive agreement prefix. Imperative verbs lack a preverb.

(2) Inflectional patterns for verbs

Finite	AGR - CL - CLAUSE - [MACROSTEM]	<i>é-g-a-[tʃómbəða]</i>
Infinitive	INF.AGR - [MACROSTEM]	<i>e-[tʃómbəðe]</i>
Imperative	[MACROSTEM]	<i>[tʃómbəðó]</i>

Within each of these classes further distinctions marked by a combination of inflectional tone and choice of aspect/mood/deixis affixes.

Finite verbs distinguish three aspect/mood/deixis categories: imperfective, venitive imperfective, and perfective. The general shape of these categories is summarized in Table 11.1. and are discussed in more detail in Section 11.3, including

an extensive discussion of default tone which is characteristic of imperfective verbs as well as infinitive verb forms.¹

Table 10.1: Aspect/mood/deixis patterns for finite verbs, *-lávətf-* ‘hide’

	AMD	Tone	Example
(Regular) imperfective	<i>-a</i>	default	<i>g-a-lávətf-a</i>
Venitive imperfective	<i>á- -ó</i>	melodic L	<i>g-á-lávətf-ó</i>
Perfective	<i>-ó</i>	melodic L	<i>g-a-lávətf-ó</i>

Infinitive verb forms are summarized in Table 11.2. There are four different infinitive verb forms, formed by cross-cutting the categories infinitive 1 and infinitive 2 with (unmarked) or venitive deixis. The somewhat opaque labels infinitive 1 and infinitive 2 (subordinate 1 and subordinate 2 in Rose 2013) are distinguished by which classes of auxiliaries and verbs these forms occur as the complement of, as discussed in Chapter 13 and Chapter 14. Closely related to these infinitive verb forms are the consecutive, venitive consecutive, and simultaneous verb forms, discussed further in Chapter 15. Finite verb forms can occur with different complementizers depending on the syntactic context, infinitive and consecutive clauses are marked in part by choice of complementizer. In addition, consecutive verb forms have a distinct form of third person singular agreement than the other infinitive verb forms. For more on subject agreement in consecutives see Section ??.

The last major inflectional class for verbs is imperatives, which lack a preverb altogether. There are two forms of the imperative, a regular and a venitive imperative, as shown in Table 11.3. Despite the absence of agreement, imperatives reflect the number the subject as the plural suffix *-r* occurs when more than one person is being addressed. For more details on imperative clauses, see Chapter 18.

10.2 The preverb

This section describes the preverb, the initial morphological constituent which occurs on Moro verbs as well as on non-verbal predicates. In finite verb forms, the preverb consists of subject agreement and a clause vowel, which marks the

¹ Earlier publications by the authors use the term *distal* for venitive imperfective and *proximal* for the regular imperfective.

Table 10.2: Aspect/mood/deixis patterns for infinitive verbs, *-ləvətʃ-* ‘hide’

	COMP	AMD	Tone	Example
Infinitive 1	(nə-)	-e	default	(n)-áŋ- [↓] lávátʃ-e
Venitive infinitive 1	(nə-)	-a	default	(n)-áŋ- [↓] lávátʃ-a
Infinitive 2	(nə-)	-a	default	(n)-áŋ- [↓] lávátʃ-a
Venitive infinitive 2	(nə-)	-o	default	(n)-áŋ- [↓] lávátʃ-o
Consecutive	nə-	-e	default	n-əŋə- [↓] lávátʃ-e
Venitive consecutive	nə-	-a	default	n-əŋə- [↓] lávátʃ-a
Simultaneous	tə-	-o	default	t-áŋ- [↓] lávátʃ-o

Table 10.3: Aspect/mood/deixis patterns for imperative verbs, *-ləvətʃ-* ‘hide’

	AMD	Tone	Example
Imperative	-ó	melodic H	lávátʃ-ó
Venitive imperative	-a	melodic L	ləvátʃ-a

clauses status as main, embedded, or having an extracted subject. In infinitive verbs, the preverb lacks a clause vowel and consists only of infinitive/consecutive subject agreement agreement. Imperative verbs lack a preverb.

In Thetogovela Moro, the preverb always undergoes height harmony with the verb stem, but is independent for purposes of tone assignment. In written Moro, the preverb does not undergo vowel harmony, a pattern which has also been observed in Werria Moro, the basis of the written dialect, and Kaiñ Morod, the only dialects we have information about. Thus, the preverb seems to be more integrated into the verb stem in Thetogovela than some other Moro dialects.

For some speakers, the preverb can reduplicate to signify past tense, an effect that is achieved with a past tense auxiliary for other speakers (Section ??). It is possible that the preverb itself may have historically developed from this auxiliary.

In addition to appearing before verbal macrostems, preverbs also occur before all nonverbal predicates, including adjectives, adverbial deictic predicates, and nominal possessive predicates (Chapter 10). Because they attach not only to verbs but to adjectives, adverbs, and nouns, preverbs should be considered proclitics

which attach to whatever the main predicate in a given clause happens to be.

10.2.1 Subject agreement

The person, number, and noun class of the subject are indexed by agreement markers on the verb, which are obligatory in all verb except imperatives and gerunds, which are actually nouns. This section describes subject agreement in finite and infinitive clauses. Further details about the syntactic distribution of these clauses is in Chapter 14.

In main clause perfective and imperfective verbs, the following are the subject agreement paradigm as in the second column of Table 11.4. The 1st inclusive dual and 1st inclusive plural have identical prefixes, but are distinguished by a plural marker *-r* which appears at the end of the verb stem. 3rd person is indicated by a noun class agreement marker (CL) equivalent to weak nominal concord (Section 8.1), one of the set *ǰ-*, *g-*, *l-*, *r-*, *j-*, *n-*, *ŋ-*, *p-* (See Chapter 6 for a full discussion of noun class categories in Moro). The presence of /ə/ in the 1st inclusive prefixes depends on the nature of the following consonant, indicating those vowel may be inserted by the schwa-epenthesis rule (Section 5.2.3).

Table 11.4 shows the complete subject agreement paradigm for the verb ‘know’ in both the imperfective and perfective, as it appears in a main or root clause. The subject marker is followed by [g] in the 1st and 2nd persons, which is analyzed as a class marker. For 3rd person, the default human class marker is *g-* for singular and *l-* for plural. In related languages, such as Tira, one finds /g/ in 1st and 2nd singular and /l/ in 1st and 2nd plural (Stevenson 1942/Schadeberg 20XX). In Moro, the /g/ appears to have generalized to all the forms. The 1st inclusive dual and the 1st inclusive plural are distinguished by an extra suffix *-r* that appears at the end of the verb stem.

Voicing on *g*-class subject agreement prefix is variable. /g/ is often pronounced [k] phrase initially (§2.2.10). The [k] variant of this prefix can also be conditioned by consonant voicing dissimilation if followed by a voiced stop (§5.3.5). Nevertheless, we will transcribe the prefix as /g/ for consistency, a practice that is followed in Written Moro.

Different subject marker paradigms are found in other clause types. Table 11.5 illustrates the subject agreement paradigm for ‘know’ in the infinitive 1, with final *-e*. This paradigm also appears on the venitive infinitive 1 and the regular infinitive 2, which are identical to the regular infinitive 1 except for final *-a* (See Chapter ??).

The agreement prefixes closely resemble the main clause forms for 1st and 2nd persons, with the difference that these are low-toned. However, for 3rd person

Table 10.4: Finite subject agreement paradigm for *lənɛt* ‘know’

		Imperfective	Perfective
1SG	é-	é-g-a-lənɛt-a	é-g-a-lənɛt-ó
2SG	á-	á-g-a-lənɛt-a	é-g-a-lənɛt-ó
3SG	CL-	g-a-lənɛt-a	g-a-lənɛt-ó
1IN.DU	ál(ə)-	álə-g-a-lənɛt-a	álə-g-a-lənɛt-ó
1IN.PL	ál(ə)- -r	álə-g-a-lənɛt-a-r	álə-g-a-lənɛt-ó-r
1EX.PL	ɲá-	ɲá-g-a-lənɛt-a	ɲá-g-a-lənɛt-ó
2PL	ɲá	ɲá-g-a-lənɛt-a	ɲá-g-a-lənɛt-ó
3PL	CL-	l-a-lənɛt-a	l-a-lənɛt-ó

Table 10.5: Infinitive 1 regular paradigm for *lənɛt* ‘know’

Person/number	SM	Infinitive 1 regular
1SG	(ɲ)e-	(ɲ)e-lənɛt-e
2SG	a-	a-lənɛt-e
3SG	áɲ(ə)	áɲə-lənɛt-e
1IN.DU	al(ə)	alə-lənɛt-e
1IN.PL	al(ə)- -r	alə-lənɛt-e-r
1EX.PL	ɲa-	ɲa-lənɛt-e
2PL	ɲa- lənɛt	ɲa-lənɛt-e
3PL	alə-lənɛt	alə-lənɛt-e

forms, the dependent clauses do not use noun class agreement, but use fixed prefixes that are the same no matter the noun class of the subject. In the 1EX.PL and the 3PL, the root is exceptionally low-toned. See Section ?? on tone distribution in verb forms. There is a complementizer *nə* which may appear attached to the verb if required by the syntactic context (Chapter 14). In such cases, /ə/ may be dropped before a vowel-initial subject marker, but the high tone of the complementizer appears on the subject marker.

The subject marking paradigm of consecutive forms in Table 11.6 is almost the same as the infinitive forms above. However, the 3SG form is *əɲə-* instead of *áɲə-*. Consecutive forms always have one of two complementizers attached before the subject marker. The perfective forms (regular and venitive) take the complementizer *nə-* while the consecutive imperfective has the complementizer

t̥ɔ̃-. When these complementizers are attached to the front of the verb forms that begin with a vowel, the complementizer vowel is dropped. The complementizer *nɔ̃*- does not attach to a form that begins with [l], so no complementizer appears on the 3PL form.

Table 10.6: Consecutive regular paradigm for *lanɛt̥* ‘know’

Person/number	SM	Consecutive regular
1SG	e-	e-lánɛt̥-e
2SG	a-	a-lánɛt̥-e
3SG	ɲ(ə)	ɲə-lánɛt̥-e
1DUAL.INCL	al(ə)	alə-lánɛt̥-e
1PL.INC	al(ə)- -r	alə-lánɛt̥-e-r
1PL.EXC	ɲa-	ɲa-lanɛt̥-e
2PL	ɲa-	ɲa-lánɛt̥-e
3PL	lə-	lə-lanɛt̥-e

In simultaneous verb forms, the complementizer is *t̥á*, and its high tone falls on the subject marker when the subject marker is vowel-initial. Note that the 1PL.EXCL. and the 3PL again have low tone on their verb roots.

Table 10.7: Simultaneous paradigm for *lanɛt̥* ‘know’

Person/number	SM	Simultaneous
1SG	e-	t̥-é-lánɛt̥-!ó
2SG	a-	t̥-á-lánɛt̥-!ó
3SG	án(ə)	t̥-ánɔ̃-lánɛt̥-!ó
1DUAL.INCL	al(ə)	t̥-álə-lánɛt̥-!ó
1PL.INC	al(ə)- -r	t̥-álə-lánɛt̥-!ó-r
1PL.EXC	ɲa-	t̥-ó-ɲa-lanɛt̥-ó
2PL	ɲa-	t̥-ó-ɲa-lánɛt̥-!ó
3PL	alə-	t̥-álə-lanɛt̥-ó

10.2.2 Clause marker

In addition to finite subject agreement, finite verb forms are characterized by the presence of a morpheme we call the clause marker, illustrated in Table 11.8.

Clause markers appear after finite subject agreement and before the macrostem. These vowels can be raised by vowel harmony, but do not interact with the tone of surrounding morphemes except in triggering downstep on a following H in the macrostem. The clause marker carries information about the syntactic context of the clause. There are three basic clause markers that Moro employs. In very general terms, *a-* occurs in indicative root clauses and indicative embedded clauses, *é-* occurs in finite clauses with displaced subjects, including subject relative clauses and secondary predicates, and *ǰ-* occurs in subjunctive clauses and clauses with displaced non-subjects. We have observed dialectal variation in the realization of the clause marker: in the Wërria dialect and written Moro, there is no *é-* vowel, and all contexts where *é-* would be realized surface instead with *ǰ-*.

Table 10.8: Clause marker prefixes

Root clause (RTC)	Displaced subj. (DPC1)	Subjunctive (DPC2)	
g-a-wəndaɬ-ó	g-é-wəndaɬ-ó	g-ǰ-wəndaɬ-ó	‘(s)he watched’
g-ǰ-dɜdǝð-ú	g-í-dɜdǝð-ú	g-ǰ-dɜdǝð-ú	‘(s)he hiccuped’

The clause marker *a-* appears on the verb in main clauses as well as in some subordinate clauses introduced by verbs such as *lənɛɬ* ‘know’ or *aɬ* ‘say/think’ (3). We identify these contexts as indicative root clauses, and gloss the vowel RTC.

- (3) a. um:iə g-a-lánd-ó ɿurí
 boy clg-RTC-close-PFV door
 ‘the boy closed the door’
- b. kúku g-a-v-áɬ-á um:iə g-a-ker-ó gəla
 kuku CLg-RTC-PROG-think-IPFV boy CLg-RTC-broke-PFV plate
 ‘Kuku thinks the boy broke the plate.’

See 14.3 for more details on embedded root clauses.

The clause marker *é-* (DPC1) is used in some subordinate constructions that are complements of main verbs of perception such as *-n:-* ‘hear’ or *wəndaɬ* ‘watch, see’ (4a), as well as in subject clefts, subject relative clauses, content cleft questions (4b), and temporal adverbial clauses. This clause marker never occurs with a complementizer.

- (4) a. ŋál:o g-a-wəndaɬ-ó kúku-ŋ g-é-m:-ó ów:á
 Ngalo CLg-RTC-watch-PFV Kuku-ACC CLg-DPC1-take-PFV woman
 ‘Ngalo watched Kuku marry the woman’

- b. ηwádʒák:i g-é-m:-ó ów:á g-oal-á
 Who clg-DPC1-take-PFV woman clg-tall-ADJ
 Who married the tall woman?

More details on the use of this vowel in embedded finite clauses under perception verbs, contexts identified as finite complements of raising verbs, can be found in Section 14.4.

The clause marker *ǰ-* appears in some subordinate constructions as the complement of verbs of communication such as *-mwandəð-* ‘ask’ and *-lugəɬ-* ‘tell’ (5a) as well as with non-subject clefts, relative clauses, content cleft questions (5b) and conditionals.

- (5) a. é-g-a-mwandəð-ó-ηó ɬá g-ǰ-n!áɬf-a-lo uɬərə
 1SG-CLg-RTC-ask-PFV-3SG.OM comp CLg-DPC2-give-IPFV-3PL.OM pig
 ‘I asked him to give them a pig’
 b. ηw-ándák:i (n-)úɖʒí (nó-)g-ǰ-wəndaɬ-ó
 FOC-what (COMP2-)man (COMP2-)CLg-DPC2-watch-PFV
 ‘What did the man watch?’

More details on the use of this vowel subjunctive complement clauses are in Section 14.5.

Relative clauses and clefts are discussed in Chapter 16 as well as Section 8.2.4. Additional discussion of content question clefts, conditionals, and adverbial clauses are discussed in Chapter 17.

The clause marker *ǰ-* disappears with first and second person singular subjects, along with the class marker *g-* which typically precedes the clause marker as part of finite subject agreement. Compare the main form *é-g-a-wəndaɬ-ó* ‘I watched it’ with the DPC2 form *ηínǰ-η:í é-wəndaɬ-ó* ‘the dog that I watched’.

The clause marker disappears due to a general vowel-hiatus process with vowel initial roots. If there is an intervening affix, such as a prefixal object marker 11.3.5, the clause marker reappears.

- (6) Clause marker or object marker + root: V1 deletion (assuming application of vowel harmony)

a.	k-a-erl-ó	/a-e/	[e]	[kerló]	‘he walked’
b.	k-3-ilið-ú	/3-i/	[i]	[kiliðú]	‘he bought’
c.	k-é-ar-ó	/é-a/	[á]	[káró]	‘...who cried’
d.	k-é-ogə́-ó	/é-o/	[ó]	[kógə́ó]	‘...who jumped’
e.	k-í-3nɿ-ú	/í-3/	[ɿ]	[kínɿú]	‘...who entered’
f.	k-í-udən-ú	/í-u/	[ú]	[kúdənú]	‘...who farted’
g.	k-3-ɲí-3wuɿ-ú	/í-3/	[ɿ]	[kɿɲ3wuɿú]	‘he dropped me’
h.	k-3-ɲɿ-ilið-iɿ-ú	/ɿ-i/	[i]	[kɿɲiliðiɿú]	‘he bought for you’

We now turn to the tone of the clause marker. The *a-* prefix is low toned and is unaffected by other morphemes tonally, save with vowel initial roots (See also §11.3.1.2.3). The high tone clause markers *é-* and *á-* also are unaffected by surrounding tones, but when these markers occur immediate adjacent to H tone in the default tone pattern in the macrostem, downstep occurs.

- (7) a. ɲerá ɲ-é-!ðə́w-á ‘the girl who is about to poke’
 b. ɲerá ɲ-é-!ðáð-ðə́w-a ‘the girl who is about to poke repetitively’

In Moro, Downstep is an indication of two separate H tones (Odden 1982) and the fact that it occurs only when these particular affixes are juxtaposed, but not others, indicates a boundary. We therefore conclude that downstep marks the boundary between the preverb and the macrostem.

10.2.3 Past tense reduplication

For some speakers, the preverb can reduplicate to mark past tense. Hence, the past perfective *á-gá-g-a-tə ɲatw-ó* ‘you had licked it’ suggests a reduplicative prefix *gá-* with H tone that copies the elements to its right. For the other speakers, this reduplicant is instead realized as the past imperfective auxiliary *-awó*, where the following verb has identical inflection (See §13.6). As peripheral vowels including /o/ are regularly reduced at word junctures in Moro (§5.2.2) giving the appearance of reduplication: *á-g-a(w)-ó á-g-a-tə ɲat-ó* → *ágágaɿə ɲatə́*. There is no vowel harmony between the two pieces, an indication of separate words: *né-n-i-sɿɿ-ú* ‘that I had seen.’

Of the three consultants we have worked with, one exclusively uses the reduplicated form, one optionally uses it and recognizes it as the reduction of the past tense auxiliary form, while the third consultant does not use the reduplicated form. Additionally, written Moro never seems to have the reduplicated past tense, and always makes use of the the Wërria version of the past tense auxiliary *-afo*.

10.3 Morphophonology of the macrostem

The macrostem is the core of the Moro verb. The affixes in the macrostem can occur in every Moro verb form, and it defines the minimum verb in Moro, which occurs in imperatives (Chapter ??). This section describes the morphophonological properties of the affixes in the macrostem, including the complex distribution of tone on roots in the default tone pattern.

The basic template for the macrostem is below:

(8) Macrostem verb template

AMD - OM/PROG - ITER - $\sqrt{\text{ROOT}}$ - EXT - AMD

In main clauses, the macrostem occurs in one of three forms which are distinguished by aspect and verbal deixis: imperfective, the venitive imperfective, and perfective. These distinctions are marked by a combination of affixes and tone melodies. The basic distinction is summarized in 11.9, repeated from Section 11.1.

Table 10.9: Aspect/mood/deixis patterns for finite verbs, *-lənətʃ-* ‘hide’

	AMD	Tone	Example
(Regular) imperfective	-a	default	<i>g-a-lənətʃ-a</i>
Venitive imperfective	á- -ó	melodic L	<i>g-á-lənətʃ-ó</i>
Perfective	-ó	melodic L	<i>g-a-lənətʃ-ó</i>

These inflectional patterns are described in more detail below. Beyond the AMD suffix and tone pattern, the choice of inflection pattern above have ramifications for the morphological and phonological realization of other affixes in the macrostem as well, including their tone, and in the case of object makers, whether they occur as prefixes in the macrostem or in the clitic group (See Section 7.2).

Section ?? describes the morphophonology of regular imperfective verb forms, Section 11.3.2 describes the perfective, and section 11.3.3 describes venitive imperfective verb forms. Iterative reduplication is discussed in Section 11.3.4, while preverbal object markers are briefly discussed in section 11.3.5. The semantics of these markers are discussed in Section 11.4. While extension suffixes occur within the macrostem, they will be discussed separately in Section 11.5.

10.3.1 Imperfective verb forms

This section describes the morphological and phonological realization of (regular) imperfectives. Imperfective verb forms are characterized by three components within the macrostem: the imperfective AMD suffix, default tone patterns on the macrostem, and a prefix *v-* which appears on vowel initial roots.

Each verb form presented in this section is composed of four morphemes. For example, *g-a-dáŋ-á* ‘sit, stay’ consists of a noun class concord subject marker (CLg-) *g-*, a root clause prefix (RTC) *a-*, the root, and the regular imperfective aspect vowel (-IPFV) *-a*, which we turn to first.

10.3.1.1 The imperfective suffix

Although many regular imperfective verbs end in *-a* or its raised counterpart *-ɜ*, a number of others end in a diphthong suffix, either *-iə* (with high vowels) or *-eə* (with low vowels), both of which are illustrated in Table 11.10. As the table shows, there are no clear correlates with root length. No phonological factors have been found which predict the shape of the imperfective suffix, including tone or the segmental makeup of the root. As such, the precise nature of the contrast between the *-a/-ɜ* versus *-eə/-iə* in imperfectives is not clear.

One possibility which is unlikely is that the first vowel in the *-eə/-iə* variant of the imperfective suffix is part of the root, and that the schwa is a reduced form of the imperfective vowel. While this is in principle possible, this suffix could not be derived from an underlying /*ea/* or /*iz/* by any normal vowel hiatus resolution processes in Moro, which surface with either of the first vowel, glide formation, vowel coalescence, or vowel reduction to /*ə/*, which is restricted to peripheral vowels.

Another hypothesis is that the *-iə* represents a lexicalized causative (§11.5.1) suffix. Yet many of these verbs ending in *-eə/-iə* lack causative meanings, and as causatives raise vowels on verbs, this analysis does not extend to *-eə*.

Some imperfective verb roots which take the *-eə* suffix end in *-əð*, which is the same as the shape of the antipassive suffix discussed in §11.5.5:

- | | | |
|-----|-------------------------|-------------------------------------|
| (9) | <i>g-a-v-eə</i> | ‘live, locative copula’ |
| | <i>g-a-kávəð-eə</i> | ‘trick to do something, share with’ |
| | <i>g-a-dʒátʃəd-w-eə</i> | ‘implore’ |
| | <i>g-a-dʒávəð-eə</i> | ‘fall lightly from’ |
| | <i>g-a-mwándəð-eə</i> | ‘ask’ |

Table 10.10: Allomorphy in imperfective suffix

	-a/-ɜ		-iə/-eə	
Consonantal root	g-a-n:-a	‘hear’	g-ɜ-t̥-iə	‘drink’
One syllable root	g-ɜ-víð-ɜ	‘vomit’	g-ɜ-míð-iə	‘give milk’
	g-a-dáŋ-á	‘stay’	g-ɜ-dʒr-iá	‘wrap’
	g-a-lát̥-á	‘sift’	g-a-raɬ-eə	‘inherit’
Two syllable root	g-a-váléð-a	‘pull’	g-árnəð-iə	‘divide’
	g-ɜ-dʒd:əð-ɜ	‘hiccup’	g-a-kávəð-eə	‘share’
Three syllable root	g-a-kárəɲaɬ-a	‘rebuke’	g-a-mwándəð-eə	‘ask’
	g-ɜ-púnjúðəɬ-ɜ	‘pierce’	g-ɜ-dúgəðən-iə	‘work’

As such, some imperfective verbs ending in *-eə* can be seen as fossilized antipassive verbs. But like with the causative hypothesis, the roots above lack an obviously antipassive component and in fact many are normal transitive verbs.

In conclusion, the alternation between *-a/-ɜ* and *-eə/-iə* in imperfective verb forms seems to be irregular, lexically associated with different verb roots.

10.3.1.2 Default tone in imperfective verbs

The tone patterns of regular imperfective verbs are representative of the default distribution of tone on the verb root, which also occurs in all infinitive verb forms. The H tone which tends to occur at the left edge of the macrostem. The exact distribution of this H tone varies depending on the shape of the verb root and the presence of particular prefixes, as described and analyzed in Jenks & Rose (2011). In this section we outline the patterns, focusing on consonant-initial versus vowel-initial roots, which display different tone patterns.

The tone patterns of basic regular imperfective verb stems with no additional extension suffixes are summarized in Table 11.11. We divide the roots into two classes as the tone patterns differ: those with an initial open syllable and those with an initial closed syllable.

Whether roots are consonant or vowel-initial and syllable weight are also important factors in the distribution of tone. Consonant-initial roots have a high tone on the first vowel, resulting in HH or H-H forms. If vowel initial, roots avoid an initial H tone, resulting in a L-L or LH melody, basically an avoidance of H tone on the vowel of a vowel-initial root. Closed or heavy syllables, which end in a consonant, always bear H tone, no matter if they are consonant or vowel

initial. Lexical distinctions are also present in whether H tone spreads. Thus, in a restricted number of verbs there is no spreading. In these cases, a single H tone is always associated with the first syllable that does not extend.

Table 10.11: Default tone pattern in regular imperfective

		Long root ($\sigma\sigma\dots$)	Short root (σ)
Open syllables	C-initial	HH (HL)	H-H (H-L)
	V-initial	LH (HL)	L-L (H-L)
Closed syllables	C-initial	HL	H-L
	V-initial	HL	H-L
no syllables	C(:)	--	Ø-L

This section addresses the tone patterns of imperfective verbs based on the shape of the root. Consonant-initial roots consisting only of light syllables of shape CVCVC and shape CVC are addressed first. Roots with heavy syllables of shape

10.3.1.2.1 Light syllables In consonant-initial roots with an open first syllable, generally of the shape CVCVC, high tone appears on the first vowel and extends onto the second vowel in most cases.

- (10) g-a-ṭáváð-a ‘spit’
 g-a-kwáréð-a ‘scratch’
 g-a-vóléð-a ‘pull’
 g-a-dógáṭ-a ‘fix’
 g-3-támátʃ-3 ‘collect’

There are a few verbs for which the tone pattern is HL and not HH. This is a small group consisting of the following roots.

- (11) g-3-dáðáð-3 ‘hiccup’
 g-a-váðáð-a ‘clean, sweep’
 g-3-dúwəṭ-3 ‘chew with back teeth’

Although most verb roots consist of one or two syllables, there are also longer roots. The tone pattern of longer roots is the same as the bisyllabic roots, except that any additional syllables beyond the first two are low-toned.

- (12)
- | | |
|----------------|------------------------|
| g-3-dúgǎðən-iə | ‘work’ |
| g-a-kárəpəŋ-a | ‘tell off, rebuke’ |
| g-3-púnjúðəŋ-3 | ‘pierce, make hole in’ |
| g-3-rəmǎðit-iə | ‘fill a hole’ |
| g-3-dzínzəŋ-iə | ‘forget’ |

Longer verb roots almost certainly derive from extension suffixes (passive *-ən*, applicative *-əŋ* or *-it*, locative applicative *-at*, anti-passive *-əð*, causative *-i*) that have become lexicalized. The endings of these verb roots consist almost exclusively of these sequences. Furthermore, most show higher vowels, another hallmark of three of the extension suffixes (passive, applicative and causative). However, in the current language, there are no corresponding shorter roots that occur without the final syllable, ex. **g-a-kárəp-a* or **g-3-púnjúð-3*. Many bisyllabic roots may also be derived in a similar manner from monosyllabic roots.

When extension suffixes such as the passive *-ən*, are added to CVCVC roots, the tone pattern is maintained, and the passive suffix is low-toned:

- (13)
- | | | |
|--------------|----------------------|-----------|
| Imperfective | Imperfective-passive | |
| g-a-távǎð-a | g-3-tǎvǎŋ-ən-iə | ‘spit’ |
| g-a-kwǎréð-a | g-3-kúríð-ən-iə | ‘scratch’ |

Verb roots with the shape CVC have a H tone on the root, which can extend (H-H) or not extend (H-L) to the following aspect suffix. Most verbs do have H tone extension. In our lexicon, there are 68 CVC verb roots with H tone extension.

- (14) CVC verb roots with H-H tone pattern
- | | |
|------------|--------------------------|
| g-a-wǎð-á | ‘poke’ |
| g-a-wǎŋ-á | ‘sew’ |
| g-a-bwǎp-á | ‘like, want’ |
| g-3-sǎð-ǎ | ‘defecate’ |
| g-a-dǎŋ-á | ‘stay’ |
| g-a-rǎm-á | ‘hit with a large stone’ |
| g-a-ŋǎl-á | ‘yawn’ |
| g-a-mǎð-á | ‘twist (rope)’ |
| g-a-lǎŋ-á | ‘sift, make clay pots’ |
| g-a-kǎv-á | ‘pinch’ |
| g-3-dǎr-iǎ | ‘wrap, cover’ |
| g-3-víð-ǎ | ‘vomit’ |
| g-a-mǎŋ-iǎ | ‘live, inhabit’ |

10 Verbs and verbal morphology

We have identified 20 verbs that have the no extension (H-L) pattern, so this is the minority (23%).

(15) CVC verb roots with H-L tone pattern

g-a-kér-a	‘break’
g-3-kíð-iə	‘open’
g-3-lím-iə	‘put together, join’
g-a-váð-a	‘shave’
g-3-mwə́ɬ-3	‘sip’
g-3-míð-iə	‘be full of milk, give milk’
g-3-nín-iə	‘search, look for’
g-a-nwán-a	‘tend, watch, take care of’
g-a-ɲáɲ-a	‘scratch’
g-a-rág-a	‘crawl’
g-3-rə́g-iə	‘pass under, push through’
g-a-raɬ-eə	‘inherit’
g-a-gáð-a	‘mix (food, words)’
g-a-sáɬ-a	‘chew noisily, chatter’
g-3-t́s-iə	‘swing’
g-3-tíð-3	‘thread, roll’
g-a-tóð-a	‘rise’
g-a-tóg-a	‘peck’

There are no clear generalizations to be made about which verbs have H tone extension and which don’t based on the final consonant or the root vowel. This appears to be a lexical property of particular roots.

Verbs that have a final diphthong *-iə* (with high vowels) tend to fall into the H-L class. This could be due to the lexicalization of a causative suffix. In the causative imperfective, the final suffix is *-iə*, which triggers vowel raising. Furthermore, CVC roots with H-H require a H-L tone pattern in the causative, as seen below (see Section 11.5.1)

(16)	Imperfective	Causative imperfective	
	g-a-lág-á	g-3-lág-iə	‘weed’
	g-a-ðə́w-á	g-3-ðə́w-iə	‘poke’

Nevertheless, not all verbs with a final *-iə* show this tone pattern, so this is not an exceptionless generalization.

When an extension suffix is added to CVC roots, the second H tone appears on the extension suffix rather than on the aspect suffix. Curiously, both H-H

and H-L roots show H tone extension with extension suffixes, neutralizing the distinction between them in these forms. The data below show the passive *-ən*, which also raises vowels (Section ??):

(17)	Imperfective	Passive imperfective	
H-H	k-a-bwáɲ-á	k-3-bwɔ́ɲ-ən-iə	‘like, want’
	k-a-wáð-á	k-3-wɔ́ð-ən-iə	‘poke’
H-L	k-a-váð-a	k-3-vɔ́ð-ən-iə	‘shave’
	k-a-tóð-a	k-3-túð-ən-iə	‘move’

Between the bisyllabic and monosyllabic consonant-initial verb roots, two generalizations emerge. First, H is associated with the initial root syllable, and second, in most verbs forms, H spreads a single syllable to the right.

10.3.1.2.2 Closed syllables We move now to consonant-initial roots with closed syllables as well as roots made up of geminate consonants. The verb roots introduced so far have a CVC- or CVCVC- shape. This means that the first syllable is open or light (ends with a vowel). If the first syllable is closed or heavy (ends with a consonant), H tone extension does not occur. Bisyllabic verb roots with an initial heavy syllable (shaped CVCCVC) surface with a HL melody on the root. The first syllable can be closed by a sonorant consonant, a nasal or a liquid (*r* or *ɾ*), or the first half of a geminate consonant.

(18)	k-a-mwándəð-eə	‘ask’
	k-a-wəndaɾ-a	‘see’
	k-3-vɔ́ndaʔf-iə	‘hold’
	k-a-lál:əɲ-a	‘run’

We assume that high tone is blocked from extending to the second vowel of the root due to the closed syllable. We have not observed any verb roots of the shape CVCVCC.

If the verb root is of the shape CVCC, H tone also never extends to the following affix.

(19)	g-a-wáɾð-a	‘write’
	g-a-láɲɔ-a	‘close’
	g-3-túnd-3	‘cough’
	g-a-kál:-a	‘pull branches from tree’

Some verb roots have only a single consonant, which is often geminate. In these cases, there is no H tone, as there is no position in the root to host it.

10 Verbs and verbal morphology

- (20)
- | | |
|-----------------------|--------------------|
| g-3-w:-3 | 'boil, be hot' |
| g-a-ð:-á | 'slice, cut' |
| g-a-m:-a | 'take, marry' |
| g-a-n:-a | 'hear' |
| g-a-s:-a | 'eat' |
| g-a-w:-á | 'persuade, entice' |
| g-3-ṭ-iə | 'drink' |
| g-a-ṭw-a | 'get lost' |
| g-a-v-eə | 'live, inhabit' |
| g-3-p ^w -3 | 'beat' |

If an extension suffix is added to these verb roots, H tone appears on the extension suffix.

- (21)
- | | | |
|--------------|----------------------|--------|
| Imperfective | Passive imperfective | |
| g-a-s:-a | g-3-s:-ón-iə | 'eat' |
| g-a-m:-a | g-3-m:-ón-iə | 'take' |

In addition, H tone will appear on the final suffix if it is followed by another suffix in the clitic group (object marker, locative or instrumental, §11.6). In (a), the object marker *-lo* causes H tone to appear on the final aspect vowel. In (b) the instrumental *-ja* does the same thing (and also causes local lowering of the aspect suffix to [a]). This is a general property of these suffixes if the preceding vowel is low-toned.

- (22)
- | | |
|--------------------|-----------------------------------|
| g-3-s:-á-lo | 's/he is about to eat them' |
| g-3-w:-á-ja ŋwatja | 's/he is hot with (loves) Ngwaca. |

If the verb root is longer than a single consonant, but begins with a geminate consonant, H tone appears on the preceding prefix, the root clause vowel.

- (23)
- | | |
|--------------|--------|
| g-á-w:aḍaṭ-a | 'find' |
| g-á-s:3ṭj-iə | 'look' |

Initial nasal-consonant sequences show different patterns with respect to the placement of this H tone, as discussed in the chapter on tone. With initial [ndr] sequences, the nasal bears H tone. With initial [ŋg] or [nd] sequences, there are two patterns. One pattern places H tone on the root vowel, essentially treating the [ŋg] or [nd] sequence as a single consonant. The other pattern places H tone on the preceding prefix, the same pattern as with initial geminate consonants, treating the [ŋg] sequence as a consonant cluster.

- (24) k-a-ńdraṭ-a 'be near to'
k-a-ńdr-a 'sleep'
k-a-ṅgáṭ-eə 'go away, leave'
k-a-ndəḏ-iə 'cut, tear, rip'
k-ṣ-ṅgiṭ-iə 'let, allow'

10.3.1.2.3 Vowel initial roots The tone pattern of vowel-initial roots in the regular imperfective diverges from consonant-initial roots. Most roots of the shape VCVC have a LH melody. The H tone does not extend to the suffix after the root. Note that the root clause marker *a-* is absent preceding the vowel-initial root due to vowel hiatus resolution, which causes deletion of the first vowel (§5.2.1).

- (25) g-ogəṭ-a 'jump'
g-ṣwúṭ-ṣ 'drop'
g-eləṭf-a 'lay out, hang, unfold'
g-abəṛ^w-a 'fly'
g-urəḏ-ṣ 'have diarrhoea'

There are also a small number of VCVC verbs which have the tone melody HL. The first two are borrowings from Arabic. The final verb is a longer root, but still shows this pattern.

- (26) g-álab-a ?
g-ákəṃ-a 'judge'
g-ṣmin-iə 'be boastful'
g-ṣgəṭf-iə 'accompany, trip'
g-ámadaṭ-a 'help'

Unlike the CVCVC roots, there are no VCVC roots that have the tone melody HH.

Vowel-initial roots of the shape VC general surface with all-low tone (6d-f).

10 Verbs and verbal morphology

- (27)
- | | | |
|----|---------|----------------------------|
| a. | g-oað-a | 'mill' |
| b. | g-oar-a | 'badmouth' |
| c. | g-al-a | 'slice' |
| d. | g-om-a | 'shelter from rain' |
| e. | g-or-a | 'mate, copulate (animals)' |
| f. | g-og-a | 'thresh' |
| g. | g-ur-3 | 'blow (wind)' |
| h. | g-oan-a | 'be anxious' |
| i. | g-ap:-a | 'carry' |
- (28)
- | | | |
|----------------------|------------------------------|---------------|
| regular imperfective | regular imperfective passive | |
| g-al-a | g-3l-ón-iə | 'slice' |
| g-oað-a | g-u3ð-ón-iə | 'mill, grind' |

Like the consonant-only roots, these forms can acquire a H tone on the final aspect vowel if it is followed by another suffix.

There are also a few vowel-initial roots of the shape VC that surface with a H tone that does not extend to the following suffix:

- (29)
- | | |
|---------|--------------|
| g-íb-iə | 'pay dowry' |
| ŋ-ól-a | 'drip, leak' |
| g-oár-a | 'badmouth' |
| g-oás-a | 'wash' |

When the vowel-initial roots begins with a closed, heavy syllable, H tone appears on the first vowel and does not extend to a second vowel.

- (30)
- | | |
|----------------|---------------------|
| g-árnəð-iə | 'divide' |
| g-éndəŋ-a | 'collapse, crumble' |
| g-ínđuð-3 | 'bite' |
| g-3r:3ŋəʃəð-iə | 'teach' |
| gw-ónɢaʃ-a | 'be pregnant' |
| g-oándəʃ-a | 'dry up, wither' |
| g-óp:əʃ-a | 'defend' |
| g-oás:əð-eə | 'scatter seeds' |

The same pattern holds for VCC roots:

- (31)
- | | |
|----------|----------------|
| g-áf:-a | 'build, shoot' |
| g-áw:-a | '??' |
| g-oánd-a | 'harvest' |

10.3.1.3 The *v*-prefix

Many vowel-initial roots are preceded by *v*- in the regular imperfective. The *v*-prefix can only appear in this particular verb form, and it is obligatory. Furthermore, it may not appear on any verb root that contains a labial consonant (/p b f v m w/) or a round vowel (/o u/). In Werria and written Moro, /b/ corresponds to Thetogovela /v/, so this prefix is *b*-.

When *v*- precedes the verb root, the tone pattern is like that of consonant-initial roots. Verbs with two vowels have a HH melody (or in one case HL), and verbs with one vowel have a H tone that extends to the following suffix. We have not noted any verbs that do not extend the H tone to the affix vowel, but this may just be an accidental gap.

- | | | | |
|------|-----|---------------|-------------|
| (32) | HH | g-3-v-əlíð-3 | ‘buy’ |
| | | g-3-v-égár-iə | ‘read’ |
| | | g-a-v-álóŋ-a | ‘sing’ |
| | H-L | g-3-v-éŋətf-3 | ‘show’ |
| | H-H | g-a-v-áj-á | ‘die’ |
| | | g-a-v-ár-á | ‘cry’ |
| | | g-3-v-íd-iə | ‘fall down’ |
| | | g-a-v-áṭ-á | ‘say’ |
| | | g-3-v-ég-iə | ‘put’ |

The *v*-prefix causes reduction of the vowel /i/ to [ə] in the word for ‘buy’.

Verb roots with an initial heavy, closed syllable have the pattern HL or H-L. This would be the case with or without *v*-.

- | | | |
|------|-----------------|-----------------------|
| (33) | g-3-v-énd-iə | ‘catch, arrest’ |
| | g-3-v-él:ən-iə | ‘boast’ |
| | g-3-v-éntfən-iə | ‘wear’ |
| | g-a-v-án:-a | ‘look like, resemble’ |
| | g-a-v-éřṭ-a | ‘have’ |
| | g-3-v-éřn-iə | ‘be named’ |

It should be noted that there are some roots that have two possible forms, with a *v*-prefix and without, with no difference in meaning.

- | | | | |
|------|--------------|-----------|-------------------------|
| (34) | g-a-v-ég-iə | g-3g-iə | ‘put’ |
| | g-a-v-éřtf-a | g-elátf-a | ‘lay out, spread, fold’ |

Other prefixes besides *v-* have a tonal effect on vowel-initial roots, as described in Section 11.3.4 for the iterative prefix and Section 11.3.5 for the preverbal object marker.

10.3.2 Perfective verb forms

Perfective verbs are marked by a combination of tonal and affixal inflection. The perfective suffix consists of the suffix *-ó* and an all-L tone melody. The semantics of perfective verb forms is discussed in Section 11.4.2.

The perfective suffix *-ó* alternates with *-ú* depending on the vowels in the root, an instance of root-controlled vowel harmony (§??). There is no trace of the allomorphy between imperfective *-a/-3* versus *-eə/-iə* in the perfective, as the suffixes are fully predictable.

(35)	Imperfective	Perfective	
	<i>g-a-n:-a</i>	<i>g-a-n:-ó</i>	‘hear’
	<i>g-3-t̥-iə</i>	<i>g-3-t̥-ú</i>	‘drink’
	<i>g-a-dáŋ-á</i>	<i>g-a-daŋ-ó</i>	‘stay, sit’
	<i>g-3-víð-3</i>	<i>g-3-við-ú</i>	‘vomit’
	<i>g-3-t̥-iə</i>	<i>g-3-t̥-ú</i>	‘drink’
	<i>g-a-vóléð-a</i>	<i>g-a-vəleð-ó</i>	‘pull’
	<i>g-3-dádəð-3</i>	<i>g-3-dədəð-ú</i>	‘hiccup’
	<i>g-a-mwándəð-eə</i>	<i>g-a-mwandəð-ó</i>	‘ask’
	<i>g-3-púnúðətf-3</i>	<i>g-3-puŋuðətf-ú</i>	‘pierce’

As the examples above illustrate, the shape or length of the root has no effect on the all-L melody associated with the perfective, which neutralizes any distinctions which are made in the default tone pattern on the root.

The all-L melody associated with perfective aspect applies to all affixes in the macrostem. This includes iterative prefixes, which surface with H tone in the imperfective.

(36)	Perfective	Iterative perfective	
	<i>g-a-dərn-ó</i>	<i>g-a-dat-tərn-ó</i>	‘press’
	<i>g-ogətf-ó</i>	<i>g-ok:-ogətf-ó</i>	‘jump’

Likewise, extension suffixes always surface L in perfective verb forms. See 5.1 for some relevant examples.

Perfective verb forms always occur with enclitic object markers or pronouns. A full paradigm of object markers in the perfective was provided in example 7 in Chapter 7.

10.3.3 Venitive imperfective verb forms

Venitive imperfective verb forms consist of two components, a circumfix *á-* *-ó*, and an all-L tone melody on the root. This section describes the morphological patterns used to mark the venitive imperfective, while section 11.4.4 describes the semantics of this form.

In contrast to the regular imperfective, and like the perfective the tone patterns of the venitive imperfective are simple. When consonant-initial, the root is always low-toned no matter the size and shape of the root.

- (37)
- | | |
|----------------------|---------------------------|
| <i>g-á-vələð-ó</i> | 'pull' |
| <i>g-á-vədað-ó</i> | 'sweep' |
| <i>g-á-dugəðən-ú</i> | 'work' |
| <i>g-á-lag-ó</i> | 'weed' |
| <i>g-á-nin-ú</i> | 'search, look for' |
| <i>g-á-lal:əp-ó</i> | 'run' |
| <i>g-á-kəl:-ó</i> | 'pull branches from tree' |
| <i>g-á-s-ó</i> | 'eat' |

These examples illustrate that the *á-* *-ó* circumfix undergoes normal vowel harmony within the root. In addition, the prefixal component interacts with morphemes on either side due to normal vowel hiatus processes (§5.2.1). To the left, the clause vowel always deletes in venitive imperfective verb forms. To the right, when roots are vowel-initial, the *á-* prefix on the root. In such cases, its H tone appears on the initial vowel of the root.

- (38)
- | | |
|------------------|----------------|
| <i>g-ógəṭ-ó</i> | 'jump' |
| <i>g-ákəm-ó</i> | 'judge' |
| <i>g-áp:-ó</i> | 'carry' |
| <i>g-áf:-ó</i> | 'shoot, build' |
| <i>g-ílið-ú</i> | 'buy' |
| <i>g-árnəð-ó</i> | 'divide' |

If there is a durative/iterative prefix, it is also low-toned unless vowel-initial.

- (39)
- | | | |
|-------------------|-----------------------|---------|
| <i>g-á-dərn-ó</i> | <i>g-á-dat-tərn-ó</i> | 'press' |
| <i>g-ógəṭ-ó</i> | <i>g-ók:-ogəṭ-ó</i> | 'jump' |

Unlike the regular imperfective and like the perfective, object markers always appear as suffixes in the venitive imperfective. There is no interaction between them and the tone pattern of the stem.

(40)		g-á-vəleð-ó	‘s/he is about to pull’
	1SG	g-á-vəleð-ə-ŋé	‘s/he is about to pull me’
	2SG	g-á-vəleð-ə-ŋá	‘s/he is about to pull you (sg)’
	3SG	g-á-vəleð-ə-ŋó	‘s/he is about to pull him’
	1INC.DUAL/2PL	g-á-vəleð-ə-ńda	‘s/he is about to pull us/you’
	3PL	g-á-vəleð-ə-lo	‘s/he is about to pull them’

As discussed in Section 7.2, the suffixal pattern is attributable to the tone melody imposed by the venitive imperfective.

10.3.4 Iterative verb forms

Many verb roots in Moro undergo a partial reduplication process which marks pluractionality, either iterative or durative semantics depending on the root. This section focuses on the morphological processes and allomorphs. The semantic contribution and lexical restrictions of this form are described in Section ??.²

Iterative reduplication has several variants which are mostly phonologically conditioned. The first two variants involve partial reduplication triggered by the shape of the verb root. The prefix is of the shape *CaC-* for consonant-initial roots and *Vk:-* for vowel-initial roots, where C and V are copies of the first segment in the verb root.

(41)	Imperfective	Iterative imperfective	
	g-a-m ^w ándəð-eə	g-a-mám-m ^w ándəð-eə	‘ask’
	g-a-ðəw-á	g-a-ðáð-ðəw-a	‘poke’
	g-a-kəv-á	g-a-gák-kəv-a	‘pinch’
	g-a-dərn-a	g-a-dát-tərn-a	‘press’
	g-ogə́t-a	g-ók:-ogə́t-a	‘jump’
	g-al-a	g-ák:-al-a	‘slice’

The examples in 41 are all given in the regular imperfective, which is associated with default tone. In such cases, H tone appears on the iterative prefix itself. This is unsurprising from the perspective of the default tone patterns described in Section 11.3.1.2, as H tone always associates with heavy syllables within the macrostem.

In imperfective verbs, additionally, the *v-* prefix (§11.3.1.3) can precede the vowel-initial prefix without altering the tone pattern:

² We are grateful to Hannah Sande for her work on the Moro iterative with Angelo Naser in Fall 2015 which supplied helpful material for this section as well as section ??.

- (42) Imperfective Iterative imperfective
- | | | |
|-----------------------|---------------------------|------------------------|
| <i>g-3-v-3nd-iə</i> | <i>g-3-v-3k:-3nd-iə</i> | ‘hold, catch’ |
| <i>g-3-v-3g-iə</i> | <i>g-3-v-3k:-3g-iə</i> | ‘put’ |
| <i>g-a-v-ágəðat-a</i> | <i>g-a-v-ák:-agəðat-a</i> | ‘go around in circles’ |

The other variant of the iterative also occurs before vowel initial roots, but there the /k:/ of the partial reduplicant is replaced by *Vr:-*, again reduplicating the first vowel, creating a heavy syllable which attracts H tone on the first vowel in imperfective verbs. While both *Vr:-* and the *Vk:-* reduplication occur with vowel-initial roots, the choice of form itself is phonologically conditioned. The basic generalization seems to be that *Vr:-* is only possible with verbs that lack the liquids /l r r w/. This generalization is illustrated in Table 10.12. Note that in the case of ‘fall’ the initial vowel of the root is deleted in the *Vr:-* pattern and the *r:* is realized as a regular coda /r/, resulting in an *VrC-* sequence at the beginning of the root. This process may be triggered before coronal consonants which are intervocalic.

Table 10.12: *Vk:-* vs. *Vr:-* iteratives with vowel-initial verb roots

Perfective	<i>Vr:-</i> iterative perfective	
<i>g-ap-ó</i>	<i>g-ar:-ap-ó</i>	‘carry’
<i>g-it-ú</i>	<i>g-ir-t-ú</i>	‘fall’
<i>g-abot-ó</i>	<i>g-ar:-abot-ó</i>	‘climb’
<i>g-əŋətf-ú</i>	<i>g-ər:-əŋətf-ú</i>	‘show (n.i.), teach (i)’
<i>g-3nt-ú</i>	<i>g-3r:-3nt-ú</i>	‘enter’
<i>g-3ncin-ú</i>	<i>g-3r:-3ncin-u</i>	‘put on (clothes)’
<i>g-indətf-ú</i>	<i>g-ir:-indətf-ú</i>	‘try, imitate’
Perfective	<i>Vk:-</i> iterative perfective	
<i>g-əl:-ó</i>	<i>g-ək-əl:-ó</i>	‘take branch from tree’
<i>g-əw-ó</i>	<i>g-əkəw-ó</i>	‘pinch’
<i>g-abort-ó</i>	<i>g-ak-abort-ó</i>	‘ride’
<i>g-iric-ú</i>	<i>g-ik-iric-ú</i>	‘light a fire (w.)’
<i>g-orobac-ó</i>	<i>g-ok-orobatf-ó</i>	‘answer (w.)’
<i>g-abalac-ó</i>	<i>g-ak-abalatf-ó</i>	‘deny’
<i>g-arnəð-ó</i>	<i>g-ak-arnəð-ó</i>	‘share’

The absence of /l r r w/ in the root does not guarantee a *Vr:-* iterative, as the *Vk:-* alternant occurs in many forms that lack liquids (e.g. *g-ók:-ogət-a* ‘jump’ from

41). Such exceptions are actually relatively common. Yet exceptions the other way are less common. Only, three roots with liquids have been found to take the *Vr:-* prefix. In all three cases, the *Vr:-* prefix ends up forming a cluster with the liquid in the root due to vowel deletion.

- | | | | |
|------|------------|-----------------------------------|---------------|
| (43) | Perfective | - <i>r</i> - iterative perfective | |
| | g-ilið-ú | g-ír-lið-ú | ‘buy’ |
| | ga-væleð-ó | ga-værleð-ó | ‘pull’ |
| | g-3wut-ú | g-3r-wut-ú | ‘drop, throw’ |

Note that ‘pull’ is not actually vowel initial and may be a irregular form.

The fact that one variant of the iterative contains /*r*/ may not be an accident, as -*r* seems to contribute plurality to distinguish first person inclusive plural and dual in the subject agreement paradigm (§11.2.1) and in pronouns more generally (Chapter 7). Additionally, plural imperatives are marked with an -*r* suffix (Chapter 18). As such, /*r*/ seems to be a general exponent of plurality in number of contexts in Moro.

10.3.5 Preverbal object markers

High-toned object markers are positioned before the root or the durative/iterative prefix if one is present. Unlike the postverbal object markers discussed in section ??, preverbal object markers are incorporated into the macrostem and play a role in the distribution of tone in the macrostem. This explains the fact that only some components of object markers are actually able to appear postverbally, resulting in multiple exponents in some imperfective verb forms with object markers (See Section 7.2 for examples).

The interaction of object marker prefixes with default tone in the macrostem is described below. If an object marker prefix is present, no H tone is found on the verb root in the regular imperfective. The 3PL object marker is a low-toned suffix, and therefore H tone is observed on the root. The additional H tone on the aspect suffix is due to the addition of the object marker.

- | | | | |
|------|---------------|-----------------|----------------------------------|
| (44) | | g-a-váleð-a | ‘s/he is about to pull’ |
| | 1SG | g-a-ɲá-væleð-a | ‘s/he is about to pull me’ |
| | 2SG | g-a-ɲá-væleð-a | ‘s/he is about to pull you (sg)’ |
| | 3SG | g-a-ɲó-væleð-a | ‘s/he is about to pull him’ |
| | 1INC.DUAL/2PL | g-á-ńdə-væleð-a | ‘s/he is about to pull us/you’ |
| | 3PL | g-a-váleð-á-lo | ‘s/he is about to pull them’ |

If both the object marker and the durative/iterative are present, then H tone only appears on the object marker.

- (45) g-a-ŋó-ðáð-ðəw-a 'he's poking her'
 g-a-ŋé-gak-koreð-a 'he's scratching me'
 g-á-ńdə-vaf-fəleð-a 'he's pulling us'

If an object marker precedes a vowel-initial root or a vowel-initial durative/iterative prefix, the vowel of the object marker is deleted. Its H tone appears on the preceding prefix if it does not otherwise bear H tone.

- (46) /g-a-ŋé-abatʃ-a/ [gáɲabatʃa] 's/he is about to lift me'
 /g-3-ŋ3-3wuʔ-3/ [g3ɲ3wuʔ-3] 's/he is about to drop you'
 /g-a-ŋé-ak:-aləf-əʔ-iə/ [g3ɲ3kk3ləfəʔiə] 's/he keeps promising me'

Finally, if an object marker prefix appears, the *v-* prefix cannot: EXAMPLE such as 's/he sang for me'.

All other prefixes and suffixes do not change the basic tone pattern of regular imperfectives. Some high-toned prefixes that occur to the left of the object marker can cause a following H tone on the root to downstep, but other than this, there is no significant alteration.

- (47) é-g-a-kwáréð-a 'I am about to scratch'
 g-é-kw[↓]áréð-a '(s/he)...who is about to scratch'
 é-g-[↓]áff-a 'I am building'
 á-g-a-ðáð-ðəw-a 'you are poking (ITER.)'
 g-é-ð[↓]áð-ðəw-a '(s/he)...who is poking (ITER.)'

10.4 Aspectual and deictic semantics in the macrostem

This section describes the semantics of the verbal inflection markers which operate directly on the event description of verb and have no effects on information structure. This includes a discussion of aspect: imperfective (§11.4.1), perfective (§11.4.2), and the iterative (§11.4.1) are covered. In addition, the semantics of venitive verb forms are discussed in the context of the venitive imperfective (§11.4.4).

Aspect and deixis categories in Moro have different interpretations depending on the semantic properties of verb it attaches to. Different lexical categories of verbs behave differently under different distinctions, as we will see below. One notable property of these markers is that they encode multiple semantic distinctions at the same time. So the imperfective encodes both present tense and

particular aspectual choices, while the perfective always encodes past tense and different aspectual choices.

Additional discussions of tense and aspect can be found in Chapter 13 on auxiliaries as well as 14; additional discussions of venitive semantics can be found in Chapter 14 on embedded clauses, as there is a venitive form in the imperfective, and Chapter 18, as there is a venitive form in imperative verbs as well.

10.4.1 Imperfective semantics

Imperfective verb forms describe events which have not been completed. The default interpretations of imperfective verb forms vary with the lexical aspect, also called *Aksionsart*, of the verb phrase in question, as illustrated in Table 11.13. For durative events, such as accomplishments and achievements, and states, imperfective verb forms are interpreted as ongoing, and must hold of the present. In this sense the imperfective is a portmanteau marker for present tense and imperfective aspect.

Punctual events and changes of state, on the other hand, have an inchoative interpretation in the imperfective by default, roughly equivalent to English ‘about to.’ This interpretation is due to the fact that the imperfective seems to include a present tense meaning, and as punctual events and changes of state happen instantaneously, at least for linguistic purposes, the time at which these events take place can never really correspond with the time of utterance. In order for punctual events to receive a present progressive interpretation, the iterative prefix must be added, as discussed in section 11.4.3 and also below for habitual uses.

While the interpretation often suggested for imperfective punctual event types is ‘just about to,’ there is no strict entailment that the event take place in the immediate future, as the following example shows:

This example indicates that the closeness of the event seems to be subject to pragmatic considerations. So the only strict entailments of the imperfective are that the described event is not completed at the present time.

In addition to punctual and inchoative interpretations, all durative classes can be used in the imperfective with a present habitual meaning. Contexts have been included in the following examples as the pragmatic contexts for habituals seem less inguitive.

(48) Habitual imperfective with accomplishment

Context: We have a friend, Kuku, who works very hard at building houses. In fact, he works so hard that he builds a new house every day.

Table 10.13: Imperfective aspect with different lexical aspect classes

	Durative	Punctual
Bounded event	Accomplishments g-áf-a égéé '(S)he is building the house.'	Achievements g-ɜwút-ɜ gəla '(S)he is about to drop the plate.'
Unbounded event	Activities ga-lál:əɲ-a '(S)he is running.'	Semelfactives gɜ-rómétʃ-ɜ əsi '(S)he is about to blink (eye).'
State	States ga-bwáɲ-á Kúku '(S)he likes Kuku.'	Changes of state ga-v-əd-éa oraɲ 'He is about to become a man'

kúku g-áf-a égéé eteto
Kuku CLg-build-IPFV house always
'Kuku is always building.'

EJ060217

(49) Habitual imperfective with activity

Context: We have a friend, Kaka, who is training for a race. She goes running every day so that she can get as fast as possible for her race.

káka ga-láliɲ-a eteto
Kaka CLg-run-IPFV always
'Kaka is always running.'

EJ060217

In contrast, punctual event types can only be used in the imperfective with a habitual meaning when they occur with an iterative prefix:

(50) Habitual imperfective and iterative imperfective with achievement

Context: We have a friend, Kaka, who is very clumsy, but she likes to cook. Whenever she is finished cooking, she puts food in a bowl and drops it.

a. # káka g-ɜwút-ɜ gəla eteto
Kaka CLg-drop-IPFV bowl always

b. Suggested in this context:

káka g-ɜr-wut-ɜ gəla eteto
Kaka CLg-ITER-drop-IPFV bowl always
'K. always drops the bowl'

EJ060217

(51) Habitual imperfective and iterative imperfective with semelfactive

- a. # gɜ-rəmɛtʃ-ɜ əsi eteto
CLg-blink-IPFV eye always
- b. gɜ-kɜ-rəmɛtʃ-ɜ əsi eteto
CLg-ITER-blink-IPFV always
'(S)he always blinks his/her eye.'

EJ060217

The requirement that the iterative be used in this context is a natural consequence of a few independent generalizations: 1) that achievements and semelfactive verbs describe a single event; 2) habitual require reference to either a plurality of events, or, presumably, events with internal structure; 3) the iterative is a pluractional marker, deriving plural events from singular ones.

10.4.2 Perfective semantics

The interpretation of the perfective is uniform across different semantic classes, as illustrated in 11.14 by the suggested translations into the English simple past. The perfective aspect frames events and states as completed and in their entirety. Additionally, perfectives are always interpreted as having occurred in the past. As such, the perfective is likely best seen as a combination of past tense and perfective aspect.

Table 10.14: Perfective with different lexical aspect classes

	Durative	Punctual
Bounded event	Accomplishments g-af-ó égéó '(S)he built a/the house.'	Achievements g-ɜwut-ú gəla '(S)he dropped the plate'
Unbounded event	Activities ga-lal:əɲ-ó '(S)he ran.'	Semelfactives gɜ-rəmɛtʃ-ú əsi '(S)he blinked (his/her eye).'
State	States ga-bwaɲ-ó Kúku '(S)he wanted Kuku.'	Changes of state ga-d-ó oraɲ '(S)he is (=has become) a man.'

There are some subtle differences in the interpretation of the perfective with different lexical aspect forms based on the independent differences between these

forms. With punctual events and changes of state, the perfective simply entails that the described event has already occurred. With durative events such as accomplishments and activities, adverbial modification reveals that the perfective encodes the event in its entirety rather than simply highlighting its endpoint.

- (52) a. Context: I started and finished building a house in one day.
 é-g-af-ó égéé ɲínɛɲí
 1SG-CLg-build-PFV house today
 ‘I built a house today.’
- b. Context: I started and finished building a house in four days.
 é-g-af-ó égéé í-ðipíní marlon
 1SG-CLg-build-PFV house LOC-days four
 ‘I built a house in four days.’ (Comment: ‘You finished in four days.’)
- c. Context: I have been working on the house for four days but have not finished yet.
 # é-g-af-ó égéé í-ðipíní marlon
 1SG-CLg-build-PFV house LOC-days four
- d. Suggested alternative for context in (52d)
 é-gá-g-áf-a égéé í-ðipíní marlon
 1SG-PSTREDUP-CLg-build-IPFV house LOC-days four
 ‘I’ve been building the house for four days.’
- EJ053117

In examples (52a) and (52b) the time adverb must describe the entire time in which the house was built. If the house has been being built for the past four days, the perfective is semantically infelicitous (52d), and instead the past imperfective must be used, marked either by past reduplication for one of our consultants, illustrated in (52d), equivalent to the past imperfective auxiliary *gawó* for Mr. Julima (Section 13.6).

True states, which are relatively rare, when used in the perfective imply that the described state has ceased to exist, as in the example of ‘want’ in Table 11.14. Many verbs which are translated with stative verbs in English are actually change-of-state verbs in Moro. For example, ‘I know Kuku’ is *égalaɲetó kúkuɲ*, and ‘I despise Kuku’ is *éganeðó kúkuɲ*, both in the perfective. The imperfective counterparts of these verbs thus have the expected inchoative meanings: *égalanéɛta kúkuɲ* is ‘I am about to get to know Kuku’ and *éganéða kúkuɲ* is ‘I am about to dislike Kuku.’ Nevertheless, the fact that a small number of verbs such as *bwápa* ‘like’ can be used in the imperfective with a present tense meaning indicates that stative verbs are a small but distinct class from change-of-state verbs.

10.4.3 Iterative semantics

The iterative prefix is a pluractional marker which marks plural events. The type of pluractionality is always defined relative to an entire event, rather than indicating any sort of repeated internal structure to the event. The iterative can generally occur on all verb types except for those describing activities or those with a distinct lexical iterative.

We begin with perfective achievements. In Moro, the verb *abárwa* ‘fly’ is describes a punctual event, an achievement, which means something closer to ‘take off.’ The iterative form of this verb is entails multiple flying events.

- (53) a. k-abər-ó
CLg-fly-PFV
‘(S)he flew, (s)he jumped over.’
b. g-ak-abr-ó
CLg-fly-PFV
‘(S)he flew repeatedly.’
(Comment: ‘(S)he flies and lands, flies and lands.’) AN110915

Now consider the following transitive achievement verb. With a singular object (54), the iterative must describe multiple biting events. With a plural object (55), the non-iterative alternant is semantically infelicitous:

- (54) a. omona g-3nduð-ú ĩ́n-ĩŋ:i
leopard CLg-bite-PFV dog-SCLŋ.this
‘A leopard bit this dog.’
b. omona g-3k-3nduð-ú ĩ́n-ĩŋ:i
leopard CLg-bite-PFV dog-SCLŋ.this
‘A leopard bit this dog repeatedly.’ AN110915
- (55) a. # ĩ́n-ĩ ĩ-3nduð-ú lidzi l-oaŋa
dog CLŋ-bite-PFV people CLl-many
‘A dog bit lots of people.’
b. ĩ́n-ĩ ĩ-3k-3nduð-ú lidzi l-oaŋa
dog CLŋ-ITER-bite-PFV dog-SCLŋ.this
‘A dog bit lots of people.’ AN110915

The fact that iterative marking is obligatory with plural objects in some contexts shows that iterativity is not an optional marker, but instead is required whenever a plural event is being described.

At the same time, the requirement of an iterative with the plural object shows that the iterative entails multiple ‘biting’ events, not multiple ‘biting lots of people’ events, for the iterative to be felicitous. Thus, the iterative event can distribute over plural objects. At the same time, the iterative-marked verb cannot be modified by an adverb like *lóma* ‘one time’:

- (56) # *ɲíní ɲ-3k-3nduð-ú lóma nto*
dog CL_ɲ-ITER-bite-PFV once

The same basic generalizations apply to durative events such as achievements and activities, and further reveal that iterative marking is obligatory, as is plural marking on the object if the described event cannot apply repeatedly to the same object. So the iterative version of ‘build the house’ requires a plural object because it is a verb of creation (57b), while ‘cultivate the field’ does not (57a), presumably because it is not a verb of creation and it would be possible to cultivate a single field or farm repeatedly.

- (57) a. # *Kúku g-á-f-af-a égéə*
Kuku CL_g-RTC-ITER-build-IPFV house
‘Kuku is building the house repeatedly.’ (intended)
- b. *Kúku g-á-f-af-a négéə*
Kuku CL_g-RTC-ITER-build-IPFV houses
‘Kuku is building houses’
- a. *Kúku g-a-lá-lag-a giə*
dog CL_g-RTC-ITER-cultivate-IPFV field
‘Kuku is repeatedly cultivating the field.’
- b. *Kúku g-a-lá-lag-a niə*
dog CL_g-RTC-ITER-cultivate-IPFV fields
‘Kuku is repeatedly cultivating fields.’

These observations help clarify why iterative marking plays a central role in marking semelfactives and changes-of-state verbs. Recall from section 11.4.1 that in the imperfective such verbs must have an inchoative meaning. When these verbs are put into the iterative, they are able to have normal progressive interpretations in the imperfective.

- (58) a. *Kúku g-a-ðów-á*
Kuku CL_g-RTC-fatten-IPFV
‘Kuku is about to get fat.’

- b. Kúku g-a-ǵá-ǵow-á
 Kuku CLg-RTC-ITER-fatten-IPFV
 'Kuku is getting fat.'

Verbs that describe activities are inherently iterative. In some cases, the activities have the appearance of iterative marked verbs, but have an unpredictable relationship with their non-iterative counterparts.

(59) Irregular iterative activities

Imperfective		Iterative imperfective activity	
ga-bwáɲ-a	'(s)he wants, likes,'	ga-bá-p:waɲ-a	'(s)he's looking for'
g-ʒɲʒtɪ-ǵ	'(s)he's about to show'	g-ʒr-ʒɲʒtɪ-ǵ	'(s)he is teaching'
ga-válɔɲ-a	'(s)he's about to flee'	ga-lá-l:əɲ-a	'(s)he's running'
g-el-a	'(s)he's about to come'	ga-v-érl-a	'(s)he's walking'

The verbs on the right seem to be historically related to those on the left, though there are some irregularities such as the reduplication of /l/ rather than /v/ for 'run' and the addition of the progressive *v-* for 'walk,' which usually . All are activities, none can take additional iterative morphology, and all bear a loose semantic relationship to their non-iterative counterparts. The non-iterative counterparts are usually achievements with the exception of *-bwáɲ-* 'want' which is a state. The activities seem to be ambiguous between their irregular activity meaning and an iterative interpretation. Hence, *gaverla nega eteto* 'He's coming home every day,' is the habitual form the of achievement *-erl-* 'come'.

A second class of activities are not derived but nevertheless cannot occur in the iterative. In some cases, these may be historically iterative, such as *kɜ-rúǵcǵǵ-iǵ* '(s)he is mixing,' with its initial /r/. In other cases they do not resemble iterative verbs at all, such as *ga-válɔɲ-a* '(s)he is singing,' *ga-tǵɲǵt-a* '(s)he is licking it,' *ga-mán-á* '(s)he is cooking by boiling it.' One conclusion that could be drawn from this observation is that the iterative generally serves to derive unbounded, durative, activity-like meanings from punctual or telic ones.

There is one final class of verbs which cannot be iterative marked: punctual verbs with a distinct lexical iterative counterpart: compare punctual *gɜbǵgǵ* '(s)he's about to hit it' to durative *gǵp:wɜ* '(s)he's beating it' and punctual *gǵf:a* 'she's about to shoot it (with a rock or gun)' to durative *gavǵndǵdɜ* '(s)he is stoning it.' The possibility of an equivalent inherently iterative verb must preclude the use of iterative verb forms in these and similar case.

10.4.4 Venitive imperfective semantics

This section describes the semantics of venitive verb forms (from Latin *venire* ‘come’). This section focuses on venitive imperfectives, whose morphology was discussed earlier in Section 11.3.3. The venitive imperfective is the only venitive verb form that can occur in a declarative main clause. Venitive forms also occur in imperative (Chapter 18) and infinitive verbs (Chapter 14). In each case, there is a contrast between a semantically unmarked form and a venitive form which is associated with a meaning which is absent in the regular form.

More concretely, venitive verb forms possess a venitive entailment, identical to the verb ‘come’: there must be motion towards the origo, the contextually supplied deictic center. With second and third person subjects, including in imperatives, the origo is interpreted as the location of the speaker, so the default venitive entailment involves motion towards the speaker.

A baseline illustration of a venitive entailment can be seen in the regular imperative versus venitive imperative pair below (see Chapter 18 for more on these forms):

- | | | | |
|------|---------------------|--------|----------------------|
| (60) | Imperative | ngátó | ‘Depart!’ |
| | Venitive imperative | ngatia | ‘Depart towards me!’ |

Here, the venitive form of the imperative includes in the command that the commandee move towards the speaker.

Speaker comments and back-translations often suggest that the venitive implies motion originating at some distance from the origo. It is not clear if this could be overcome in an appropriate context or if it is a semantic requirement of the venitive. In either case, this is the reason that some earlier work on Moro mistakenly referred to the venitive as a ‘distal’ verb form (e.g. Rose 2014, Jenks & Rose 2017), which contrasted it with a ‘proximal’ imperfective, which is what we have been calling the regular imperfective. The reason that ‘distal’ and ‘proximal’ are misleading is that the regular imperfective can be used for motion which is distant from the origo but which does not move towards it.

- | | | | |
|------|---------------------|------------|--------------------------|
| (61) | Imperative | dánjó nwɔɔ | ‘Stay there!’ (distant) |
| | Venitive imperative | daɲa nwɔɔ | ‘Stay there, then come!’ |

The locative adverb *nwɔɔ* ‘there’ refers to the location of the addressee. The fact that it can occur with the regular imperative verb form demonstrates that the regular imperative has no ‘proximal’ entailments, and hence that the venitive contributes a motion entailment rather than a positional one.

Venitive imperfective forms combine the normal temporal entailments of imperfective aspect with the venitive entailment. In the case of verbs which involve motion along a path, or a vector, such as agentive verbs of motion (walk, run), transfer of possession (give, send), or events involving objects or attention moving along vectors (throw, look), the venitive entailment applies to that path. The regular imperfective and perfective, by comparison, lack any special spatial entailments:

- | | | | |
|------|-----------------------|---------|----------------------|
| (62) | Perfective | gerló | ‘He walked.’ |
| | Imperfective | gavérła | ‘He is walking.’ |
| | Venitive imperfective | gérló | ‘He’s walking here.’ |

While the regular imperfective lacks any special spatial entailments, it cannot be used to describe motion towards the origo. Instead, it can be used to describe motion away from the origo or is tangential to the origo, moving neither towards nor away from it.

Verbs without path components in their meaning can still occur in venitive verb forms, including the venitive imperfective. In such cases, a venitive entailment is simply added to the expected meaning of the verb, typically as motion following or accompanying the described event. Consider the translations for the three-way inflection on the change-of-state verb *-dówá* ‘fatten.’

- | | | | |
|------|-----------------------|--------|--|
| (63) | Perfective | gadowó | ‘(S)he is fat (lit. has fattened).’ |
| | Imperfective | gadowá | ‘(S)he is about to fatten.’ |
| | Venitive imperfective | gadowó | ‘(S)he is about to fatten, then come.’ |

Venitive imperfective verb forms with first person subjects are interpreted with the addressee’s position as the origo, in contrast with second and third person subjects, where the speaker’s position tends to represent the origo. This generalization is illustrated below for a path verb and a non-path verb.

- | | | | |
|------|-------------------|----------|------------------------------------|
| (64) | 1SG-venitive ipfv | é-gérló | ‘I am walking to you.’ |
| | 2SG-venitive ipfv | á-gérló | ‘You are walking to me.’ |
| (65) | 1SG-venitive ipfv | é-gadowó | ‘I will fatten then come to you.’ |
| | 2SG-venitive ipfv | á-gadowó | ‘You will fatten then come to me.’ |

The venitive examples above with first person subjects show that the origo should can shift subject to contextual factors.

Locative adverbs that modify venitive verb forms describe the source of the venitive entailment, not the origo, leading to some impossible combinations when the venitive entailment is taken into account.

- (66) g-érl-ó 3nwaŋ / 3tu / # 3ni
 CLg-walk-VEN.IPFV there(n.h.) there(distant) here
 ‘(S)he walked here from there.’

The proximal adverb is impossible *3ni* is impossible in this sentence because the source of a venitive verb form cannot be the origo.

10.5 Extension suffixes and voice

Moro has a series of extension suffixes that appear following the verb root and before the final AMD vowel, in the following order.

- (67) √/-CAUS-APPL-LOC.APPL-AP-PASS-AMD

These markers are the the causative *-i*, the benefactive applicative *-ət*, the locative applicative *-at*, the antipassive/reciprocal *-əð*, and the passive/reflexive *-ən*. Extension suffixes are valence-affecting affixes, that is, affixes which impact the number of arguments licensed by the verb or the interpretation of these arguments. More specifically, the causative and applicative suffixes add arguments with specific semantic roles while the passive and antipassive suffixes remove agents and themes, respectively. The passive also functions as a reflexive marker, while the anti-passive functions as a reciprocal marker.

The specific syntactic properties of clauses are discussed in Chapter 12, along with discussions of the notion of subject and object in Moro. This section focuses on the morphology of each of these markers as part of the macrostem along with general overviews of their syntactic effects and semantic contribution.

Some representative verb forms of the verb for *kəv* ‘pinch’ are given in Table 11.15, drawn from Strabone & Rose (2012). The fact that each these markers can occur in the imperative, discussed in ??, demonstrates that the imperative is the realization of a macrostem without a preverb, and that these markers are internal to the macrostem.

There are several points of note. First, each extension suffixes appears before the final aspect/mood vowel, except for the causative, which combines with or replaces the final aspect mood vowel when it occurs without any other extension suffixes.

Table 11.15 demonstrates that whatever tone pattern is specified by the inflectional status of the macrostem applies to the forms with extension affixes, too (See Section 11.1 for an overview and Section 11.3 for details). Setting aside the causative, which specifies its own tone pattern, this means that other affixes are

Table 10.15: Examples of extension suffixes in three AMD inflections

<i>-kəv-</i> ‘pinch’	Perfective	Regular imperative	Regular imperfective
No extension suffix	gakəwó	kəwó	gakónvá
Causative	gəkəví	kəví	gəkónvía
Benefactive applicative	gəkəvə́tú	kəvə́tú	gəkónvə́tə
Locative applicative	gakəvətó	kəvətó	gakónvətə
Antipassive / Reciprocal	gakəvəðó	kəvəðó	gakónvəðeə
Passive / Reflexive	gəkəvənú	kəvənú	gəkónvəniə

low-toned in the perfective, high-toned in the imperative, and default tone is found in the regular imperfective. Since the root shown is a CVC root with H tone extension, H tone appears on the following extension suffix, but not the final AMD vowel.

The causative, benefactive applicative and passive/reflexive all trigger vowel harmony, raising the root and prefix vowels as well as the final aspect/mood vowel. This is illustrated more clearly in Table 11.16. Table 11.16 also illustrates another phonological process involving extension suffixes: all but the locative applicative trigger the palatalization of preceding dental stops. Additional examples are provided in the sections below.

Table 10.16: High-vowel harmony and palatalization with extension suffixes (perfective forms)

No extension suffix	ég-wandat-ó	‘I watched it’
Causative	íg3-wəndətʃ-í	‘I made s.o. watch it’
Benefactive applicative	íg3-wəndətʃ-ə́t-ú	‘I watched it for s.o.’
Locative applicative	éga-wandat-át-ó	‘I watched it somewhere’
Antipassive / Reciprocal	éga-wandatʃ-əð-ó	‘I watched s.o.’
Passive / Reflexive	íg3-wəndətʃ-ən-ú	‘I was watched’

The sections below discuss each of these affixes in isolation. They can also co-occur, and their co-occurrence and order is discussed separately, in Section 11.5.8.

There is comparative evidence that the passive and benefactive applicative suffixes may have both contained high front vowels historically. The passive suffix is

transcribed as *-ino* in Tira and *-inu* in Otoro, while the applicative is transcribed as *iɬo* in Tira and *ijo* in Otoro (Stevenson 1943). As Moro front vowels have centralized, the high [ə] has maintained the ability to palatalize. However, there is little evidence to suggest that *-əð* contained a high front vowel. The comparable suffix (described as derivative) in Tira is *-ðo* and in Otoro is *-öði/εði* (Stevenson 1943). The Otoro cognate suffix does contain a mid-low front vowel, so it is conceivable that the Moro suffix was *-eð*, which may have triggered palatalization, but this remains conjecture.

10.5.1 Causative *-i*

The causative suffix *-i* adds an agent to the verb, a causer, which is realized as the subject. The causative occurs added after the root and before the passive and benefactive applicative suffixes if present. If additional extension suffixes are not present, the causative fuses with or causes deletion of the aspect/mood/deixis suffixes. The causative suffix triggers a number of phonological alternations, including palatalization, vowel harmony, and particular tone patterns.

In addition to the morphological causative suffix *-i*, some unaccusative verbs can mark a causative alternation in the final consonant of the root (§11.5.7.1). Additionally, a periphrastic causative can be formed with the verb *-ŋgit-* ‘let, allow,’ which takes an infinitive clausal complement (§14.6).

10.5.1.1 Morphophonology of the causative

The causative suffix is *-i*, realized *-i* in the perfective and venitive imperfective and *-iə* in the imperfective (Table 11.17). These specific suffixal forms are somewhat unexpected from the perspective of normal vowel hiatus strategies, a point which is discussed below in section 6. Table 11.17 also demonstrates that the causative suffix triggers high vowel harmony (See §5.2.4): roots with low vowels shift their vowels to the high vowel system in the causative.

In addition to vowel harmony, the causative suffix palatalizes preceding dental stops /t̪ d̪/ to [tʃ dʒ]. In this section palatalization in the causative is discussed in some detail; the same generalizations described below hold for all palatalizing extension suffixes. The causative perfective forms below illustrate this pattern in the causative for a number of verb forms:

Table 10.17: Causative verb forms

Perfective	Causative pfv	Imperfective	Causative ipfv	
g-oas-ó	g-u3s-í	g-oás-a	g-u3s-iə	‘wash’
ga-ratʃ-ó	g3-r3ʃf-í	ga-rátʃ-á	g3-r3ʃf-iə	‘pour’
ga-lag-ó	g3-l3g-í	ga-lág-á	g3-l3g-iə	‘cultivate’
g-udən-ú	g-udən-í	g-udón-ə	g-udón-iə	‘fart’
g3-kið-ú	g3-kið-í	g3-kíð-iə	g3-kíð-iə	‘open’
g3-bug-ú	g3-bug-í	g3-búg-w3	g3-búg-iə	‘hit’

- (68)
- | Perfective | Causative Perfective | |
|-------------|----------------------|----------------|
| ga-təŋaʃ-ó | g3-təŋ3ʃf-í | ‘lick’ |
| ga-raʃ-ó | g3-r3ʃf-í | ‘prepare soil’ |
| ga-waʃ-ó | g3-w3ʃf-í | ‘sew’ |
| ga-dogaʃ-ó | g3-dug3ʃf-í | ‘repair’ |
| ga-rəmwəʃ-ó | g3-rəmwəʃf-í | ‘take care of’ |
| ga-w:aðəʃ-ó | g3-w:əð3ʃf-í | ‘find’ |
| ga-wəndaʃ-ó | g3-wənd3ʃf-í | ‘watch’ |
| g-ogəʃ-ó | g-ugəʃf-í | ‘jump’ |
| g-əwʊʃ-ú | g-əwʊʃf-í | ‘throw’ |
| g-ənʃ-ú | g-ənʃf-í | ‘enter’ |
| ga-rəʃ-ó | g3-rəʃf-í | ‘dance’ |
| ga-lanɖ-ó | g3-l3nɖɖ-í | ‘close’ |
| ga-ɖoaʃ-ó | g3-ɖu3ʃf-í | ‘send’ |

There are a few exceptional verbs where palatalization does not take place with the causative:

- (69) Exceptions with no palatalization
- | Perfective | Causative Perfective | |
|------------|----------------------|---------|
| g3-ʃ-ú | g3-ʃ-í | ‘drink’ |
| g3-ʃunɖ-ú | g3-ʃunɖ-í | ‘cough’ |
| ga-kaɖ-ó | g3-k3ɖ-í | ‘plant’ |

It is unclear why these particular forms do not palatalize. They are the only three exceptions to this pattern so far attested in the language.

Palatalization is only found with dental stops; alveolar stops consistently do not palatalize before the causative suffix:

(70)	Perfective	Causative Perfective	
	ka-doat-ó	k3-du3t-í	‘speak’
	ka-wəd-ó	k3-wəd-í	‘burn’
	k-3nd-ú	k-3nd-í	‘catch’

The combinations [tʲi], [tʲə] do not show palatalization within verb roots: *k3tʲið3* ‘thread, roll’ *k3tʲəð3niə* ‘slip’ (*tʲi* and *tʲə* sequences within verb roots are not so far attested), so this phonological process is conditioned only by affixes. Other affixes with *-i* do not trigger palatalization. For example, the regular infinitive suffix *-i* (a raised version of /-e/) does not palatalize a preceding dental stop, whether that stop is root-final, or is in the applicative affix (17c).

(71)	Perfective	Infinitive	
a.	g-ənt-ú	... 3ŋ-ənt-i	‘enter’
b.	g-3wuɬ-ú	... 3ŋ-3wuɬ-i	‘throw’
c.	g3-k3d-əɬ-ú	... 3ŋə-k3d-əɬ-i	‘plant for’

10.5.1.2 Vowel hiatus and realization of the causative vowel

Extension affixes follow the root and precede the final aspect/mood vowel. The only exception to this pattern is the causative. As shown below, the causative vowel /-i/ is present, but the final aspect/mood vowel (-ó or -ú) is not realized.

(72)		‘pinch’		‘plant’	
		Perfective	Imperative	Perfective	Imperative
	Plain	k-a-kəw-ó	kəw-ó	k-a-kaɖ-ó	káɖ-ó
	Causative	k-3-kəv-í	kəv-í	k-3-k3ɖ-í	k3ɖ-í
	Passive	k-3-kəv-ən-ú	kəv-ən-ú	k-3-k3ɖ-ən-ú	k3ɖ-ən-ú

If the causative appears with another extension marker following it, the final aspect/mood vowel is realized. This is illustrated in the following example, where the passive/reflexive follows the causative. Note that the [ə] of the passive/reflexive marker is not realized after the causative vowel.

(73)	a.	k-3-við-ú	b.	k-3-við-i-n-ú
		CL.SM-RTC-vomit-PFV		CL.SM-RTC-vomit-CAUS-PASS-PFV
		‘he vomited’		‘he made himself vomit’

The other extension markers have a -(V)C shape, but the causative marker is a single vowel whose juxtaposition with the final aspect vowel would create a V-V hiatus sequence: /-i-ú/. Instead of expected [k3kəviú], however, the actual form

is [kəkəví]. The same pattern is found in infinitive forms where the causative /-i/ plus /-e/ suffix is realized as [í].

However, in sentences and across other morpheme boundaries word-internally, vowel hiatus in verbs is usually resolved via deletion of the first vowel regardless of the quality of the vowels (§5.2.1), as illustrated below.

- (74) Sentential contexts Verb + Noun: deletion of the first vowel
- a. k-a-w:aḏaṭ-ó evəla [ó-e] → [é] [kaw:aḏaṭ évəla]
'(s)he found the wild cat'
 - b. k-a-w:aḏaṭ-ó ugi [ó-u] → [ú] [kaw:aḏaṭ úgi]
'(s)he found the tree'
 - c. k-uáṇdiṭ-ú evəla [ú-e] → [é] [kuáṇdiṭ évəla]
'(s)he listened to the wild cat'
 - d. áṇṇá-w:aḏaṭ-e ugi [e-u] → [u] [áṇṇáw:aḏaṭ ugi]
'her/him to find the tree'
 - e. áṇṇá-w:ṣḏ-i ugi [i-u] → [u] [áṇṇáw:ṣḏ ugi]
'her/him to make find the tree'
 - f. áṇṇá-w:ṣḏ-i ʒṭúli [i-ʒ] → [ʒ] [áṇṇáw:ṣḏ ʒṭúli]
'her/him to make find the spear'
 - g. áṇṇá-w:ṣḏ-i ajén [i-a] → [a] [áṇṇáw:ṣḏ ajén]
'her/him to make find the mountain'

Internal to the verb, vowel hiatus arises between the clause marker and a vowel-initial root, and between an object marker prefix and the root (See example (6) above). In all such cases, the first vowel is deleted, even if this eliminates a segmental morpheme. This means that preservation of a single-segment morpheme cannot be the explanation for why the causative vowel is retained. Given these generalizations, we would have predicted the resolution of the causative-aspect/mood vowel sequence in /k-ʒ-kəv-i-ú/ to be [kəkəvú], with V1 deletion, and not the attested [kəkəví]. This indicates that the combination of causative and perfective suffixes is subject to a special, morphologically-conditioned vowel hiatus resolution rule.

In the causative imperfective construction, no vowels are deleted, and vowel hiatus emerges intact, though final /ʒ/ is reduced, resulting in surface [iə], notably *ia* in Written Moro. The diphthong [iə] is often the raised realization of a final /-a/ in the imperfective, as shown below and discussed in Section 11.3.1. This means that in inherently high-vowel verb roots which have final *-iə* in the imperfective normally, the causative is undetectable in the imperfective.

(75)	Imperfective	Causative imperfective	
	ga-kád-á	g3-k3d-iə	‘plant’
	g-udón-3	g-udón-iə	‘fart’
	g3-kíð-iə	g3-kíð-iə	‘open’

10.5.1.3 Tone pattern of the causative

The causative imposes its own particular tone pattern, H-L, in those verb forms that have default or predictable tone, namely the regular imperfective, consecutive, infinitive and other subordinate forms. As outlined in Section 11.3.1.2, the tone pattern in the regular imperfective on the syllable structure and shape of the stem. For most root shapes, the causative form has the same tone pattern as the basic regular imperfective.

(76)	Root shape	Tone	Imperfective	Causative imperfective	
	CVCVC	HH	k-a-dógáɬ-a	k-3-dúg3ɬ-iə	‘fix’
			k-a-vóléð-a	k-3-vólíð-iə	‘pull’
	CVC	H-L	k-a-váð-a	k-3-v3ð-iə	‘shave’
			k-a-sáɬ-a	k-3-s3ɬ-iə	‘chew’
	CVCCVC	HL	k-a-m ^w ándəð-eə	k-3-m ^w 3ndəð-iə	‘ask’
			k-a-wándaɬ-a	k-3-wándaɬ-iə	‘see’
	CVCC	H-L	k-a-wárð-a	k-3-w3rð-iə	‘write’
			k-a-lánda-a	k-3-l3nda-iə	‘close’
	VCVC	LH	k-ogáɬ-a	k-ugáɬ-iə	‘jump’
			k-abáɬ-a	k-3b3ɬ-iə	‘lift’
	VCCVC	HL	k-áɾnəð-eə	k-3ɾnəð-iə	‘divide’

Nevertheless, there are key differences observed with two shapes of verb roots. First, CVC roots with a H-H tone pattern (where H tone extends from a root onto the following affix) are H-L in the causative imperfective, neutralizing the tone distinction between H-H and H-L CVC roots. Second, verb roots that lack a high tone altogether, either because there is no root vowel or because the root is VC, are specified with H tone in the causative. In the former, the H tone is realized on the preceding root clause vowel, and in the latter, it is realized on the root vowel.

10 Verbs and verbal morphology

(77)	Root shape	Tone	Imperfective	Tone	Causative imperfective
	CVC	H-H	k-a-ðáw-á	H-L	k-ɜ-ðáw-iə ‘poke’
			k-a-lág-á		k-ɜ-lág-iə ‘cultivate’
	C	L-L	k-a-s:-a	H-L	k-ɜ-s:-iə ‘eat’
	VC	L-L	k-al-a	H-L	k-ɜl-iə ‘slice’
			k-oað-a		k-uɜð-iə ‘mill, grind’

Thus, causative suffixes enforce the presence of a H tone on the root (or on the preceding vowel if there is no root vowel) and L tone on the causative imperfective vowel. Apart from this restriction, the other aspects of default tone are still present.

In contrast to default tone in the imperfective, the causative does not affect melodic tone patterns on the verb, as the following examples illustrate.

(78)		‘cultivate’	‘slice’	‘jump’
	Perfective (L-H)	ga-lag-ó	g-al-ó	g-ogə́ɬ-ó
	Causative perfective	gɜ-lɜg-í	g-ɜl-í	g-ugə́ɬf-í
	Venitive imperfective (H-L-H)	g-á-lag-ó	g-ál-ó	g-ógə́ɬ-ó
	Causative venitive imperfective	g-ɜ-lɜg-í	g-ɜl-í	g-úgə́ɬf-í
	Imperative (H-H)	lág-ó	ál-ó	ógə́ɬ-ó
	Causative imperative	lɜg-í	ɜl-í	úgə́ɬf-í
	Venitive imperative (L-L)	lag-a	al-a	ogə́ɬ-a
	Causative venitive imperative	lɜg-iə	ɜl-iə	ugə́ɬf-iə

In summary, default tone is partially affected by the causative tone pattern, whereas tone patterns of other verb forms are identical in the causative.

10.5.1.4 Use of the causative

The causative suffix is productive in Moro. As the number of illustrations of the causative in the previous sections attest, most types of verbs can inflect for the causative. The examples below illustrate the causative on three syntactic subcategories of verbs: intransitive verbs that are unaccusative (whose single argument is a theme), intransitive verbs that are unergative (whose single argument is an agent), transitive verbs, and ditransitive verbs. In each case, the argument that is realized as a subject in non-causative verb becomes an object in the causative verb.

- (79) Causative of unaccusative intransitive
 í-g-Λ-tuð-í ηéra
 1SG-CLg-RTC-rise-CAUS.PFV girl
 ‘I woke the child.’ (*Lit*: ‘I made the child rise.’)
- (80) Causative of unergative intransitive
 í-g-ugətʃ-í ηéra
 1SG-CLg-RTC-jump-CAUS.PFV child
 ‘I made the child jump.’
- (81) Causative of transitive
 kúku g-Λ-lag-í ηálo-η í-kí
 Kuku CLg-RTC-cultivate-CAUS.PFV Ngalo-ACC LOC-field
 ‘Kuku made Ngalo cultivate the field.’
- (82) Causative of ditransitive
 í-g3-n3tʃ-í kúku-η ηálo-η adama
 1SG-CLg-RTC-give-CAUS.PFV Kuku-ACC Ngalo-ACC book
 ‘I made Kuku give Ngalo the book.’

The causative suffix occurs in the causative alternation for many unaccusative verbs, although many unaccusative verbs mark the causative alternation simply in a change in the final consonant on the root (§11.5.7.1). Causatives also occur on adjectives, although the adjectival causative is slightly different in not triggering high-vowel harmony (§10.1.4).

In general, the causer must have directly cause the event, or else a periphrastic causative with *-ηgit-* ‘let’ can be used. However, the causer does not need to be human or even animate:

- (83) r3mw3 í-r:i r-í-bug-əð-í-ánó r-ε-tuð-í
 sky SCLr-this CLR-DPC1-hit-AP-PFV-inside CLR-RTC-wake-CAUS.PFV
 ηéra ‘the sky thundering woke the child’
 child

Additional discussion of the causative and valence-increasing processes more generally can be found in Chapter 12.

10.5.2 Benefactive applicative -əʈ

The benefactive applicative suffix is [əʈ]. This suffix adds an object to the verb which is interpreted as a beneficiary, a person who benefits from the action, or

on whose behalf it is done. A very similar suffix is used to express the comparative (§10.1.3). The benefactive applicative triggers high vowel harmony and palatalization of preceding dental stops (Table 11.16).

10.5.2.1 Morphophonology of the benefactive applicative

The benefactive applicative suffix [əɬ] occurs as a suffix on the root before the AMD suffix. This suffix triggers high vowel harmony, and the form of the imperfective suffix is Some basic examples of the benefactive applicative are provided in Table 11.18. The benefactive applicative is toneless, and occurs with whatever tone pattern is specified for the macrostem as a whole.

Table 10.18: Benefactive applicative verb forms

Perfective	Ben. appl. pfv	Imperfective	Ben. appl. ipfv	
g-af-ó	g-3f-əɬ-ú	g-áf-a	g-3f-əɬ-iə	‘build’
g-oas-ó	g-u3s-əɬ-ú	g-oás-a	g-u3s-əɬ-iə	‘wash’
ga-lag-ó	g3-l3g-əɬ-ú	ga-lág-á	g3-l3g-əɬ-iə	‘cultivate’

The form of the benefactive applicative varies depending on a number of phonological factors. First, if the final consonant of the root is a sonorant, then the benefactive applicative is just [ɬ]. VOWEL HARMONY? FV of imperfective?

break /ker/ ‘she was not able to speak’ (lit: broken in the mouth)

cry /ar/ ‘was crying there’ (vr-t) vaj-ó ‘die’

irəwu-t ‘move down to’ (causative?)

Second, the benefactive applicative suffix fronts /əɬ/ → [iɬ] when it is preceded by a alveopalatal affricate:

- (84)
- | | | |
|---------|------------|------------------------------------|
| | Perfective | Benefactive applicative perfective |
| ‘raise’ | ga-məɬf-ó | g3-mədʒ-it-ú |
| ‘see’ | ga-səɬf-ú | ga-sədʒ-iɬ-ú |

These data also demonstrate a voiceless dissimilation effect in the benefactive applicative, whereby the voiceless palatal affricate [tʃ] becomes voiced to [dʒ] before the voiceless [ɬ] of the applicative (See Section 5.3.5 for more details on consonant dissimilation).

If the root to which a benefactive applicative suffix ends in the dental stops /t̪ d̪/, these sounds are palatalized to the alveopalatal affricates [tʃ dʒ]. Palatalization of the preceding consonant triggers the [-iɬ] form of the benefactive applicative

suffix as well as dissimilation. Vowel fronting, palatalization, and dissimilation triggered by the benefactive applicative suffix all take place in the examples illustrated below, in many cases in addition to high vowel harmony.

(85)		Perfective	Benefactive applicative perfective
	‘lick’	ga-təŋaʔ-ó	g3-təŋ3ɕʏ-iʔ-ú
	‘prepare soil’	ga-raʔ-ó	g3-r3ɕʏ-iʔ-ú
	‘sew’	ga-waʔ-ó	g3-w3ɕʏ-iʔ-ú
	‘repair’	ga-dogaʔ-ó	g3-dug3ɕʏ-iʔ-ú
	‘take care of’	ga-rəmwəʔ-ó	g3-rəmwəɕʏ-iʔ-ú
	‘find’	ga-w:aðaʔ-ó	g3-w:3ð3ɕʏ-iʔ-ú
	‘watch’	ga-wəndaʔ-ó	g3-wənd3ɕʏ-iʔ-ú
	‘jump’	g-ogəʔ-ó	g-ugəɕʏ-iʔ-ú
	‘throw’	g-ɜwuʔ-ú	g-ɜwuɕʏ-iʔ-ú
	‘enter’	g-ənʔ-ú	g-əndɕʏ-iʔ-ú
	‘dance’	ga-rəʔ-ó	g3-rəɕʏ-iʔ-ú
	‘close’	ga-land-ó	g3-l3ndɕʏ-iʔ-ú
	‘send’	ga-ɖoaʔ-ó	g3-ɖu3ɕʏ-iʔ-ú

The same few verbs for which palatalization does not take place in the causative also do not palatalize in the applicative:

(86)		Perfective	Benefactive applicative perfective
	‘drink’	g3-t-ú	g3-t-əʔ-ú
	‘cough’	g3-tund-ú	g3-tund-əʔ-ú
	‘plant’	ga-kaɖ-ó	g3-k3ɖ-əʔ-ú

Alveolar stops do not show palatalization. Palatalization only affects dentals.

(87)		Perfective	Benefactive applicative perfective
	‘speak’	ga-doat-ó	g3-du3t-əʔ-ú
	‘burn’	ga-wəd-ó	g3-wəd-əʔ-ú
	‘catch’	g-ɜnd-ú	g-ɜnd-əʔ-ú

10.5.2.2 Use of the benefactive applicative

The benefactive applicative adds an argument argument to the verb which is interpreted as a recipient of the action or on whose behalf the action is done. This argument is realized as an object. The suffix is very productive, and seems to appear on verbs of any kind of transitivity:

Table 10.19: Locative applicative verb forms

Perfective	Loc. appl. pfv	Imperfective	Loc. appl. ipfv	
ga-lag-ó	ga-lag-aṭ-ó	ga-lág-á	g3-lág-át-a	‘cultivate’
ga-kəl-ó	ga-kəl-aṭ-ó	ga-kəl-á	ga-kəl-át-a	‘cut’
ga-pəg-ó	ga-pəg-aṭ-ó	ga-pəg-á	g3-pəg-át-a	‘weed’
ga-toð-ó	ga-toð-aṭ-ó	ga-tóð-á	g3-tóð-át-a	‘wake’
g-abət-ó	ga-abəd-w-aṭ-ó	g-abət-w-a	g3-abəd-w-át-a	‘climb’
g3-d3dəð-ú	g3-d3dəð-3ṭ-ú	g3-d3d:əð-3	g3-d3d:əð-3ṭ-3	‘hiccup’
ga-s-ó	ga-s-aṭ-ó	gá-s-a	gá-s-aṭ-a	‘eat’

(92) Palatal harmony with locative applicative

	Perfective	Locative applicative perfective
‘see’	g3-s3tʃ-ú	g3-s3dʒ-3tʃ-ú
‘raise’	ga-məʈf-ó	ga-mədʒ-atʃ-ó
‘pour’	ga-ratʃ-ó	ga-radʒ-atʃ-ó
‘blink’	g3-rəm3tʃ-ú	g3-rəm3dʒ-3tʃ-ú
‘dip’	g3-təv3tʃ-ú	g3-təv3dʒ-3tʃ-ú
‘cough’	ga-tund-ú	ga-tund-3tʃ-ú
‘catch’	g-3nd-ú	g-3nd-3tʃ-ú
‘wash’	g-oas-ó	g-oas-atʃ-ó
‘shake’	g3-t3s-ú	g3-t3s-3tʃ-ú

The same consonant dissimilation process which occurs with the benefactive applicative also takes place in these verb forms (see also ‘climb’ in Table 11.19), resulting in voicing of the stop in the root.

Another context where the *-atʃ* variant of the locative applicative occurs is with verbs which take the *-ia* or *-ea* variant of the imperfective:

(93) Palatal variant of locative applicative with *-ia* imperfective

	Imperfective	Locative applicative imperfective
‘give milk’	g3-míð-iə	g3-míð-3tʃ-3
‘wrap’	ga-dár-iə	g3-dár-3tʃ-3

When the locative applicative suffix attaches to roots which end in /r,n,l/, it surfaces as [-ṭ]:

(94)	Perfective	Locative applicative perfective
‘die’	g-aj-ó	g-aj-t̥-ó
‘cry’	g-ar-ó	g-ar-t̥-ó
‘rain’	ŋ-a-dan-ó	ŋ-a-dan-t̥-ó

These forms only differ from their benefactive applicative counterparts in that no high vowel harmony has been triggered. This means with verbs that have inherent high vowel harmony and end in /r,n,l/, these forms are identical.

The *-et̥* or *-it̥* variants of the locative applicative occur with roots in which the last vowel is /e/ or /i/, respectively. An

(95)	Perfective	Locative applicative perfective
‘break’	ga-ker-ó	ga-ker-et̥-ó
‘twist’	ga-með-ó	ga-með-et̥-ó
‘refuse’	ga-neð-ó	ga-neð-et̥-ó
‘chop’	ga-reð-ó	ga-reð-et̥-ó
‘pull’	ga-valeð-ó	ga-valeð-et̥-ó
‘scrape’	g-a-teð-ó	g-a-teð-et̥-ó
‘vomit’	g3-við-ú	g3-við-it̥-ú
‘open’	g3-kið-ú	g3-kið-it̥-ú
‘drink’	g3-t-ú	g3-t-it̥-ú

10.5.3.2 Use of the locative applicative

The locative applicative co-occurs with an overt locative expression such as a locative-marked noun, either *é(k)-* (96b) or *n-* (96c), a adpositional phrase (96e), or the locative clitic *-u* (96f).

- (96) a. k-a-kál-á rða
 SM.CLg-RTC-cut-IPFV CLr.meat
 ‘s/he is cutting the meat’
- b. k-a-kəl-át̥-a rða ík-wíjś
 SM.CLg-RTC-cut-LOC.APPL.IPFV CLr.meat LOC.CLg-CLg.floor
 ‘s/he is cutting the meat on the floor’
- c. k-a-bəđw-át̥-a n-alet̥a
 SM.CLg-RTC-climb-LOC.APPL.IPFV LOC-CLg.wall
 ‘s/he is about to climb over the wall’
- d. matfó ga-ðárj-t̥-a n-égá
 clg.man SM.CLg-RTC-go up-LOC.APPL.IPFV LOC-CLg.wall
 ‘the man is going up to (his) house’

e. POSTPOSITION EXAMPLE

- f. k-a-bódw-át-ǵ-u
 SM.Clg-RTC-climb-LOC.APPL.IPFV-LOC.
 s/he is about to climb up

The locative applicative is not required, however - WHEN DOES IT APPEAR? In these examples, no locative applicative is used in the first example which conveys a source, but it does appear in the second example to convey a goal, and differentiates the two sentences:

- (97) a. k-a-lóv-á isukwɜɜɜ é-kólá
 SM.Clg-RTC-scoop-IPFV CLj.sugar LOC-CLg.plate
 's/he is scooping sugar from a plate'
 b. k-a-lóv-át-a isukwɜɜɜ é-kólá
 SM.Clg-RTC-scoop-LOC.APPL-IPFV CLj.sugar LOC-CLg.plate
 's/he is scooping sugar into a plate'

The malefactive use of -*at* can be seen by a comparison with the benefactive applicative -*ǵ*.

- (98) a. é-g-a-m:-at-ó ɲerá áǵámá
 1SG.SM-CLg-take-LOC.APPL-PFV CLj.girl CLg.book
 'I took the book from the girl'
 b. í-g-3-m:-ǵ-ú ɲerá áǵámá
 1SG.SM-CLg-take-APPL-PFV CLj.girl CLg.book
 'I took the book for the girl'

The benefactive applicative raises vowels, but the malefactive does not. There is no location expressed with these sentences. Other examples are shown below:

- (99) a. ɲál:o g-a-s:-at-ó kúkə-ɲ átǵáváɲ
 CLg.Ngalo SM-CLg-eat-LOC.APPL-PFV CLg.Kuku-OC CLg.food
 'Ngalo ate Kuku's food'
 b. israel g-a-pəg-at-ó kúkəɲ gi
 CLg.Israel SM-CLg-weed-LOC.APPL-PFV CLg.Kuku-OC CLg.farm
 'Israel weeded Kuku's farm' (but Kuku did not want him to)

Necessary for passivization.

10.5.4 Antipassive and reciprocal -əð

The suffix -əð has two main uses: an *anti-passive*, which suppresses the object of a transitive verb (100b), a *reciprocal*, where there is mutual action by a plural subject (102b), and a semi-reciprocal, where there is mutual action by two individuals towards a part of the other individual. We gloss this suffix as AP in all cases.

(100) Basic use of anti-passive

- a. é-g-ákəm-a udʒí
1SG.SM-CLg-judge-IPFV CLg.man
'I am judging the man'
- b. é-g-ákəm-əð-eə (*udʒí)
1SG.SM-CLg-judge-AP-IPFV
'I am judging (e.g. some unspecified person)'

(101) Distributive use of anti-passive

- a. k-a-kəl-á
SM.CLg-RTC-chop-IPFV
'he is chopping up'
- b. k-a-kəl-əð-eə eð-ano
SM.CLg-RTC-chop-AP-IPFV CLg.meat-part
'he is chopping up strips of meat'

(102) Reciprocal use of anti-passive

- a. l-a-noán-a ɲerá
SM.CLL-RTC-tend-IPFV CLɲ.child
'they are tending to the child'
- b. l-a-noán-əð-eə
SM.CLL-RTC-tend-AP-IPFV
'they are tending to each other'

More details on the syntactic effects of these uses of the antipassive can be found in Chapter 12.

10.5.4.1 Morphophonology of the antipassive

The suffix -əð attaches directly after the root and preceding other extension suffixes, although it shows variable order with respect to the locative applicative depending on scope and meaning (see §11.5.8.1). This suffix can be realized as [ð] if the preceding consonant is also [ð], creating a geminate.

- (103) ga-vádað-a ‘he is sweeping it’
 ga-vádað-ð-eð ‘he sweeps for a living’

The anti-passive does not cause any vowel harmony. All vowels remain low or high depending on their original value. However, the anti-passive does cause palatalization of preceding dental stops, like the causative, passive, and applicative.

- (104) a. l-a-wæt-ó nəwa tál:éŋ
 SM.CLL-RTC-choose-PFV CLp.young.women only
 ‘they chose only grown girls’
 b. l-a-wætʃ-əð-ó
 SM.CLL-RTC-choose-AP-PFV
 ‘they chose each other’

The anti-passive causes diphthongization of the final suffix in verb forms that usually end in *-a* (or *-ə*), such as the regular imperfective (105d). There is no diphthong in the perfective (??), which ends in *-ó* (or *ú*), or the infinitive, which ends in *-e* (105f).

- (105) a. g-a-ðáw-á iriá
 SM.CLg-RTC-poke-IPFV CLj.cow
 ‘s/he is about to poke cows’
 b. g-a-ðáw-əð-eð
 SM.CLg-RTC-poke-AP-IPFV
 ‘s/he gives injections (= lit. poke people)’
 c. g-a-ðəw-ó iriá
 SM.CLg-RTC-poke-PFV CLj.cow
 ‘s/he poked cows’
 d. g-a-ðəw-əð-ó
 SM.CLg-RTC-poke-AP-PFV
 ‘s/he gave injections’
 e. ...áŋə-ðáw-é iriá
 3SG.SM-poke-INF CLj.cow
 ‘...s/he poke cows’
 f. ...áŋə-ðáw-əð-e
 SM.CLg-RTC-poke-AP-PFV
 ‘s/he gave injections’

If the suffix is *-əðe* instead of *-əð*, this could be construed as a vowel-hiatus resolution effect, such that if the vowels are of different heights (mid and low), a diphthong is formed /əðe-a/ → [əðea] or [əðeə], but if they are of the same height (both mid), the first vowel is dropped: /əðe-o/ → [əðo] and /əðe-e/ → [əðe].

The suffix is usually low-toned, but it can acquire high tone through extension of H tone on a short root in verb forms like the regular imperfective or the infinitive that have ‘default tone’: *l-a-noán-əð-eə* ‘they are tending to each other’ from example 102b above. See chapter on regular imperfective tone distribution

10.5.4.2 Anti-passive use of anti-passive suffix

When *-əð* is used in the anti-passive sense, this means that there is an unexpressed but implied object. The anti-passive is therefore used with transitive verbs. As the unexpressed but implied object is non-specific, the use of the anti-passive can express an occupation or habitual sense. Moro does not usually mark non-human direct objects on the verb unless they are plural, so the use of the anti-passive conveys human direct objects.

- (106) a. *é-g-a-m:-ó* *kodza-ŋ*
 1SG.SM-CLg-RTC-take-PFV CLg.Koja-OC
 ‘I married Koja’
 b. *é-g-a-m:-əð-ó*
 1SG.SM-CLg-RTC-take-AP-PFV
 ‘I got married (= lit. I took someone)’
- (107) a. *matfó* *g-wás:-a* *lədzí*
 CLg.man SM.CLg-wash-AP-PFV CLL.person
 ‘the man is washing people’
 b. *udəmiə* *g-oas:-əð-ea*
 CLg.medicine.man SM.CLg-wash-AP-PFV
 ‘the medicine man is cleansing (people)’
 c. * *udəmiə g-oas:-əð-ea lədzí*

It is ungrammatical to use the anti-passive marker in combination with an overt object, either a lexical noun or an object marker on the verb.

With ditransitives, *-əð* co-occurs with the direct object and indicates the absence of the indirect object, the unspecified human recipient of the action.

- (108) a. k-a-náŋf-a udzí áḍámá
SM.CLg-RTC-give-IPFV CLg.man CLg.book
‘s/he is about to give the man a book’
- b. kúku g-a-náŋf-əḍ-eə wánde?
CLg.Kuku SM.CLg-RTC-give-AP-IPFV CLg.what
‘what is Kuku about to give (to s.o.)?’
- c. k-a-náŋf-əḍ-eə áḍámá
SM.CLg-RTC-give-AP-IPFV CLg.book
‘s/he is about to give a book (to s.o.)’

10.5.4.3 Distributive use of anti-passive

The distributive sense of -əḍ conveys an action applied to multiple objects in sequence. Unlike the anti-passive, the object can be left unexpressed or expressed overtly. The sense of repeated events conveys habitual aspect, and can be construed as an occupation.

- (109) a. k-a-gaḍ-ó
SM.CLg-RTC-mix-PFV
‘she mixed ingredients (as in leaves with sesame)’
- b. k-a-gaḍ-ḍ-ó
SM.CLg-RTC-mix-AP-PFV
‘she mixed a lot of things (at one time or on more than one occasion)’
- c. k-a-gáḍ-a
SM.CLg-RTC-mix-IPFV
‘she is about to mix’
- d. k-a-gáḍ-ḍ-ea
SM.CLg-RTC-mix-AP-IPFV
‘she mixes habitually (it’s her job to do so)’

10.5.4.4 Reciprocal use of anti-passive suffix

The suffix -əḍ also indicates reciprocal voice, indicating two or more agents perform an action on each other.

- (110) a. k-oas-ó ndréd
SM.CLg-wash-PFV CLn.clothes
‘s/he washed clothes’

10 Verbs and verbal morphology

- b. l-oas-əð-ó
SM.CLl-wash-AP-PFV
'they washed each other'
- (111) a. ɲal:o l-3-p-ú rlo
CLg.Ngalo SM.CLl-RTC-beat-PFV CLr.goat
'Ngalo beat the goat'
- b. ɲal:o l-3-p-əð-ú ʈuʈu-ga
CLg.Ngalo SM.CLl-RTC-beat-AP-PFV CLg.Tutu-CLg.INST
'Ngalo fought Tutu'

In the following case, the verb itself has an inherent reciprocal meaning, which is greater emphasized by the use of the *-əð* suffix (they are equal to each other, that is, more equal):

- (112) a. l-a-dəwaʈ-ó
SM.CLl-RTC-be.equal-PFV
'they are equal'
- b. l-a-dəwaʈf-əð-ó
SM.CLl-RTC-be.equal-AP-PFV
'they are the same'

In this example, the agent of the action is singular but is performing a reciprocal action between two other people. The *-aʈ* suffix gives the sense of malffective (persuade against) and the *-əð* is reciprocal. Note that *-əð* has palatalized the stop of the preceding suffix.

- (113) k-a-w:-aʈf-əð-ó ɲálo-ɲ-ənda ɲúl
SM.CLg-RTC-persuade-LOC.APPL-AP-PFV Ngalo-ACC-ASSOC 3SG.PRON
kúku-ga
Kuku-CLg.INST
'he spread rumours between Ngalo and Kuku (about Ngalo to Kuku and vice versa)'

10.5.5 Passive and reflexive *-ən*

The passive marker in Moro is typically the last in sequences of extension suffixes. It triggers high vowel harmony and palatalization on preceding dental stops. The marker is used in three types of syntactic environments: passives, reflexives, and semi-reflexives.

10.5.5.1 Morphophonology of the passive

The passive is normally realized as the suffix *-ən*.

-n - after causative - after verbs ending in /n/ and /r/?

/abwer-n/ beat 'corn was beaten before getting ripe'

10.5.5.2 Passive use of the passive

The verbs below are inherently labile, and passive marking is optional. However, when used, the passive implies the presence of an unspecified agent.

51a. *égekándəpó egea* 'I pulled over the house.' 51b. *égekándəpá* 'I'm pulling over the house.' (?) 51c. *égea gekándəpó* 'The house collapsed.' NO PASSIVE MARKING? 51d. *égea kikəndipənó* 'The house was pulled over (by s.o.).'

52a. *égakeró égél* 'I broke the house.' (i.e. ruin harmony within the house) 52b. *égakerá égél* 'I'm breaking the house.' 52c. *égél gakeró* 'The house is broken.' 52d. *égél gakərəa* 'The house is breaking.' 52e. *égél gakirənú* 'The house was broken (by s.o.).' 52f. *égél gakirnia* 'The house is being broken (by s.o.).'

10.5.5.3 Reflexive use of the passive

10.5.5.4 Semi-reflexive use of the passive

10.5.6 Manner *-ađat*

'Way' extension suffix

Q: *égásá|đátau acevan?* 'How do you eat?' A: *égása đata acevan ɬia*. 'I eat food like this.' Need to double check the tone of these forms! Q: *égávóđata ega* 'How do you sweep the house?' A: *égávóđáđata ege(a) ɬia* 'I sweep the house like this.'

10.5.7 Verbs with alternating finals

While the affixes in the earlier section are fully productive, the semantics of many verbs are inherently causative, or reflexive, reciprocal. Rather than taking distinct agglutinating suffixes, these verbs show an alternation in the root which resembles the distinct extension suffixes described in the previous section.

10.5.7.1 The unaccusative/causative class

Many common verbs shows an alternation between an unaccusative form, which takes only a theme and sometimes a locative argument, and a causative form, which adds a causer, illustrated in Table 11.20. These verbs are characterized by

an alternation between *-t̥* in the unaccusative and *-tʃ* in the causative, along with vowel raising in some but not all cases. In the sense that it involves palatalization and sometimes vowel raising, the causative form of these verbs is clearly related to historical *-i*, but the perfective form of these verbs occurs with the regular perfective suffix *-ó/-ú* rather than the *-í* found in the regular perfective causative (§11.5.1.1).

Table 10.20: Alternating unaccusative/causative verbs

Unaccusative perfective		Causative perfective	
<i>g-3nt̥-ú</i>	‘(s)he entered s.w.’	<i>g-3ntʃ-ú</i>	‘(s)he took it in s.w.’
<i>ga-məɲat̥-ó</i>	‘(s)he exited s.w.’	<i>g3-məɲ3tʃ-ú</i>	‘(s)he took it out s.w.’
<i>g-ogovəð-ó</i>	‘(s)he returned s.w.’	<i>g-ogovatʃ-ó</i>	‘(s)he returned it s.w.’
<i>ga-bəɬ-ó</i>	‘(s)he ascended’	<i>ga-bəɬʃ-ó</i>	‘(s)he lifted it’
<i>g-uruwt̥-ú</i>	‘(s)he descended’	<i>g-uruwtʃ-ú</i>	‘(s)he lowered it’
<i>ga-məɬ-ó</i>	‘(s)he’s alive, lives s.w.’	<i>ga-məɬʃ-ó</i>	‘(s)he raised s.o.’
<i>g-ondəɬ-ó</i>	‘(s)he dried’	<i>g-ondəɬʃ-ó</i>	‘(s)he dried it’

Not all unaccusative verbs show a lexical alternation, and their causative alternant occur with the regular causative suffix: a final *-í*, palatalization, and vowel harmony, e.g. *g-a-land-ó* ‘to close (v.i.)’ → *g-3-l3ndʒ-í* ‘to close (v.t.)’. While no clear semantic generalizations govern which unaccusative verbs fall into which class, the vast majority of verbs involving change-of-location are in the alternating class.

Some of the alternative verbs have simpler forms without any suffix at all. For example, *gaməɲó* ‘he left’ plus the locative applicative *-at̥* results in the alternating verb *gaməɲat̥ó* ‘exit’ above. Yet most of alternating verbs cannot appear without the underived form

These verbs are closely related to adjectives, which show a causative alternation without triggering vowel harmony in the causative (§10.1.4). In the imperfective, the final vowel does raise in the causative, e.g. *gabəɬɜ* ‘(s)he’s about to lift it,’ *gónɔɬɜ* ‘(s)he’s about to strengthen it,’ where the initial /a/ and /o/ do not harmonize. Yet causative adjectives, and adjectives in general, do not show final vowel alternations distinguishing perfective and imperfective, so these forms remain verbal.

The irregular or lexical causatives above exist alongside regular causatives for the same verbs.

- (114) a. í-g-3ntf-í kúku-ŋ ega
1SG-CLG-RTC-raise-CAUS.PFV Kuku-ŋ house
'I made Kuku enter the house.'
- b. é-g-a-mətf-é kúku-ŋ
1SG-CLG-RTC-live-CAUS.PFV Kuku-ŋ
'I made Kuku be alive.', 'I raised Kuku.'
- c. é-g-avətf-é kúku-ŋ n-ajen
1SG-CLG-RTC-return-CAUS.PFV Kuku-ŋ on-mountains
'I made Kuku return to the mountains.'

More work is needed to determine whether there are semantic differences between the two forms.

10.5.7.2 The transitive/applicative class

Table 10.21: Alternating transitive/applicative verbs

Perfective		Applicative perfective	
ga-rac-ó	'(s)he poured it'	ga-rajt-ú	'(s)he poured it for s.o.'
ga-rac-ó	'(s)he poured it'	ga-rajt-ú	'(s)he poured it for s.o.'

This can't just be phonology. Consider the following unaccusative-causative alternating verb in the applicative:

égamə́có Kúku ‘I raised Kuku’ ígəmədʒə́tú Kúku lə́ŋ-én ‘I raised Kuku for his mother’ Kuku gəmədʒə́tú lə́ŋ-én ‘Kuku is alive for his mother’

égaké kukú 'I hate Kuku' Kuku g3kin-ú 'Kuku is hated' Kuku nəNaloŋ lakeđó
K and ŋalo 'hate each other' égakatfě kúku-ŋ l3ŋgen 'I hate Kuku's mother'

eganeđó Kuku ‘I don’t like Kuku’ Kuku ganánján:a ‘Kuku doesn’t look like..’

Kuku g3niðənu ‘Nobody likes Kuku, i.e. Kuku isn’t liked’ Kuku g3niðənu ‘Nobody likes Kuku, i.e. Kuku isn’t liked’

kuku ganeđo lədzi 'Kuku doesn't like people' Kuku ganéđá ɲalon 'Kuku is about to hate ɲalon' Kuku ganá-néđá ɲalon 'Kuku doesn't hate ɲalon'

10.5.7.3 The -ǫ/-t̥ class

If the final consonant of the root is *ǰ*, the benefactive applicative replaces [ǰ] with [t̪]. There is no [ə]:

(115)

íg-ili-ð-ú diá	‘I bought a cow’
íg-ili-t-ú kódzan diá	‘I bought a cow for Kodja’
íg-ili-ð-it-ú ŋalo-ŋ diá	‘I bought a cow from Kodja’
íg-ili-t-ú kojan diá tá-ŋalon	‘I bought a cow for Kodja from Nalo’
ka-pələð-á ádáma ano	‘He opened up the book.’
ka-pələt-ú ŋerá ádámano	‘He opened up the book for the girl.’
k-ið-ú ŋámáǵniá	‘s/he worked (= she did work)’
k-it-ú udzi ŋámáǵniá	‘s/he did work for the woman
k-ið-it-ú ŋámáǵniá ega	she worked at the house
k-it-ú lidzi lela ŋámáǵniá ega	she worked for the woman at the house
egz-k-i k-ið-itf-ən-ú lidzi lela ŋámáǵniá	this house was worked at for the woman

lidzi lel:a ‘women’ lidzi leloraŋ ‘men’ lidzi ‘people’
 udzi gega ‘women of the house’
 kogónəðeá ulálítu ‘he is returning tomorrow’ kogónəta isudan ‘he is returning to Sudan’ (presumably locative)

This is not always the case, suggesting that verbs like ‘buy’ above are inherently either antipassive or applicative marked.

kavarəðó ‘he raked’
 kəvərəðitú kúkəŋ ‘he raked for Kuku’
 Why not kəvərətú ??

10.5.8 Order and distribution of multiple extension suffixes

10.5.8.1 Order of antipassive with respect to other extension suffixes

The suffix *-əð* is ordered before the applicative suffix *-ət*.

- (116) k-3-g-3ð-ð-ət-ú lidzi loáŋa laŋa
 SM.CLG-RTC-mix-AP-APPL-PFV CL.person CL.many CL.thing
 ‘she mixed many things for people’

It is also ordered before the causative suffix *-i*:

It is ordered before the passive suffix *-ən*:

The order of the *-əð* suffix with respect to the locative applicative is more complicated. This example illustrates that when *-əð* has the distributive sense, it precedes the locative applicative.

- (117) k-a-gáǎ-ǎ-aṭ-a wára í-kí
SM.CLG-RTC-mix-AP-LOC.APPL-IPFV CLG.baobab LOC-CLG.field
'she (habitually) mixes baobab leaves in the field'

The reverse order apparently indicates a more specific location, or greater emphasis placed on the location:

- (118) k-a-gáð-atf-əð-ea wára í-kí
SM.CLG-RTC-mix-LOC.APPL-AP-IPFV CLG.baobab LOC-CLG.field
'she is mixing baobab leaves in this particular field'

When -əð has a reciprocal sense, it follows the locative applicative, as seen above in (X).

Consider the following examples with the verb ‘take’, which also has the sense of marry, used antisymmetrically to mean that a man got married (‘he took a woman’). If the reciprocal is used, it means that a man and woman married each other, or it can mean that men each got married separately. An iterative prefix can be added to that mean that many people got married or that two people got married again. If the locative applicative is added to this verb to indicate a certain location, it precedes the reciprocal. This sentence also has another meaning of many people going as a group (in the sense that they took each other)

- (119) a. l-a-m:-əð-ó
SM.CLL-RTC-ITER-take-AP-PFV
'they married each other' or 'they each married'
- b. l-a-ma-m:-əð-ó
SM.CLL-RTC-ITER-take-AP-PFV
'many people got married' or 'two people got married again'
- c. l-a-ma-m:-atʃ-əð-ó
SM.CLL-RTC-ITER-take-LOC.APPL-PFV
'many people went in a group to a certain place' or
'many people got married in a certain place'

The same ordering is observed when the *-at* suffix indicates malfactive rather than locative:

- (120) a. k-a-m:-aṭ-ó ṅálo-ŋ lavəra
SM.CLg-RTC-take-LOC.APPL-PFV Ngalo-OC CL.stick
'he took the stick from Ngalo'

- b. l-a-m:-atf-əð-ó ɲavəra
 SM.CLL-RTC-take-LOC.APPL-PFV CLɲ.stick
 ‘they took sticks from each other’

Therefore, the order of the anti-passive/distributive/reciprocal with respect to the locative applicative differs depending on the meaning. While the locative and mal-factive senses of the applicative both precede reciprocal, they appear to follow the distributive meaning. This could mean that there are two separate, identical suffixes, or it could mean that scope relationships dictate the order.

This is further complicated by the fact that -əð can be repeated both before and after -at, and the -atfəð combination appears to indicate a more emphasized location, as discussed above:

- (121) k-a-gáð-ð-atf-əð-ea wára í-kí
 SM.Clg-RTC-mix-AP-LOC.APPL-AP-IPFV CLg.baobab LOC-CLg.field
 ‘she (habitually) mixes baobab leaves in this particular field’

10.5.8.2 Combination with other suffixes

The locative applicative -at and the benefactive applicative -ət do not co-occur as a sequence of suffixes, such as atət (or atfət) or ətət. When both meanings must be expressed, a single suffix -it is employed. In the first examples (a,d), the locative applicative -at is shown. This contrasts with the benefactive applicative -ət (b,e). Finally the combined locative and benefactive is shown in (c,f)

- (122) a. é-g-ab-at-ó áḍámá é-lná
 1SG.SM-CLg-carry-LOC.APPL-PFV CLg.book LOC-CLL.room
 ‘I carried the book into the room’
 b. í-g-3b-ət-ú ɲerá áḍámá
 1SG.SM-CLg-carry-APPL-PFV CLɲ.girl CLg.book
 ‘I carried the book for the girl’
 c. í-g-3b-it-ú ɲerá áḍámá
 1SG.SM-CLg-carry-LOC.APPL/APPL-PFV CLɲ.girl CLg.book
 é-lná
 LOC-CLL-room
 ‘I carried the book for the girl into the room’
 d. ? átfəváj í-kí
 SM.Clg-RTC-carry-LOC.APPL-PFV CLg.food LOC-CLg.field
 ‘she stirred food in the field’

10.5.8.3 Order of benefactive applicative with respect to other extension suffixes

The suffix *-ə́t* follows the causative suffix *-i*, where it is realized as [t̪]:

- (126) ów:á g-ubəð-i-t̪-ə-lo ɲíní
 CLg.woman SM.CLg-flee-CAUS-APPL-PFV-3PL.OM CLɲ.dog
 ‘the woman made the dog run away from them’

The suffix *-ə́t* precedes the passive suffix *-ən*. As the passive routinely triggers palatalization of dental stops, the /t̪/ of the benefactive applicative suffix is also palatalized.

- (127) adama kw-Λ-dwΛdʒ-it̪-in-ú kúku-ɲ
 book CLg-RTC-send-APPL-PASS-PFV Kuku-ACC
 ‘The book was sent to Kuku.’

The locative applicative also follows the causative:

The locative applicative cannot co-occur with the benefactive applicative as such. That is, there is no sequence *-ə́t-ə́t* or *ə́t-ə́t*. Instead, the combination of locative and benefactive is realized as [it̪]:

- (128) a. é-g-ab-at̪-ó áḍámá é-lná
 1SG.SM-CLg-RTC-carry-LOC.APPL-PFV CLg.book LOC-CLL.room
 ‘I carried the book into the room’
 b. í-g-3b-ə́t-ú ɲerá áḍámá
 1SG.SM-CLg-RTC-carry-APPL-PFV CLɲ.girl CLg.book
 I carried the book for the girl
 c. í-g-3b-it̪-ú ɲerá áḍámá é-lná
 1SG.SM-CLg-RTC-carry-APPL-PFV CLɲ.girl CLg.book LOC-CLL.room
 ‘I carried the book for the girl into the room’

In the following example, the verb form derives from the root *doad* ‘speak, tell’. It appears to also have a locative/malfactive applicative *-ə́t* suffix followed by reciprocal *-əð*. It is not clear what the presence of *-ə́t* is contributing, except possibly a malfactive sense.

- (129) l-a-doád-at̪-əð-ea é-ɲén
 SM.CLL-RTC-speak-LOC.APPL-AP-PFV LOC-word
 ‘they are discussing, negotiating together’

a-g-a-ləŋ-ən-t-ə-ñe. 2sg-clg-rtc-give.birth.rt-pass-loc.appl-pfv-1sg.om ‘you have been born to me.’

DATA WITH ANGELO Locative applicative - Passive

é-g-a-v-áləŋ-ac-in-ia elo LOC.APPL-PASS ‘I am being sung about.’ é-g-a-v-aləŋ-ac-in-ia LOC.APPL-PASS ‘I am having songs written for.’ (?)

ég-ogwac-ó ŋen/oleia LOC.APPL? ‘I answered’ (Lit: ‘I returned word / language, speech’ íg-ugw-iŋ-u kukun adama LOC.APPL.APPL- ‘I returned the book to kuku’ Kuku kugw-ic-in-ú adama LOC.APPL.APPL-PASS ‘Kuku was given back the book.’ NB extension suffixes adama kugw-ic-in-ú kukun LOC.APPL.APPL-PASS ‘The book was given back to Kuku’

kúku kɔlɔgí ŋalɔŋ íkí ‘Kuku made ŋalo cultivate the field.’ ogəŋa ‘hoe, adze?’ kúku kɔlɔgí ŋalɔŋ ogəŋga ‘Kuku made ŋalo cultivate with the hoe.’ scopally ambiguous

kúku kɔbugí ŋalɔŋ ŋera ‘Kuku made Ngalo punch the child.’ kuku kɔbugəní ŋalɔŋ 1) ‘Kuku was punched by Ngalo’ 2) Kuku was made to punch Ngalo.’ (both are ok) PASS-CAUS

kúku kɔŋgitú ŋalɔŋ nəŋəpəni vəgá ‘Kuku made Ngalo punch himself.

kúku kɔŋgitənú nəŋəpəni ŋalɔŋ ‘Kuku was allowed to punch Ngalo. (Comment: Nobody stopped him, he was allowed to do what he liked...) (attempts to order passive and causative kind of failed here)

Kúku na ŋalo lɔpəðú ‘Kuku and Ngalo punched each other.’

Kúku na ŋalo lɔlɔg-i-ð-ú íkí ‘Kuku and ŋalo made each other cultivate the field.’

Kuku na ŋalo lɔŋgitf-ið-ú lɔppi lɔmia ‘K and ŋalo made e.o. punch the boys.’ let/make-AP -Punch- boys

Kuku lɔ-pɔð-i-ð-i lɔmia ‘K and ŋ made the boys punch each other.’

ígɔdwɔðí kukun ləbaba ‘I made Kuku push the door open.’ ígɔŋgitú lɔmia lɔdweɣwəðe ‘I made the boys push each other.’

éga-ðwatw-að-ó ləbaba ‘I pushed the door many times.’

lɔmiə lɔ-dwatw-að-e ‘The boys pulled each other.’

lɔmiə lɔw:ɔ Kuku-ga ‘The boys like Kuku.’ lɔmiə labwəŋa Kukun ‘The boys love Kuku.’

lɔmiə lɔw:-að-iɔ ‘The boys like each other.’ kuku na kaka labwəŋ-əð-ea ‘Kuku and Kaka love each other.’

Kuku na ŋalo lɔpɔð-ɔc-ið-ú *(ík-udzi) ‘Kuku and Ngalo punched each other for the woman.’

- Additional repeating əð, this time around another suffix.

kuku na ŋalo lɔ-pitf-idz-ið-ú matfó gícɔ ‘K. and ŋalo beat the bad person for each other’s sake.’ Repeating applicative dz here, again unexpectedly... Kuku and

ηαλο λλΛυγιτjiðú ini ‘Kuku and Ngalo cultivated the fields for each other.’ Kuku and ηαλο λδwαtwαtjiðú λbαbα ‘Kuku and Ngalo pushed the door for each other.’

B and B: ‘send’ = ðwaṭo (Werria) = dwaṭo (ðotəgovəla) iκλ-dwαdz-it-u kuku adama ‘I sent Kuku a book.’ adama kwαdwαdz-itf-in-ú kúkuη ‘A book was sent to Kuku.’ Appl-Pass éγadwαdzitú lemmiə ododo len-gen-andá ‘I sent every boy to his mother.’ éγadwαdzitú lemmiə len-gen-andr ododo ‘I sent every boy to his mother.’ or ‘I sent the boys to all their mothers.’ *éγadwαdzitú len-genandá lemmia (ododo) ‘Attempted: I sent their mother the boys)

lemmiə (ododo) λδwαdzitfinú len-geandandá ododo ‘I sent every boy to his mother.’ or ‘I sent the boys to all their mothers.’ len-geandandá *(lólēmiə) λδwαdzitfinú lemmia ododo ‘The boys’ mothers were sent all the boys.’ íγAsαtjú ‘I saw it’ íγAsαdzαtjú Kukuη ísúk ‘I saw Kuku in the market. íγAsαdzαtjú lemmiə ódódó enega dən-gen ‘I saw each boy at his house.’ íγAsαdzαtjú lemmiə lənəlnəη enega dən-gen ‘I saw each boy at his house.’ íγAsαdzαtjú lemmiə ódódó lən-gen-ala ‘I saw each boy with his mother.’ (??) íγAsαdzαtjú lemmiə ododo lənəlnəη ‘I saw each boy by himself.’ not sure what the lənəlnəη element is here...

éγá κληki, λmiə l-α-sαdz-αtfin-ú-u ‘My house, the boys were seen at.’

éγá κληki γα-sαdz-αtfin-ú-u λmiə ‘At my house was seen by boys.’

éγá κληki γα-sαdz-αtfin-ú-u acevan ‘At my house was eaten food.’

(*é)négá dən-gen nAsαdz-itf-in-ú λmiə ododo ‘At his1/*2 house was seen [every boy]2.’

íγληαtjú λmiə ododo λng-en-andá 1) ‘I showed the mother to each boy.’ 2) ‘I showed each boy to his mother.’ *íγληαtjú λng-en-andá λmiə ododo

íγλλgi kukuη gi ‘I made Kuku cultivate the field.’ kuku na ηαλο λλλgiðu gi ‘Kuku and ηαλο made e.o. cultivate the field’ íγληgitú kukuη na ηαλο λλλg-itf-ið-in-iə ‘I made Kuku and Nalo cultivate each other’s fields’ (??) kukuη na ηαλο λλλg-itf-ið-in-ú gi ‘Kuku and Nalo were made to cultivate each other’s fields’ > CAUS > APPL > RECIP > PASS kukuη na ηαλο λλλg-itf-ið-αt-ú gi ‘Kuku and Nalo cultivated the fields for each other.’ kukuη na ηαλο λλλg-i-n-ú gi ‘Kuku and Nalo were made to cultivate the fields.’

kúku gwas-ó ηαλοη re ‘Kuku washed Ngalo’s arm.’ kúku gwas-en-ú re ‘Kuku washed his own arm.’ kuku na ηαλο loas-əð-ó re ‘Kuku and ηαλο washed each other’s arm’

iðioη-en his son Kúkú gwasó iðioηen ‘Kuku washed his son.’

10.6 The clitic group

10.6.1 Postverbal object markers

10.6.2 Instrumental =*ya*

10.6.3 Locative =*u*

11 Clausal syntax

This chapter describes the syntax of indicative verbal clauses, which are clauses where a verb serves as the main predicate rather than a non-verbal predicate or a copular clause. This chapter is restricted to simple clauses, those with a single verb and with no auxiliary. The basic syntax of such clauses is Subject-Verb-Object-Adverb, as in the following example:

While there can be multiple objects and the distribution of adverbs is quite free. Nevertheless, a look at simple transitive clauses in texts reveal that the vast majority of the time, objects are immediately preverbal and adverbs are sentence-final.

Moro clauses show nominative-accusative alignment both in terms of their syntax and their morphology. Thus, verbs agree with the sole argument of intransitive verbs as well as the agent of transitive verbs. These arguments pattern alike syntactically as well, occurring before the verb and serving a distinguished role in a number of syntactic and morphological processes such as passivization and coordination.

This chapter describes the morphosyntactic properties of the four classes of syntactic elements which occupy such clauses and their interactions in their typical order of appearance: subjects, verbs, objects, and adverbs. The focus of this chapter is primarily syntactic, with emphasis on word order, valence alternations, and the distribution of arguments versus adjuncts.

11.1 Subjects

Subjects in Moro are identified with the following properties. First, the subject is always preverbal, typically immediately before the verb (1):

- (1) Subjects must be preverbal
 - a. $\eta\acute{e}r\acute{a}$ η - Λ - $t\acute{u}nd$ - Λ
girl CL η -RTC-cough-IPFV
'The girl is coughing'
 - b. * η - Λ - $t\acute{u}nd$ - Λ $\eta\acute{e}r\acute{a}$

CL_η-RTC-cough-IPFV girl
 ‘The girl is coughing’

Second, subjects always trigger verb agreement, regardless of whether there is an overt noun phrase before the verb (Section ??). Third, the subject appears in nominative case, visible only on proper human nouns, which is unmarked (Section):

- (2) Subjects must be nominative
- a. Kúku g-_Λ-túnd-_Λ
 Kuku CL_η-RTC-cough-IPFV
 ‘Kuku is coughing.’
 - b. *Kúku-_η g-_Λ-túnd-_Λ
 Kuku-ACC CL_η-RTC-cough-IPFV
 ‘Kuku is coughing.’

Fourth, in-situ content question words cannot appear in subject position, while they can occur object or adjunct positions (roseetal14 Section ??):

- (3) No in-situ subject wh-question
- a. ándʒ_Λ η-í-túnd-_Λ?
 CLF-CL_η.girl CL_η-who SM.CL_η-DPC1-cough-IPFV
 ‘Who is coughing’ (Intended)

Fifth, subjects have a privileged role for purposes of binding. Subjects must be the antecedent in reflexive and reciprocal binding (Section 12.6.1, Section 12.6.2),

- (4) Reflexives are subject oriented
- a. Subject as antecedent in reflexive
 - b. object cannot be antecedent in reflexive
- (5) Reciprocals are subject oriented
- a. subject as antecedent in reciprocal
 - b. object cannot be antecedent in reciprocal

Subjects also can be the antecedent in cases of semantic binding or variable binding, although in these cases of variable binding objects can bind one another (Section 12.3):

(6) Variable binding from subject position

Sixth, subject position is privileged for the purposes of a number of valence affecting processes. The passive suffix *-en* decreases the valence of a verb by promoting an object to subject position while suppressing the subject of its active counterpart. Passive *-en* also occurs in the context of body-affecting actions only when these are committed by the subject (Section 12.6.1). Similarly, causatives demote their non-causative counterpart to object position and add a new subject, a causer (??).

Seventh, subjects are the target of syntactic raising and control constructions (Section ??).

11.2 Verb classes and valence alternations

- discussions of different classes of verbs: unaccusative: - appearance, disappearance - classes of labile verbs change of location, change of state
 - unergative - transitive SO MANY CLASSES...how do I start to go about this?
- Which ones can undergo causative and which can't? which can take applicatives and which can't? - ditransitive

11.3 Objects

11.4 Basic properties of objects

Properties of objects: - Objects follow verbs - Objects are pronominalized as incorporated pronouns or object markers - Objects can be passivized (or reflexivized? or antipassivized?)

Obligatoriness: - Non-human objects have a null pronominal variant so they appear optional in many texts - Human objects are obligatorily expressed either as noun phrases or object markers

Objects are symmetrical in Moro according to a number of tests (ackerman et al.): ordering, pronouns, passives,

Nevertheless, there are a number of asymmetries: person/number, binding

11.5 Valence increasing alternations

11.5.1 Causatives

- restrictions on distribution..., periphrastic vs. applied causative

11.5.2 Applicative objects

- benefactive applicative objects
 - locative applicative objects

11.6 Valence decreasing alternations

Two verbal extension suffixed decrease the valence of the verb.

11.6.1 Passives and reflexives

- Passives - Body-affected action/possessor raising - Reflexives
 11. *égandró nano* 'I'm sleeping on it./covering/hiding it.'
 12. *égandró hén nano* 'I'm sleeping on the word.' = 'I didn't tell the truth.'
 13. *hén hādranú nano* 'A lie was told.'
 14. *hén hādranúu nano* 'A lie was told (there).' (?)

ígahatfú umiā adama 'I told the boy about the book (?) *ígahgitú lamia ododo llasetfisi ntam enen ek-almiraja* 'I let each boy see himself in the mirror.' *ígahatfú lamia ntam en-en* 'I told each boy about themselves.' **ígahatfú ntam en-en lamia* binding which is independent of passive extension suffix *lamia lahātʃənú ntam enen* 'The boys were told about themselves.' **ntam enen lemmiā lahātʃənú AN1115 lemmiā ododo lasadʒatʃinú enega dāngen* 'Each boy was seen in his house.'

Passivization enabling binding; passive not occurring in binding between objects.

11.6.2 Antipassives and reciprocals

- Antipassivization - Reciprocals - Pluractionality?

11.7 Instrumental objects

Instrumental adjuncts must occur after themes:

- (7) a. Kúku g-3-f:-ə̀t-ú ɲálo-ɲ gə̀la loandra-la
 K. CLg-RTC-shoot-APPL-PFV Ngalo-ACC plate stone-CLL.with
 ‘Kuku shot the plate with the stone’
 b. * Kúku g-3-f:-ə̀t-ú ɲálo-ɲ loandra-la gə̀la

- instrument? comitative? - take the instrumental suffix - trigger the instrumental clitic on the verb in extraction contexts

11.8 Locative objects

- covers any locative object of the verb that is not a object of a directional verb (e.g. go to X) or an applied locative object. - triggers locative cliticization on the verb

11.9 Discontinuous constituents in the clause

‘discontinuous constituents’ in the clause including 1) extraposition 2) secondary predicates and 3) floating quantifiers)

11.9.1 Extraposition

(is this necessary? can’t any of the classes be locative?)

11.9.2 Quantifier float

(does this need to be different from floating quantifiers, below?)

11.9.3 Secondary predicates

11.10 Ellipsis in the clause?

Can auxiliaries delete their VP complements?

12 Embedded clauses

12.1 Clause types

Jenks and rose draft modified here

12.2 Embedded finite clauses

12.3 Embedded root clauses

Jenks and rose draft modified here

12.4 Finite raising complements

12.5 Subjunctive complements

Tests from Farkas 1992:

same verb, in declarative vs. subjunctive:

1. I. said that P. left. 2. I said that P leave immediately.

3a. I believes that P left. 3b. I doesn't believe that P leave

Subjunctive governors: (Farkas p. 73) 1. 'want', 'order', modals (be possible, necessary), epistemic predicates expressing neutral or negative commitment: doubt, not believe, be possible/impossible

12.6 Infinitive clauses

Jenks and rose draft modified here

13 Coordination and clause chaining

13.1 Clausal coordination

Check: nə with different classes of coordinated clauses. Is it possible?

13.2 Clause chaining constructions

13.2.1 Consecutive clause chaining

Section on consecutive clauses here.

13.2.2 Simultaneous clause chaining

Section on simultaneous clauses here.

14 Relative clauses and clefts

a) pronoun clefts — is there any more to be said? b) id complementizer in clefts: does it agree with the pivot?

14.1 Import from wh-paper

- (1) a. Subject Question

ɲwʒɖʒk:i g-é-m:-ó ów:á g-óal-á?
 CLg.who SM.CLg-DPC1-take-PFV CLg.woman SM.CLg-tall-ADJ
 ‘Who married the tall woman?’

- b. Subject Focus

ɲwʒ-matʒ-k:i g-é-m:-ó ów:á
 CLF-CLg.man-CLg.DEM SM.CLg-DPC1-take-PFV CLg.woman
 g-óal-á
 SM.CLg-tall-ADJ
 ‘This is the man who married the tall woman’

- (2) Subject Relative

matʒ-k:i g-é-m:-ó ów:á g-óal-á
 CLg.man-CLg.DEM SM.CLg-DPC1-take-PFV CLg.woman SM.CLg-tall-ADJ
 g-ʒnd-ú ogómá
 SM.CLg-catch-PFV CLg.thief
 ‘The man who married the tall woman caught the thief’

- (3) Declarative

matʒ-k:i g-a-m:-ó ów:á g-óal-á
 CLg.man-CLg.DEM SM.CLg-RTC-take-PFV CLg.woman CLg-tall-ADJ
 ‘This man married the tall woman’

- (4) a. Object Question

ɲwʒndák:i (n-)úɖǵí (nó-)g-ʒ-wəndaɬ-ó?
 CLg.what (COMP-)CLg.person (COMP-)SM.CLg-DPC2-see-PFV
 ‘What did the person see?’

b. Object Focus

ɲw-ógovél-k:i (n-)úɖʒi
 CLf-CLg.monkey-CLg.DEM (COMP-)CLg.person
 (nə-)g-ə-wəndaɬ-ó
 (COMP-)SM.CLg-DPC2-see-PFV
 ‘This is the monkey that the person saw’

c. Object Relative

ogovél-k:i (n-)úɖʒi
 CLg.monkey-CLg.DEM (COMP-)CLg.person
 (nə-)g-ə-wəndaɬ-ó g-obəð-ó
 (COMP-)SM.CLg-DPC2-see-PFV SM.CLg-run-PFV
 ‘The monkey that the tall person saw ran away’

(5) Declarative

uɖʒi g-a-wəndaɬ-ó ogovél-k:i
 CLg.person SM.CLg-RTC-see-PFV CLg.monkey-CLg.DEM
 ‘The person saw this monkey’

14.2 Relative clauses

While the complementizer *nə=* is usually optional, it becomes obligatory in some object relatives forms involving a pronominal subject:

(6)	ðamalɔ́-ð:-	* (n)=í-sɔ́ɬf-ú	-1SG-	‘the camel that I saw’
	...	* (n)=ɔ́-sɔ́ɬf-ú	-2SG-	‘...that you saw’
	...	(nə)=g-ə-sɔ́ɬf-ú	-3SG-	‘...that she saw’
	...	* (n)=ɔ́lɔ́-sɔ́ɬf-ú	-1DU.IN-	‘...that you and I saw’
	...	* (n)=ɔ́lɔ́-sɔ́ɬf-ú-r	-1PL.IN-	‘...that we (INCL.) saw’
	...	(nə)=ɲɔ́-sɔ́ɬf-ú	-1PL.EX-	‘...that we (EXCL.) saw’
	...	(nə)=ɲɔ́-sɔ́ɬf-ú	-2PL-	‘...that you (PL.) saw’
	...	(*nə)=l-ə-sɔ́ɬf-ú	-3PL-	‘...that they saw’

Following standard practice, the asterisk outside of parentheses indicates obligatoriness while the asterisk inside of parentheses indicates that the clitic is disallowed. These examples illustrate that the varying optionality of *nə=* is phonologically conditioned: *nə=* is obligatory with vowel-initial prefixes and impossible before /l/ in 3rd person plural forms due to a /*nl/ co-occurrence constraint in Moro, apparently also active across schwa (cf. the numerals 12 and 13 in Table 8; see also Gibbard et al 2009, p. 113).

The forms in TABLE XXX also illustrate a distinction between object relative clauses on the one hand (and other embedded verbs taking the *ǵ*-prefix) and root clauses and subject relatives on the other in that object relative clauses lack the “extra” g-class marker which occurs between first and second person prefixes and the clause-typing vowel (e.g. (23-24)).

14.3 Topicalization

15 Questions, conditionals, and adverbial clauses

questions here

15.1 Polar questions

15.2 Clefts

15.3 Content questions

In many languages, the formation of constituent questions, or wh-questions, involves the question word appearing in the standard or canonical position in the sentence, a strategy known as *in-situ*. In others, the question word appears displaced external to the clause, leaving a “gap” in the canonical position, a strategy known as *ex-situ*. Some languages uniformly utilize one strategy for constituent question constructions while some languages exclusively utilize the other. There are, however, some languages that possess both in-situ and ex-situ constructions (Cheng 1997; Potsdam 2006). Moro, a Kordofanian (Niger-Congo) language spoken in the Nuba Mountains of Sudan, belongs to this latter class. Schadeberg (1981) classifies Moro as belonging to the Western group of West-Central Heiban Kordofanian languages.

The two types of wh-question constructions in Moro display strikingly different properties. In the typical in-situ strategy, a question word appears in the canonical position. In the example in (1), the declarative sentence (1a) is juxtaposed against an in-situ object question (1b). The question word appears in the post-verbal object position. In the ex-situ strategy in (1c), in contrast, the form of the question word itself is different (*wánde* vs. *ɲwáńdák:i*) and the verb has a different prefix (*a-* glossed as Root Clause (RTC) as it occurs in declaratives, in-situ questions, and complements of bridge verbs, and *ǎ-* in the ex-situ question, which we gloss as DEPENDENT CLAUSE2 (DPC2); Jenks 2013, Rose 2013). In addition, a particle *ná-*, which we will analyze as a complementizer, is optionally attached

to the subject and/or the verb (1c). All data are from the Thetogovela dialect (in Moro orthography, Dətogovəla). Moro has two tones. High tone is marked with an accent (´) and low tone is unmarked.

- (1) a. kúku g-a-s:-ó eḏa
 CLg.Kuku SM.CLg-RTC-eat-PFV CLj.meat
 ‘Kuku ate the meat.’
- b. kúku g-a-s:-ó wánde?
 CLg.Kuku SM.CLg-RTC-eat-PFV CLg.what
 ‘What did Kuku eat?’
- c. ɲwáɲdák:i (nó-)kúku (nó-)g-ə-s:-ó?
 what.CLg (COMP-)Kuku (COMP-)SM.CLg-DPC2-eat-PFV
 ‘What did Kuku eat?’

Subject wh-questions only use the ex-situ strategy as in (2). This is surmised from the form of the question word, and the prefix on the verb. Unlike object questions, there is a different prefix on the verb, *é-*, glossed as DEPENDENT CLAUSE 1 (DPC1). In addition, the particle *nó-* prefixed to the verb in (1c) is never attested in these constructions.

- (2) a. ɲwáɲdák:i g-é-s:-ó eḏa?
 what.CLg SM.CLg-DPC1-ate-PFV CLj.meat
 ‘What ate the meat?’

The goals of this article are threefold. First, we provide a basic description of constituent or wh-question constructions in Thetogovela Moro. In the grammar of a related Moro dialect (Black and Black 1971), in-situ questions are reported for all wh-phrases (p. 73), but only a few examples of ex-situ constructions are given for ‘why’ and ‘how’. Nevertheless, the structure of the ex-situ constructions differs from Thetogovela. There is a dearth of descriptive material on the syntactic properties of Kordofanian languages in general, and this article aims to contribute to a better understanding of one of these languages. Second, we outline the ways in which ex-situ constituent question constructions share structural parallels with cleft and relative clause constructions. We propose that ex-situ questions are, in fact, a type of wh-cleft construction. Third, we provide an analysis of the morphological markers found in ex-situ questions. The verb prefixes *ə-* and *é-*, observed in (1c) and (2) respectively, and the particle *nó-*, pose analytical challenges. We argue that evidence from other constructions in the language point to the verb prefixes as dependent clause markers, as they appear

in other dependent clause constructions. The distribution of *ná-* suggests that it is a type of complementizer that can appear cliticized to the verb or the subject. It, too, appears in other dependent clause constructions where its status as a complementizer is clearer.

The paper is organized as follows. In Section 2 we present wh-in-situ constructions, comparing them to corresponding declarative clauses. Section 3 explores wh-ex-situ constructions identifying the basic differences between subject and non-subject wh-constructions. Section 4 demonstrates similarities between wh-ex-situ questions and relative clauses and clefts, leading to the conclusion that wh-ex-situ questions constitute a wh-cleft construction. We provide arguments from negation for the biclausality of clefts, evidence from tone that all three types employ dependent clauses, and examples demonstrating that the verb prefixes *é-* and *ǎ-* are employed in other dependent clause constructions. In section 5, we address properties of non-subject wh-ex-situ questions, clefts and relative clauses, including alternate morphological marking in different persons, the distribution of resumptive pronouns, and evidence that the marker *ná-* in (1c) is a complementizer. Finally, we conclude in section 6 with some typological considerations.

15.4 In-situ content questions

In this section we describe the behavior of wh-in-situ questions. We begin with those bearing the lexical category noun (N): this is the lexical category in Moro that determines class agreement both internal to the noun phrase (NP) as well as with subject agreement on the verb in a clause.

Before presenting the relevant examples it is important to introduce some aspects of the noun class system of Moro. As in other Niger-Congo languages, nouns in Moro are divided into a number of noun classes (Stevenson 1956-7; Black and Black 1971; Schadeberg 1981; Gibbard et al. 2009). Noun class is marked by the first segment, usually a consonant, on the noun, and indicates singular, plural or invariable, e.g. *nerá* ‘girl, child’ (class marker *ɲ*) vs. *perá* ‘girls, children’ (class marker *p*). Subject agreement on verbs and nominal modifiers shows class agreement with the noun through use of a corresponding consonant. Some nouns are vowel-initial; these nouns have either *g* or *j* noun class agreement. We indicate noun class with cl followed by the agreement consonant, following Gibbard et al. (2009).

Declaratives and corresponding in-situ object wh-questions are illustrated in (3).

15 Questions, conditionals, and adverbial clauses

- (3) a. kúku g-a-t̥að-ó eða
 CLg.Kuku SM.CLg-RTC-leave-PFV CLj-meat
 'Kuku left the meat behind.'
- b. kúku g-a-t̥að-ó wánde?
 CLg.Kuku SM.CLg-RTC-leave-PFV CLg.what
 'What did Kuku leave behind?'
- (4) a. kúku g-a-t̥að-ó ów:á
 CLg.Kuku SM.CLg-RTC-leave-PFV CLg.woman/wife
 'Kuku left the woman/wife behind.'
- b. kúku g-a-t̥að-ó ɜ́ɟ́ɟ́ŋgaŋo?
 CLg.Kuku SM.CLg-RTC-leave-PFV CLg.who
 'Whom did Kuku leave behind?'

As can be seen, the *wh*-phrase functioning as an object occupies the same clausal position as the NP object in a declarative clause. The nominal form *ɜ́ɟ́ɟ́ŋgaŋo* has a shorter form *ɜ́ɟ́ɟ́*, which is used in particular constructions, such as with comitatives, glossed here as instrumental (INST) as the same marker is used for both senses.

- (5) a. k-a-t̥að-ó-ŋó sára-ga
 SM.CLg-RTC-leave-PFV-3SGOM CLg.Sara- CLg.INST
 'S/he left him/her with Sara.'
- b. k-a-t̥að-ó-ŋó ɜ́ɟ́a-gá?
 SM.CLg-RTC-leave-PFV-3SGOM CLg.who-CLg.INST
 'With whom did s/he leave him/her?'

Nominal expressions associated with non-subject functions containing the modifiers 'which' and 'whose' may also appear in-situ. The expression "whose NP" is a genitive construction, which is formed by prefixing the possessor with *Cɜ́-* (*Cɜ́-* before vowel-initial stems) where *C* represents a noun class marker that agrees with the class of the possessed (Jenks 2013). This can be seen in (6) where the *wh*-modifier functioning as possessor bears the class prefix *ŋ-*, determined by the class of the possessed nominal.

- (6) a. ŋál:o g-a-m:-ó ŋerá ŋ-ɜ́ɟ́ɟ́?
 CLg.Ngalo SM.CLg-RTC-take-PFV CLŋ.girl CLŋ.poss-who
 'Whose daughter did Ngalo marry?'
- b. ŋál:o g-a-m:-ó ŋerá ŋ-ánnga?
 CLg.Ngalo SM.CLg-RTC-take-PFV CLŋ.girl CLŋ.poss-which
 'Which daughter did Ngalo marry?'

In contrast to these in-situ non-subject nominal constructions, all *wh*-elements occupying the subject role relative to a verb occur only in the ex-situ constructions; their discussion will be deferred to section 3 where we address this strategy.

Turning to time and spatial adverbials, their *wh*-forms can also appear in-situ. Moreover, they, like nominals, typically appear in the clausal position associated with that specific adverbial. Sentential temporal adverbs such as *éréká* ‘yesterday’ may appear in multiple positions in declarative sentences, but usually appear post-verbally and following the object, if one is present. The order of manner adverbials with respect to time adverbials is not fixed: some manner adverbials are more flexible than others with respect to linear order; however, unlike temporal adverbs, manner adverbials do not appear between subject and verb or between verb and object. In (7) and (8), the position of the time adverbial ‘yesterday’ in (7a) and (8a) is occupied by the question word ‘when’ in (7b) and (8b), but the reverse order of adverbs in both sentences is also possible.

- (7) a. *ŋóní ŋ-ar-ó éréká kaŋ*
 CL_ŋ.dog SM.CL_ŋ-cry-PFV yesterday loudly
 ‘The dog barked loudly yesterday.’
 b. *ŋóní ŋ-ar-ó ndónj kaŋ?*
 CL_ŋ.dog SM.CL_ŋ-cry-PFV when loudly
 ‘When did the dog bark loudly?’

The spatial *wh*-adverb ‘where’ displays a similar distribution:

- (8) a. *á-g-erl-eṭ-ó n-ején joáŋa*
 2SGSM-CL_g-walk-LOC.APPL-PFV LOC-CL_j.mountain CL_j.many
 ‘You went to different countries/regions.’
 b. *á-g-a-v-əṭ-ó ŋgá?*
 2SGSM-CL_g-RTC-go-LOC.APPL-PFV where
 ‘Where did you go?’

Finally, the *wh*-adverbials denoting ‘how’ and ‘why’ also appear in-situ:

- (9) a. *á-g-áf-a ɖáṭáo egea?*
 2SGSM-CL_g-build-IPFV how CL_g.house
 ‘How are you building the house?’
 b. *á-g-oás-a ndréd eḋá ɲínínjǐ?*
 2SGSM-CL_g-wash-IPFV CL_n.clothes why today
 ‘Why are you washing clothes today?’

A summary of the *wh*-in-situ words is provided in the following chart. There are also plural forms of ‘what’ and ‘who’. *Wh*-words have the singular/plural class pairing *g/l* used primarily for humans. The words ‘which’ and ‘whose’ also have noun class agreement, shown here as *g/l*, but for these words, noun class can vary depending on the lexical noun, as expected given the structure of genitive constructions.

Table 15.1: In-situ *wh*-words

	Singular	Plural
what	wánde	lánde
who	ɜ́ɔ́ɜ́ŋgaŋo / ɜ́ɔ́ɜ́	ɜ́ɔ́ɜ́lánda
which	N gáŋga	N láŋga
whose	N gɜ́(n)ɔ́ɜ́	N lɜ́(n)ɔ́ɜ́
where	ŋgá	n/a
when	ndón	n/a
why	eǎá	n/a
how	(ǎá)ǎáo	n/a

In conclusion, the ability of *wh*-elements to appear in-situ depends on their syntactic position: while all non-subject *wh*-elements may optionally appear in-situ, subject forms cannot. These latter must appear in ex-situ constructions. Consequently, we turn to a discussion of this question formation strategy.

15.5 Ex-situ content questions

Ex-situ question constructions contain a *wh*-phrase in sentence initial position, followed by a modifying dependent clause. In section 4, we provide arguments that these constructions are best analyzed as clefts. In this section, we simply describe the basic properties of ex-situ *wh*-question constructions, beginning with subject questions and then turning to non-subject questions.

15.5.1 Subject questions

Consider the following pairs of sentences, where (10a) and (11a) illustrate declarative clauses, and (10b) and (11b) represent their interrogative analogues with the non-human variant of the *wh*-element.

- (10) a. ugviə g-a-s:-ó uð₃
 CLg.bird SM.CL-RTC-eat-PFV CLg.worm
 ‘A bird ate a worm.’
 b. ηwándák:i g-é-s:-ó uð₃?
 what.CLg SM.CLg-DPC1-hit-PFV CLg.worm
 ‘What ate a worm?’
- (11) a. jánjála j-a-t:w-ó
 CLj.sheep SM.CLj-RTC-get.lost-PFV
 ‘The sheep got lost’
 b. ηwándál:i l-é-t:w-ó?
 what.CLl SM.CLl-DPC1-get lost-PFV
 ‘What (plural) got lost?’

These ex-situ questions are the only allowable means for forming a subject question: no in-situ subject question strategy is available. Note that for the interrogatives in (10b) and (11b), the verbal prefix *é-*, glossed as DEPENDENT CLAUSE 1 (DPC1), is observed, as opposed to the *a-* verbal prefix seen in the declaratives in (10a) and (11a). The wh-expression *ηwándák:i* ‘what’, which appears in clause-initial position in (10b) can be decomposed into the prefix *ηwá-*, the word *wánde* ‘what’, and the demonstrative *-ík:i*. Note, however, that the vowel /a/ of *wánde* has been raised to [ɜ]. Typically, *-ík:i* does not trigger vowel raising on a root. The occurrence of vowel harmony in this case, however, serves as an indication that the word has become lexicalized. (Height harmony in Moro raises /e a o/ to [i ɜ u] respectively.) The [i] of the demonstrative regularly fuses with the final vowel of the stem (Strabone and Rose 2012), and in this case is reduced to [ə]. The word *ηwándál:i* in (11b) is the plural form of ‘what’; plurality is expressed by the noun class of the demonstrative *-íl:i* and the noun class subject agreement on the verb. The sentences below illustrate a declarative sentence and a corresponding subject wh-question containing the human wh-question form ‘who’ *ηwádžák:i*.

- (12) a. ηerá η-a-s:-a-t-ə-jé átfəváj
 CLj.child SM.CLj-RTC-eat-LOC.APPL-PFV-1SGOM CLg.food
 ‘A girl ate my food.’
 b. ηwádžák:i g-é-s:-a-t-ə-jé átfəváj?
 CLg.who SM.CLg-DPC1-eat-LOC.APPL-PFV-1SGOM CLg.food
 ‘Who ate my food?’

The word *ηwádžák:i* in (12b) is composed of *ádž* ‘who’, the prefix *ηwá-* (which is responsible for the first high tone on *-ádž-*), and the demonstrative *-ík:i*. The

same basic ex-situ question strategy obtains for phrasal wh-questions involving ‘which’ and ‘whose’, where the *ɲwǎ-* element can be seen marking a lexical noun, without a co-occurring demonstrative (13a-b). In each question, the verb form contains the dependent clause *é-* prefix on the verb, in this case raised to [í] due to vowel harmony.

- (13) a. *ɲwǎ-ɲerá [ɲɲwerá] ɲ-ǎŋga ɲ-í-túnd-3?*
 clf-CL_ɲ.girl CL_ɲ-which SM.CL_ɲ-DPC1-cough-IPFV
 ‘Which girl is coughing?’
 b. *ɲwǎ-ɲerá ɲ-ǎ(n)ɖɜ ɲ-í-túnd-3?*
 clf-CL_ɲ.girl CL_ɲ-who SM.CL_ɲ-DPC1-cough-IPFV
 ‘Whose girl is coughing?’

In sum, irrespective of the structural status of the wh-element as head of an NP or modifier, subject wh-phrases obligatorily appear ex-situ. For modified wh-phrases, the question word may appear with a prefix *ɲwǎ-* in one variant or with a demonstrative suffix in another, but the verb is always marked by a dependent clause prefix *é-*.

15.5.2 Non-subject questions

We have already seen how objects and adverbials behave in in-situ question formation. In this section we examine the varieties of non-subject wh-questions that also permit ex-situ wh-constructions.

15.5.2.1 Object questions

Object ex-situ question words appear in clause-initial position. Wh-phrases in this position are prefixed with *ɲwǎ-* and suffixed with the demonstrative *-ík:i*. While they share these characteristics with subject questions, two additional properties are unique to non-subject questions: 1) a prefix *ǎ-* between the subject class marker and the verb root, and 2) an optional complementizer *nǎ-* on the subject, verb, or both (see section 5.3 for further analysis). We take the prefix *ǎ-* to be a second type of dependent clause marker (DPC2), used for non-subject wh-question constructions, alternating with *é-* which marks subject questions (see section 4.4 for further discussion of these prefixes). The prefix *ǎ-* marks non-subject wh-questions, rather than objects, since verbs occurring with adverbial question words also show the same prefix. In each of the examples below, an in-situ question is contrasted with the ex-situ version (those in (14) are repeated from (1b,c)):

- (14) a. kúku g-a-s:-ó wánde?
 CLg.Kuku SM.CLg-RTC-eat-PFV CLg.what
 ‘What did Kuku eat?’
 b. ηwánda:k:i (ná-)kúku (ná-)g-á-s:-ó?
 what.CLg (COMP-)Kuku (COMP-)SM.CLg-DPC2-eat-PFV
 ‘What did Kuku eat?’

The in-situ question has the root clause prefix *a-* on the verb, whereas the ex-situ question has the prefix *á-*. In addition, the subject and the verb in the ex-situ question are optionally marked with the particle *ná-* in (14b). The wh-word *wánde* ‘what’ occurs in the in-situ question, but is additionally marked with *ηwá-* and with the demonstrative pronoun in the ex-situ question. Although we have argued that it is morphologically complex, we gloss *ηwánda:k:i* here as ‘what’, only indicating its noun class, for ease of exposition.

15.5.2.2 Adverbial wh-questions

The adverbial question words ‘when’, ‘where’, ‘how’, and ‘why’ can also occur in ex-situ constructions. The word ‘when’ may or may not be preceded by *ηwá-*, the cleft element. However, irrespective of the presence of *ηwá-* the non-subject dependent clause prefix *á-* appears on the verb (except if the verb stem is vowel-initial), and *ná-* optionally occurs on the subject and verb.

- (15) a. óp:ó g-a-vədað-ó egea ηópéa ndón?
 CLg.grandmother SM.CLg-RTC-clean-PFV CLg.house well when?
 ‘When did Grandmother clean the house thoroughly?’
 b. (ηwá-)ndón (n-)óp:ó (ná-)g-á-vədað-ó
 CLf-when (COMP-)CLg.grandmother (COMP-)SM.CLg-DPC2-clean-PFV
 egea ηópéa?
 CLg.house well?
 ‘When did Grandmother clean the house thoroughly?’

As for the locative adverbial question element ‘where’, it can also appear in ex-situ position. If it does, the cleft element *ηwá-* is obligatory, and it is accompanied by all of the concomitant characteristics of ex-situ questions (*ηwá-ηga*=[ηήgwa])

- (16) a. k-af:-ó egea ηgá?
 SM.CLg-build-PFV CLg.house where
 ‘Where did s/he build the house?’

- b. $\eta\eta\text{gwa}$ (n-) $\text{g-}\acute{\text{a}}\text{f-}\acute{\text{o}}\text{-u}$ egea?
 CLf.where (COMP-)SM.CLg-build-PFV-loc CLg.house
 'Where did s/he build the house?'

Ex-situ questions with the manner adverbial constituents 'how' also appear with an obligatory $\eta w\acute{\text{a}}\text{-}$ marker prefixed to a shorter version of $\acute{\text{d}}\acute{\text{a}}\text{t}\acute{\text{a}}\text{o}$, the form that appears in in-situ questions. Note that the complementizer $n\acute{\text{a}}\text{-}$ does not appear in this example due to a phonological constraint against /n(ə)-l/ sequences (Gibbard et al. 2009; Jenks 2013).

- (17) a. $\text{l}\acute{\text{a}}\text{d}\text{z}\acute{\text{i}}$ l-a-dat-toga $\text{t-}\acute{\text{o}}$ egea $\acute{\text{d}}\acute{\text{a}}\text{t}\acute{\text{a}}\text{o}$
 CLl.person SM.CLl-ITER-repair-PFV CLg.house how
 'How did the people repair the house?'
 b. $\eta w\acute{\text{a}}\text{-t}\acute{\text{a}}\text{o}$ $\text{l}\acute{\text{a}}\text{d}\text{z}\acute{\text{i}}$ l- $\acute{\text{a}}$ -dat-toga $\text{t-}\acute{\text{o}}$ egea?
 CLf-how CLl.person SM.CLl-DPC2-ITER-repair-PFV CLg.house
 'How did the people repair the house?'

As for interrogatives requesting causal explanations with 'why', these may be formed as ex-situ structures, but there is no occurrence of $\eta w\acute{\text{a}}\text{-}$. In 'why' questions, the verb displays the typical ex-situ form with the dependent clause prefix $\acute{\text{a}}\text{-}$, while the subject and verb can optionally host a $n\acute{\text{a}}\text{-}$ element.

- (18) a. $\acute{\text{o}}\text{w}:\acute{\text{a}}$ g-o $\acute{\text{a}}\text{s-a}$ ndr $\acute{\text{e}}\check{\text{d}}$ e $\acute{\text{d}}\acute{\text{a}}$ $\eta\text{́}\text{n}\text{́}\text{í}\text{ń}\eta\text{́}\text{í}?$
 CLg.woman SM.CLg-wash-IPFV CLn.clothes why today
 Why is the woman/wife washing clothes today?
 b. e $\acute{\text{d}}\acute{\text{a}}$ (n-)o $\acute{\text{w}}:\acute{\text{a}}$ (n-) $\text{g-o}\acute{\text{a}}\text{s-a}$ ndr $\acute{\text{e}}\check{\text{d}}$
 why (COMP-)CLg.woman (COMP-)SM.CLg-wash-IPFV CLn.clothes
 $\eta\text{́}\text{n}\text{́}\text{í}\text{ń}\eta\text{́}\text{í}?$
 today
 'Why is the woman/wife washing clothes today?'

To review, there is variability among adverbial wh-elements concerning the occurrence of the $\eta w\acute{\text{a}}\text{-}$ marker. It is obligatory with 'where' and 'how', optional with 'when' and disallowed with 'why'. Furthermore, none of the adverbials bear the demonstrative $\text{-}\acute{\text{i}}\text{k}:\text{i}$ found with nominals. Nevertheless, these constituent interrogatives display the same dependent clause marker $\acute{\text{a}}\text{-}$ and optional $n\acute{\text{a}}\text{-}$ marking. The following chart summarizes the forms of ex-situ wh-words:

Table 15.2: Ex-situ wh-words

	Singular	Plural
what	ɲwʰndák:i	ɲwʰndól:i
who	ɲwʰɖʒák:i	ɲwʰɖʒándól:i
which	ɲwʰ-N gán̄ga	ɲwʰ-N lán̄ga
whose	ɲwʰ-N gɜ(n)ɖʒ	ɲwʰ-N lɜ(n)ɖʒ
where	ɲ́gwa	n/a
when	(ɲwʰ-) <i>ndón̄</i>	n/a
why	eḏá	n/a
how	ɲwʰtáo	n/a

15.5.3 Properties specific to non-subject filler-gap constructions

This section presents more detailed descriptions of three properties which are characteristic of ex-situ wh-questions from non-subject positions. These properties also occur in non-subject relative clauses and clefts, solidifying the relationship between the three constructions. Section 5.1 addresses morphological properties of subject-verb agreement in these clauses which distinguishes them from main clauses. In Section 5.2 the distribution of resumptive pronouns is reviewed, and Section 5.3 presents evidence that the proclitic *ná-*, which occurs optionally before subjects and verbs in these clauses, is a complementizer.

15.5.3.1 Subject agreement and verb prefixes

When non-subject relatives and ex-situ wh-questions have 3rd person subjects, the verb exhibits noun class agreement followed by the prefix *á-*. When the subject of a main clause declarative is 1st or 2nd person a fixed person/number marker is followed by a default class marker *g-* (33a, 34a). However, in ex-situ non-subject questions, 1st and 2nd person subject agreement does not occur with the *g-* class prefix, and there is no evidence for the presence of the dependent clause prefix *á-* either (33b, 34b):

- (19) a. á-g-a-wəndaɬ-ó nálánpá
 2SGSM-CLg-RTC-see-PFV CLn.red ant
 ‘You saw the red ants.’

- b. $\eta w\acute{a}nd\acute{a}k:i$ (n-)á-wəndaɬ-ó?
 CLg.what (COMP-)2SGSM-see-PFV
 'What did you see?'
- (20) a. $\eta\acute{a}-g-a-v\acute{a}d\acute{a}\acute{o}-a$ $\acute{a}dn\acute{a}-g\acute{a}$
 2PLSM-CLg-RTC-clean-IPFV CLg.young mother-CLg.INST
 'You (all) are cleaning with the young woman.'
- b. $\eta w\acute{a}\acute{d}\acute{g}\acute{z}k:i$ (ná-) $\eta\acute{a}-v\acute{a}d\acute{a}\acute{o}-a$ $l\acute{o}k:a?$
 CLg.who (COMP-)2PLSM-clean-IPFV together(dual)
 'Who are you (all) cleaning with?'

It is not immediately clear if the dependent clause \acute{a} - prefix is morphologically absent in these forms or deleted due to vowel hiatus resolution. Since all non-3rd person subject marker prefixes end in a vowel, the absence of the default class marker g - leads to vowel hiatus. Although usually the first of two vowels is deleted in vowel hiatus in Moro, if a schwa is one of the vowels, schwa is preferentially deleted. Thus, /á-á-wəndaɬ-ó/ would reduce to [áwəndaɬó] (cf. 33b). The only clue as to the presence of \acute{a} - might be the preservation of its tone. The high tone cannot migrate leftwards as the subject prefix is high-toned already, but it also fails to appear on the first vowel of the root: *[áwəndaɬó]. This indicates that the \acute{a} - prefix is not morphologically present in these forms. The same pattern of prefixation occurs with other non-subject ex-situ questions:

- (21) $\eta w\acute{a}-\acute{t}\acute{a}o$ (n)-áf:-ó $egea?$
 CLf-how (COMP-)2SGSM.build-PFV CLg.house
 'How did you build the house?'

This subject agreement pattern also occurs in clefts (36a) and relative clauses (36b):

- (22) a. $\eta w-\acute{u}m:i\acute{a}-k:i$ (n)-é-wəndaɬ-ó
 CLf-boy-CLg.DEM (COMP-)1SGSM-see-PFV
 'It is the boy that I saw'
 $um:i\acute{a}-k:i$ (n)-é-wəndaɬ-ó $k-\acute{z}-s:-i\acute{a}$
 boy-CLg.DEM (COMP-)1SGSM-see-PFV SM.CLg-RTC-eat-CAUS.IPFV
 $j\acute{a}\eta\acute{a}la$
 CLj.sheep
 'The boy I saw is grazing sheep'

Consequently, the absence of the dependent clause prefix and default class

agreement prefix with 1st and 2nd subjects is one more way that non-subject clefts, relative clauses and ex-situ questions pattern alike.

15.5.4 Resumptive markers in ex-situ object constructions

Another characteristic of non-subject ex-situ questions is resumptive pronouns. Cross-linguistically, resumptive marking is expressed by several different, functionally equivalent, encoding strategies, e.g., independent pronouns, clitics, affixes or other verbal marking (Ariel 1999; Sharvit 1999; Falk, 2002; de Vries 2005; Marten et al. 2007). In Moro, pronominal object markers appear on the verb. In declarative root clauses, object markers cannot co-occur with the lexical NPs with which they co-refer; this also holds for in-situ wh-questions. The fact that object markers can occur in ex-situ wh-questions and clefts thus provides further support (see Section 4.2) that these constructions are biclausal, consisting of a cleft element and a dependent clause.

The person and number features on object markers in Moro reflect the same person and number features which are marked in Moro pronouns and subject agreement, including inclusive/exclusive 1st plural and dual forms. Their distribution is complex and correlates with tone (Rose 2013). Here we illustrate only the third person singular forms.

The pattern of object marking with ex-situ object questions parallels pronominal object marking more generally: a resumptive third person singular pronoun occurs with human objects (37b), but not with non-human singulars (37a).

- (23) a. $\eta w\acute{a}nd\acute{a}k:i$ (n-)úm:iə (ná-)g-ə-ləvəʃ-ó?
 CLg.what (COMP-)CLg.boy (COMP-)SM.CLg-DPC2-hide-PFV
 ‘What did the boy hide?’
 b. $\eta w\acute{a}d\acute{z}k:i$ (n-)úm:iə (ná-)g-ə-ləvəʃ-ó-ŋó?
 CLg.who (COMP-)CLg.boy (COMP-)SM.CLg-DPC2-hide-PFV-3SGOM
 Who did the boy hide?

The 3pl object marker *-lo* is used with plural objects regardless of animacy or human status. In (38a), the plural form of the cleft wh-word appears, and *-lo* occurs on the verb.

- (24) a. $\eta w\acute{a}nd\acute{a}l:i$ (ná-)kúku (ná-)g-ə-ʔað-ó-lo?
 CLl.what (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV-3PLOM
 ‘What (pl.) did Kuku leave?’

- b. $\eta w\acute{a}d\acute{z}l\acute{a}nd\acute{a}l:i$ (ná-)kúku (ná-)g-ə-ṭaḏ-ó-lo?
 CL.who (COMP-)Kuku (COMP-)SM.CLg-DPC2-leave-PFV-3P.LOM
 ‘Who (pl.) did Kuku leave?’

Object questions with ‘which’ and ‘whose’ show a similar pattern. Resumptive pronouns occur with extracted plurals regardless of animacy or humanness, and resumptive pronouns can occur with singular wh-phrases, but are optional (39c):

- (25) a. $\eta w-\acute{d}o\acute{a}la$ ḏ-aŋga (ná-)kúku
 CLf-CLḏ.livestock CLḏ-which (COMP-)Kuku
 (ná-)g-ə-ṭaḏ-ó?
 (COMP-)SM.CLg-DPC2-leave-PFV
 ‘Which livestock did Kuku leave behind?’
 b. $\eta w-íri\acute{a}$ j-aŋga ná-kúku
 CLf-CLj.cows CLj-which (COMP-)Kuku
 (ná-)g-ə-ṭaḏ-ə-lo?
 (COMP-)SM.CLg-DPC2-leave-PFV-3P.LOM
 ‘Which cows did Kuku leave behind?’
 c. $\eta w-\acute{u}m:i\acute{a}$ g-aŋga (ná-)kúku
 CLf-CLg.boy CLg-which (COMP-)Kuku
 (ná-)g-ə-ṭaḏ-ó-(ṇó)?
 (COMP-)SM.CLg-DPC2-leave-PFV(-3SGOM)
 ‘Which boy did Kuku leave behind?’

The distribution of plural resumptive pronouns in clefts and relative clauses is the same as for ex-situ questions: they are required in all three constructions. However, there are some differences with respect to singular resumptive pronouns. In all three constructions, singular resumptive pronouns refer only to humans. In ex-situ questions, resumptive pronouns are optional with human objects in general. In relative clauses, singular resumptive pronouns are restricted to proper names. In clefts singular resumptive pronouns occur with proper names and independent pronouns. Despite these specific restrictions, the occurrence of resumptive pronouns in all three filler-gap constructions provides further evidence for biclausality as object pronouns are elsewhere prohibited with clausemate lexical NPs.

15.5.5 The prefix ná-

The last aspect of non-subject wh-constructions that requires further analysis is the use of the particle *ná*-, which can appear optionally at various positions

within the filler-gap domain. To establish the role of *ná-* in dependent clauses, we compare its distribution with that of the complementizer *tá*, and conclude that *ná-*, too, is a complementizer.

The particle *ná-* appears optionally on the subject and/or the verb. It can also appear on the clause-level adverb *báté* ‘never’ for two out of the three speakers consulted, but Angelo Naser, who rejects this, prefers *báté* to appear sentence finally. Example (14b), repeated here as (40), shows the particle appearing on the subject and the verb. Example (41b) shows the particle on the adverb ‘never’ as well.

- (26) $\eta w\acute{3}nd\acute{a}k:i$ (*ná-*)*kúku* (*ná-*)*g-á-s:-ó?*
 CLg.what (COMP-)CLg.Kuku (COMP-)-SM.CLg-DPC2-eat-PFV
 ‘What did Kuku eat?’
- (27) a. *báté ná-g-!án:-a ná-bəlw-a kúku-ga*
 never 1PLEXC.SM-CLg.RTC-NEG-IPFV 1PLEXC.SM-wrestle-INF Kuku-INST
 ‘We never wrestle with Kuku.’
- b. $\eta w\acute{3}dz\acute{3}ki$ (*ná-*)*báté* (*ná-*)*ŋ-án:-a*
 who (COMP-)never (comp)-2PLSM-NEG-IPFV-sub
 (*ná-*)*ŋá-bəlw-á lók:a?*
 (comp)-2PLSM-wrestle-INF together(dual)
 ‘Who do you never wrestle with?’

First, consider the distribution of *ná-* in a variety of constructions. It appears not only in non-subject filler-gap constructions as in (41), but also in complement clauses, i.e. clauses with *a-* and *á-* clause markers, as discussed in section 4.4. Depending on the verb, such clauses permit the *ná-* complementizer or else require the *tá* complementizer. The particles *ná-* and *tá* never co-occur. In addition, dependent clauses in which the *tá* complementizer never appears are likewise places in which *ná-* is unattested: subject filler-gap constructions (wh-questions, clefts, and relative clauses), as well as for the complement clauses and adjunct clauses illustrated in section 4.4.

Second, *ná-* has a similar distribution in clefts and in dependent clauses (non-subject filler-gap constructions, adjunct clauses, and in the complement clause of ‘refuse’). In both cases, it occurs as a proclitic on the subject or the verb. Furthermore, it is optional.

Third, if a non-subject element of a dependent clause is questioned with a wh-cleft, the *ná-* can appear in the dependent clause, but only in limited circumstances: i) in complements that are normally marked with *a-* in declaratives and

ii) if there is no other complementizer present in the dependent clause. Otherwise, the verb morphology associated with an ex-situ question appears only on the verb of the main clause. In (42), the main clause verb *n*: ‘hear’ (in the sense of informed) selects a complement clause with *tá* and a verb that is prefixed with root clause *a*- ([ɜ] due to vowel harmony). In the wh-cleft question in (43), the *ná*- appears only on the main verb, not on the dependent clause. The main verb bears the verb morphology of an ex-situ non-subject question: it lacks the default class marker *g*- and the *á*- (see section 5.1). The lower verb is unaltered morphologically, except for the fact that it bears a resumptive pronoun *-ŋó*.

- (28) a. *é-g-a-n:-ó tá kúku g-3-bəg-ú bitər(-o)?*
 1SGSM-CLg-hear-PFV COMP CLg.Kuku SM.CLg-RTC-hit-PFV Peter(-oc)
 ‘I heard that Kuku hit Peter’
- b. *ŋwádǵák:i (n-)á-n:-ó tá kúku*
 CLg.who (COMP-)2SGSM-hear-PFV COMP CLg.Kuku
g-3-bəg-ó-ŋó?
 SM.CLg-RTC-hit-PFV-3SGOM
 ‘Who did you hear that Kuku hit?’

In contrast, the verb *aṭ* ‘think’, does not select a complement clause with *tá* (43). In this case, when the object is questioned, the embedded verb is marked with DPC2 and *ná*- marking can appear in both the matrix and subordinate clauses, as shown in (44).

- (29) *nána g-aṭ-a bitər g-a-s:-ó ləbəmbáj*
 mama SM.CLg-think-IPFV Peter SM.CLg-RTC-eat-PFV CLl.yam
 ‘Mama thinks that Peter ate a yam’
- (30) *ŋwándák:i (ná-)nána (ná-)g-aṭ-a bitər*
 what (COMP-)mama (COMP-)SM.CLg-think-IPFV Peter
(ná-)g-á-s:-ó
 (COMP-)SM.CLg-DPC2-eat-PFV
 ‘What did Mama think that Peter ate?’

All these factors point to an analysis of *ná*- as a complementizer. It typically co-occurs with *á*- in a variety of constructions, not just those that exhibit filler-gap relationships. The *ná*- is obligatory when the verb is in the infinitive form (with alternate subject marking), but is otherwise optional, and when optional can appear cliticized on either the subject (as the first element in the clause) or the verb or both. Furthermore, it cannot co-occur with another complementizer.

Its phonological form is that of a clitic. Moro does not allow words that end in [ə], and so all consonant-only or Cə morphemes cannot be free. In contrast the complementizer *tá* can occur as a separate functional word, as can the quotative complementizer *ma*.

15.5.6 How

15.6 Conditional constructions

16 Imperatives

Thetogovela Moro has two kinds of imperatives, the proximal/itive imperative and the distal/ventive imperative. The proximal imperative is used for actions that are near to the speaker, or indicate motion away from the speaker. The distal/ventive is used for actions that are far away from the speaker or indicate motion towards the speaker. It can also be used to indicate emotional distance or uninvolvedness in the action. We will use the terms ‘proximal’ and ‘distal’ to refer to these forms from now on. See section X for more discussion of the distinction. The proximal form is more common than the distal, and is the form used when location or motion is unexpressed. This type of ‘deictic’ distinction is also found in the imperfective, and in some of the subordinate constructions (infinitives, consecutive perfective), but not in the main clause perfective. See XXX for details. The distinction is found in other Kordofanian languages such as Koalib (Quint 2006) where it is labeled centripetal/centrifugal, as well as Nilo-Saharan languages, particularly Nilotic languages (Dimmendaal 2003).

The two forms are differentiated by the final vowel and by the tone pattern:

- | | | |
|-----|---------------|------------------------------|
| (1) | vələ́ð-ó | vələð-a |
| | pull-PROX.IMP | pull-DIST.IMP |
| | “pull!” | “pull (from there to here)!” |

16.0.1 Proximal imperative

The proximal imperative is formed from the verb root and a final suffix –ó. All tone-bearing units in the verb root bear high tone:

- (2) Consonant-initial verb roots
- | | |
|----------|----------|
| vələ́ð-ó | “pull!” |
| tə́ŋaṭ-ó | “lick!” |
| pə́gə́ðó | “pay!” |
| váð-ó | “shave!” |
| gə́ŋ-ó | “kill!” |
| lánd-ó | “close!” |

16 Imperatives

(3) Vowel-initial verb roots

ábər-ó	“fly!”
ódəp-ó	“squat!”
ámádát-ó	“help!”
ár-ó	“cry!”
áp-ó	“carry, pick up!”

Verb roots with high vowels /i ɜ u/ and some /ə/, cause the final suffix to be realized as raised [ú]:

(4) High vowel roots

sǝð-ú	“defecate!”
kíð-ú	“open!”
íð-ú	“make!”
dər-ú	“stop, stand!”
túnd-ú	“cough!”
ʒŋʒf-ú	show!”
ílíð-ú	“buy!”
ʒwút-ú	“throw!”
mǝpʒf-ú	“peel, remove layer!”

Verb roots consisting only of a consonant show two strategies for forming the imperative. Sonorant-initial roots have a geminate consonant, with the first half of the geminate functioning as the first tone-bearing syllable. Obstruent-initial roots have an epenthetic [ə] preceding the root in the imperative:

(5) C roots

m-ó	“take, marry!”
ɾ-ó	“kick (once), pound, stab!”
s-ó	“eat!”
əp-ú	“beat!”
t-ú	“drink!”

Verb roots that begin with a diphthong [oa] (or [wa]) have reduction of the diphthong to [a] in the imperative:

(6) Diphthong-initial roots

ás-ó	“wash!”	cf.	k-oása	“he is washing”
áð-ó	“grind!”		k-oaða	“he is grinding flour”
ár-ó	“curse, badmouth!”		k-oara	“he is cursing”
ándət-ó	“dry!”		k-oándəta	“it is drying”

Some verb roots begin with [wə] sequences when prefixed, but in the imperatives this sequence is realized as [u] instead:

úr-ú “dig!” cf. kəwə́rə́ “he is digging”

úd-ú “fry!” kəwə́də́ “he is frying”

The verb kavə́lá ‘to go’ has a suppletive form of the imperative: mbú.

16.0.2 Distal imperative

The distal imperative is formed from the verb root and the suffix *-a*. This vowel is raised to [ɜ] when attached to roots with high vowels. The verb form is low-toned:

- (7)
- | | |
|---------|-------------------|
| vəleð-a | “pull!” |
| gəp-a | “kill!” |
| land-a | “close!” |
| abərw-a | “fly!” |
| ap-a | “carry, pick up!” |
| kið-ɜ | “open!” |
| ilið-ɜ | “buy!” |
| ɜwut-ɜ | “throw!” |
| əs-a | “eat!” |
| əp-ɜ | “beat!” |
| að-a | “grind!” |
| ur-ɜ | “dig!” |

However, when followed by a noun phrase, an object marker, or a locative or instrumental marker, the final suffix vowel has high tone:

A similar pattern is found with (proximal) imperfective verbs that are low-toned in utterance final position.

16.0.3 Plural

The imperative plural is expressed by the addition of the suffix *-r*. This is added to both the proximal and distal imperatives:

16.0.4 Use of the imperatives

SAY MORE on the distal/proximal distinction

Part IV

Expressive and social language

17 Ideophones

Introduction here

17.1 SECTION NAME HERE

Section intro here.

17.1.1 Locative *n-*

Below is from noun section.

There is another locative prefix *n-*. In general, Moro employs postpositions rather than prepositions. The two locative prefixes (*é-* and *n-*) resemble prepositions in their syntactic usage, but must appear attached to nouns. It is also possible to analyze them as case markers. The general meaning of the locative *n-* is ‘on’, but it can also convey other senses such as ‘off, from, over’.

- (1) a. *é-g-a-daŋ-ó n-deté*
I-SAT ON-BRANCH
‘I sat on the branch’
- b. *loandra lamurkú n-ajn*
rock rolled on-hill
the rock rolled down the hill
- c. *k-aŋg-aŋ-ó n-ɔlbɔmbəriə*
cl-?-loc.appl-pfv on-stool
‘he moved off the stool’?? 6/16/2011
- d. *lamurəɖɔŋi n-aléta*
rock rolled on-hill
‘he passed it over the wall’

To determine: is this prefix /n/ or /nə-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

17.1.2 Subsection 2 here

tions in their syntactic usage, but must appear attached to nouns. It is also possible to analyze them as case markers. The general meaning of the locative *n-* is ‘on’, but it can also convey other senses such as ‘off, from, over’.

- (2) é-g-a-daŋ-ó *n-deté*
 I-SAt ON-BRANCH
 ‘I sat on the branch’

To determine: is this prefix /*n*/ or /*nə*-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

17.2 Section 2 here

tions in their syntactic usage, but must appear attached to nouns. It is also possible to analyze them as case markers. The general meaning of the locative *n-* is ‘on’, but it can also convey other senses such as ‘off, from, over’.

- (3) é-g-a-daŋ-ó *n-deté*
 I-SAt ON-BRANCH
 ‘I sat on the branch’
- (4) loandra ɭmurkú *n-ajn*
 rock rolled on-hill
 the rock rolled down the hill

To determine: is this prefix /*n*/ or /*nə*-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

18 Greetings and Expressions

When people meet, there are a number of greetings that are employed. One must ask about a person's children and family.

úləlítano

morning (the word for morning used as a greeting in the morning)

ηότáú

hello, how are you? (used as a general greeting)

ɲunɣətɪə

I am fine (WHAT verb is this?)

ǵáo ηopea

it is good/well

égaó məna

I am not right (in health)

a^ɣáo mən:aŋ

you are not right (in health)

ǵáo ηopea

be well! (sit well) CHECK

ani ɲágaŋərə?

how are you (all)?

ɲágaŋərə

we are fine

ani ɲerá ɲaŋərə?

how are the children?

18 Greetings and Expressions

nátu t̥iə naŋərá

they are fine

ani naŋərá t̥om éŋəŋe

are yours fine too?

ɖuliə kadó t̥áú

Julia, how is she?

kátu t̥iə

she is fine

18.0.1 Interjections and exclamations

nda no

la no (from Arabic)

ai yes

ów:a kap:ó lórná ?

did the woman pick up the basket?

ai, kap:ó lórná

yes, she picked up the basket

la, ów:a kan:a áŋəpa lórná kap:ó ləbúŋwá

no, the woman did not pick up the basket, she picked up the waterpot

wəj

woah! this is an exclamation of surprise, distaste

wəj, ekegəŋe

woah, the bitterness (what a bad thing!)

6/26/2013

18.0.1.1 árrá

18.1 sec:ch21:vocative

This is used to attract attention or to point something out, like ‘hey’ in English.
The focus of attention is marked with a final -u or -w.

árrá kúkə-w

behold Kuku or hey, look at Kuku!

6/26/2013

árrá íŋɲé-w ɲ-erɬ-ó ɪrɪə joaɲa
hey 1SG.PRO-EMPH 1SG.SM-have-PFV CLj.cow CLj.many
Hey, as for me, I have so many cows!
pi

exclamation of surprise

3t:iə

‘is that so?’

19 Texts

This chapter provides glossed texts of narratives and conversations.

19.1 TEXT: Conversation about speaking Arabic and traveling home to the Nuba Mountains

This conversation took place between EJ and IE.

- (1) jala doata malak
1pl speak why
'Let's talk. Why? (Ar.)
- (2) wej eḷ-g-a-doal-taḷ ÅÅā agana a-doat-a
excl 1sg-clg-rtc-speak-impf 2sgprn 2sgS-clg-neg-impf 2sgS-speak-inf
eḏa
why
'hey, I am talking. You, you are not talking. Why?
- a. eḷ-g-a-da-oḷ n-deteḷ
I-SAT ON-BRANCH
'I sat on the branch'
- b. loandra lēmurkuḷ n-ajna
rock rolled on-hill
the rock rolled down the hill
- c. k-aÅg-atī-a-oḷ n-êl bēmbērī
cl-?-loc.appl-pfv on-stool
'he moved off the stool'?? 6/16/2011
- d. kēmuē¾ēēēēšil n-aleḷtīa
rock rolled on-hill
'he passed it over the wall'

To determine: is this prefix /n/ or /nÉ-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

19.1.1 Subsection 2 here

tions in their syntactic usage, but must appear attached to nouns. It is also possible to analyze them as case markers. The general meaning of the locative *n-* is ‘on’, but it can also convey other senses such as ‘off, from, over’.

- (3) eĩ-g-a-da-ol n-deteĩ
 I-SAt ON-BRANCH
 ‘I sat on the branch’

To determine: is this prefix /n/ or /nÉ-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

19.2 Section 2 here

tions in their syntactic usage, but must appear attached to nouns. It is also possible to analyze them as case markers. The general meaning of the locative *n-* is ‘on’, but it can also convey other senses such as ‘off, from, over’.

- (4) eĩ-g-a-da-ol n-deteĩ
 I-SAt ON-BRANCH
 ‘I sat on the branch’
- (5) loandra lÉmurku n-ajn
 rock rolled on-hill
 the rock rolled down the hill

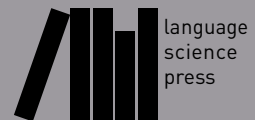
To determine: is this prefix /n/ or /nÉ-/?

Allomorphs when attaching to coronal-initial roots in Thetegovela? Clear differences in Werria here.

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