

THE PHONOLOGY AND MORPHOLOGY OF KUBEO: THE DOCUMENTATION,
THEORY, AND DESCRIPTION OF AN AMAZONIAN LANGUAGE

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By

Thiago Costa Chacon

Dissertation Committee:

Lyle Campbell

Kenneth Rehg

Robert Blust

Patience Epps

Elsa Gomez-Imbert

Terry Hunt

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*yo pamiene bueitukubore,
himakĩ Caetanore,
ĩi bohe,
toiwawĩ yĩ*

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ABSTRACT

This dissertation offers a detailed account of the phonology, morphophonology and elements of the morphosyntax of Kubeo, a language from the Eastern Tukanoan family, spoken in the Northwest Amazon. The dissertation is itself an experiment of how language documentation and empowering of the native speaker community can be combined with academic linguistics. Kubeo has numerous elements of great theoretical interest, such as nasal harmony, tone and stress, complex morphophonology, noun classes and noun classifiers, evidentiality, interlocking system of lexical aspect and tense, etc. The goal of this dissertation is to present data with as much detail, transparency and information as possible, aligned with a high analytical concern to account and search for explanations of the complex and fascinating aspects of the language in different foundations of modern Linguistics, such as by exploring different theoretical proposals and typological generalizations, using historical and comparative approaches and applying acoustic analysis in critical phonological issues.

TABLE OF CONTENTS

DEDICATION.....	iii
ACKNOWLEDGEMENTS.....	iv
ABSTRACT.....	v
SUMMARY OF CHAPTERS.....	vi
INDEX.....	ix
LIST OF TABLES.....	xiv
LIST OF FIGURES.....	xvii
LIST OF MAPS.....	xviii
LIST OF ABBREVIATIONS.....	xix
REFERENCES.....	368

SUMMARY OF CHAPTERS

PART I – INTRODUCTION

1. Introduction.....	1
1.1 The Kubeo people.....	1
1.2 Kubeo Language.....	5
1.3 Documentation of Kubeo.....	10
1.4 This Dissertation.....	12
1.5 The scope of this dissertation and future work.....	14

PART II – SEGMENTAL PHONOLOGY

2. Segmental Phonology.....	16
2.1 Vowels.....	19
2.2. Consonants.....	53
2.3 Scope of Phonological Segmental Rules.....	80

PART III – PROSODY

3. Nasality.....	81
3.1 Distribution of Nasality.....	82

3.2 Nasal Harmony.....	86
3.3 Nasality as an auto-segment.....	100
3.4 The evolution of nasality in Kubeo and related languages.....	103
3.5 Further Theoretical considerations about nasality.....	105
4. Stress and Tones.....	108
4.1 Stress.....	111
4.2 Tones.....	134
4.3 Phonetics of Stress and Tones.....	155
4.4 Derivation of Stress and Tone.....	160
5. The Syllable.....	163
5.1 Syllable Structure.....	163
5.2 The status of syllables in the underlying representation.....	167
5.3 Syllabification.....	168
PART IV – MORPHOPHONOLOGY	
6. Morphophonology.....	173
6.1 The Word: what is a word in Kubeo?.....	173
6.2 Overview of Word Formation Processes and Types of Words.....	174
6.3 Morpheme types.....	178
6.4 Compounds.....	190
6.5 Reduplication.....	207
6.6 Complexity in Paradigmatic and Syntagmatic morphology.....	209
6.7 Derivations at the interface between Phonology and Morphology.....	210
PART V – ELEMENTS OF MORPHOSYNTAX	
7. Word Classes (Parts of Speech).....	225
7.1 Closed and open word classes.....	226
7.2 Open word classes.....	226
8. Inflection and Derivation.....	233
8.1 Nouns.....	235
8.2 Verbs.....	261
8.3 Adverbs.....	300

8.4 Adjectives.....	304
9. Closed Word Classes.....	310
9.1 Personal Pronouns.....	310
9.2 Possessives.....	314
9.3 Demonstratives.....	324
9.4 Anaphora.....	331
9.5 Alternative use 'other'.....	335
9.6 Indefinite Pronoun.....	339
9.7 Quantifiers.....	343
9.8 Question Words.....	351
10. Conclusion.....	361

INDEX

PART I – INTRODUCTION

1. Introduction.....	1
1.1 The Kubeo people.....	1
1.1.1 Society and Social History.....	1
1.1.2 Cultural Summary.....	4
1.2 Kubeo Language.....	5
1.2.1 Genetic Classification.....	5
1.2.2 Areal issues.....	7
1.2.3 Typological Summary.....	8
1.3 Documentation of Kubeo.....	10
1.4 This Dissertation.....	12
1.4.1 Data, Research and Methodology.....	12
1.4.2 Description, Theory, Typology and Diachrony.....	13
1.5 The scope of this dissertation and future work.....	14

PART II – SEGMENTAL PHONOLOGY

2. Segmental Phonology.....	16
2.1 Vowels.....	19
2.1.1 Vowel Phonotactics.....	22
2.1.1.1 Vowels and Glides.....	23
2.1.1.2 Vowel Clusters.....	28
2.1.2 Vowel processes.....	37
2.1.2.1 Assimilatory Processes.....	38
2.1.2.2 Labial Dissimilation.....	42
2.1.2.3 Stress in vowel clusters across morpheme boundaries.....	43
2.1.2.4 Identical Vowel Deletion.....	45
2.1.2.5 Distinct vowel Deletion and Distinct vowel Fussion.....	47
2.1.2.6 On-gliding.....	50
2.1.2.7 Three Vowels Sequence Resolution.....	52
2.2. Consonants.....	53
2.2.1 Consonants Phonotactics.....	56
2.2.2 Consonant Processes and Allophones.....	57

2.2.2.1 Nasalization.....	58
2.2.2.2 Lenition.....	61
2.2.2.3 The glide /w/.....	63
2.2.2.4 The glide /j/ and the approximant /ð/.....	64
2.2.2.5 The stop /d/ and the flap/tap /r/.....	71
2.2.2.6 The phoneme /h/.....	78
2.2.2.7 The palatal affricate /tʃ/.....	79
2.3 Scope of Phonological Segmental Rules.....	80
PART III – PROSODY	
3. Nasality.....	81
3.1 Distribution of Nasality.....	82
3.2 Nasal Harmony.....	86
3.2.1 Nasal Harmony in Detail.....	88
3.2.1.1 Exceptions to Nasal Harmony.....	91
3.2.2 Regressive Nasalization.....	94
3.2.3 Phonetic vs. Phonological nasality.....	97
3.3 Nasality as an auto-segment.....	100
3.3.1 Segmental rules independently from nasality.....	100
3.3.2 Floating nasality.....	101
3.4 The evolution of nasality in Kubeo and related languages.....	103
3.5 Further Theoretical considerations about nasality.....	105
4. Stress and Tones.....	108
4.1 Stress.....	111
4.1.1 General Properties of Stress.....	111
4.1.2 Metrical issues of stress.....	124
4.1.2.1 The foot in Kubeo and the direction of parsing.....	125
4.1.2.2 Parsing of words and metrical rules.....	126
4.1.2.3 Primary and Secondary stress.....	134
4.2 Tones.....	134
4.2.1 Preliminaries.....	134
4.2.2 Surface tones.....	135
4.2.3 The phonology of tones.....	137
4.2.4 The issue of roots unmarked for tones.....	150

4.3 Phonetics of Stress and Tones.....	155
4.4 Derivation of Stress and Tone.....	160
5. The Syllable.....	163
5.1 Syllable Structure.....	163
5.2 The status of syllables in the underlying representation.....	167
5.3 Syllabification.....	168
PART IV – MORPHOPHONOLOGY	
6. Morphophonology.....	173
6.1 The Word: what is a word in Kubeo?.....	173
6.2 Overview of Word Formation Processes and Types of Words.....	174
6.2.1 Structural aspects of word formation.....	174
6.2.2 Phonological aspects of word formation.....	177
6.2.3 Syntactic aspects of word formation.....	178
6.3 Morpheme types.....	178
6.3.1 Roots and Stems.....	180
6.3.2 Bound-Morphemes.....	182
6.3.2.1 Affixes versus other bound-morphemes.....	182
6.3.2.2 Phrasal-Affixes.....	185
6.3.2.3 The bound-stem.....	187
6.3.2.4 Clitics.....	188
6.4 Compounds.....	190
6.4.1 General Properties of Compounds.....	190
6.4.2 Compound Types.....	192
6.4.2.1 Genitival Compound.....	192
6.4.2.2 Determiner Compound.....	195
6.4.2.3 Attributive-Noun Compound.....	196
6.4.2.4 Noun-Attributive Compound.....	198
6.4.2.5 Appositive Compounds.....	200
6.4.2.6 Verb Compound.....	200
6.4.2.7 Noun Incorporation Compounds.....	202
6.4.2.8 “Exocentric Compounds.....	204
6.4.3 Interrelations between compounding and stem formation rules...205	
6.4.4 Compounds and Grammaticalization.....	207

6.5 Reduplication.....	207
6.6 Complexity in Paradigmatic and Syntagmatic morphology.....	209
6.7 Derivations at the interface between Phonology and Morphology.....	210
6.7.1 Prosodic Domains.....	211
6.7.1.1 Evidence for prosodic domains in Kubeo grammar.....	211
6.7.1.2 Defining Prosodic Domains in Kubeo.....	213
6.7.2 Morphophonological Levels.....	219
6.7.2.1 Lexical versus Post-lexical levels.....	220
6.7.2.2 Cyclic Level versus Post-cyclic levels.....	221
 PART V – ELEMENTS OF MORPHOSYNTAX	
7. Word Classes (Parts of Speech).....	225
7.1 Closed and open word classes.....	226
7.2 Open word classes.....	226
7.2.1 Morphological and Syntactic categories.....	227
7.2.2 Categories of the lexicon.....	229
7.2.3 Word classes: a synthesis.....	232
8. Inflection and Derivation.....	233
8.1 Nouns.....	235
8.1.1 Inherent inflection: the Noun Classification system.....	235
8.1.2 Agreement in the NP.....	238
8.1.3 Classifiers.....	242
8.1.4 Noun Derivation.....	257
8.2 Verbs.....	261
8.2.1 Verb sub-classes.....	261
8.2.1.1 Sub-classes changing derivation.....	264
8.2.2 Verb inflection.....	269
8.2.2.1 Hierarchies of verb inflection.....	274
8.2.2.2 Verbal Agreement and Principles of Alignment.....	276
8.2.3 Finiteness: Tense, Aspect, Evidentiality and Person.....	278
8.2.3.1 Tense and Evidentiality.....	278
8.2.3.2 Aspect.....	286
8.2.4 Verb class changing derivation.....	293
8.3 Adverbs.....	300
8.4 Adjectives.....	304

8.4.1 Adjective subclasses.....	307
9. Closed Word Classes.....	310
9.1 Personal Pronouns.....	310
9.2 Possessives.....	314
9.3 Demonstratives.....	324
9.4 Anaphora.....	331
9.5 Alternative and 'other'.....	335
9.6 Indefinite Pronoun.....	339
9.7 Quantifiers.....	343
9.8 Question Words.....	351
10. Conclusion.....	361

LIST OF TABLES

CHAPTER 1

<i>Table 1.1: Reconstruction of *p' in word initial position.....</i>	6
<i>Table 1.2: Reconstruction of *p' in word medial position.....</i>	6

CHAPTER 2

<i>Table 1: Kubeo Vowels.....</i>	16
<i>Table 2: Kubeo consonants.....</i>	16
<i>Table 3: Distinctive features.....</i>	3
<i>Table 4: Kubeo Vowel Clusters.....</i>	29
<i>Table 5: Sytangmatic and Paradigmatic Constraints on Vowel Clusters-1.....</i>	34
<i>Table 6: Sytangmatic and Paradigmatic Constraints on Vowel Clusters-2.....</i>	34
<i>Table 7: Diachronic origin of vowel clusters.....</i>	36
<i>Table 8: Summary of Phonological Processes affecting Vowels.....</i>	37
<i>Table 9: Suffixes with no consonantal onset.....</i>	38
<i>Table 10: distribution of consonants in different morphophonological contexts.....</i>	56
<i>Table 11: distribution of consonants and vowels within the same syllable CV.....</i>	57
<i>Table 12: Allophones of /w/.....</i>	63
<i>Table 13: Allophones of /j/.....</i>	66
<i>Table 14: Allophones of /d/.....</i>	71
<i>Table 15: *t_i correspondences.....</i>	80

CHAPTER 3

<i>Table 1: Summary of nasality Properties in Kubeo.....</i>	81
<i>Table 2: Distribution of nasality within different types of syllables.....</i>	82
<i>Table 3: Underlying Distribution of Nasality in Morphemes.....</i>	85
<i>Table 4: List of Exceptional Morphemes to nasal harmony.....</i>	92
<i>Table 5: Distinction of Phonological and Phonetic Nasalization.....</i>	97
<i>Table 6: Affixation of Copulas to the clitic =ta 'EMPHATIC FOCUS'.....</i>	102

<i>Table 7: Reconstruction of Proto-Tukanoan nasal vowels.....</i>	104
<i>Table 8: Reconstruction of Proto-Tukanoan nasal stops.....</i>	104
CHAPTER 4	
<i>Table 1: Phonetic Correlates of Stress and Tone.....</i>	109
<i>Table 2: Summary of the Phonology of Stress and Tones.....</i>	109
<i>Table 3: Ideal Rhythmic Alternation of Stress.....</i>	118
<i>Table 4: Phonetics of Stress and Tones of *L tone words.....</i>	156
<i>Table 5: Phonetics of Stress and Tones of *H tone words.....</i>	157
CHAPTER 6	
<i>Table 1: Word formation processes and types of words.....</i>	175
<i>Table 2: Morpheme types and their respective morphophonological boundaries.....</i>	178
<i>Table 3: Word-level phonological rules.....</i>	179
<i>Table 4: Compound Types.....</i>	191
<i>Table 5: Phonological Domains.....</i>	214
<i>Table 6: Correspondence between Morphological Structures and Phonological Domains.....</i>	214
<i>Table 7: Phonological Rules and Morphophonological Levels.....</i>	219
CHAPTER 7	
<i>Table 1: Open versus closed word classes.....</i>	226
<i>Table 2: Syntactic Categories.....</i>	228
CHAPTER 8	
<i>Table 1: Inflection versus Derivation.....</i>	233
<i>Table 2: Inherent Inflection categories of nouns.....</i>	236
<i>Table 3: Nominal Agreement categories.....</i>	238
<i>Table 4: Classifiers.....</i>	242
<i>Table 5: Stative and Dynamic verbs.....</i>	261
<i>Table 6: Correlation of transitivity and lexical aspect.....</i>	267

<i>Table 7: inflection verb paradigms for unmarked evidential</i>	270
<i>Table 8: General differences between Class I and II forms</i>	271
<i>Table 9: Phrasal-affixal copulas paradigm</i>	271
<i>Table 10: Assumed and Inferred paradigms</i>	272
<i>Table 11: Future paradigms</i>	274
<i>Table 12: Simultaneous dynamic/stative nominalizers</i>	297
<i>Table 13: Nominalizers of anterior time reference</i>	298
<i>Table 14: Clitic of Origin</i>	299
<i>Table 15: Future nominalizations</i>	300
<i>Table 16: Passive nominalizations</i>	301
<i>Table 17: Common Adverbs in Kubeo</i>	301
<i>Table 18: The closed class of adjectives</i>	304
<i>Table 19: Adjective subclasses</i>	308
CHAPTER 9	
<i>Table 1: Personal Pronouns</i>	311
<i>Table 2: Gender specific pronouns and affixal forms</i>	311
<i>Table 3: Possessive Determiners</i>	315
<i>Table 4: Inflection of possessive pronouns</i>	318
<i>Table 5: Diachronic Evolution of Possessive Pronouns</i>	322
<i>Table 6: Proximal Demonstratives</i>	324
<i>Table 7: Distal Demonstratives</i>	325
<i>Table 8: Anaphora</i>	331
<i>Table 9: the indefinite pronoun</i>	339
<i>Table 10: Numerals</i>	350
<i>Table 11: Question Words</i>	351
<i>Table 12: 'a 'which'</i>	353
<i>Table 13: 'aipi# how many, how much</i>	355

INDEX OF FIGURES

CHAPTER 2

<i>Figure 1: Kubeo Vowels Plot</i>	20
<i>Figure 2: Spectrogram and Textgrid for the word jawi 'jaguar'</i>	67
<i>Figure 3: Spectrogram and Textgrid for the word aja-'</i>	70
<i>Figure 4: Spectrogram and Textgrid for the word ãjã-be- 'snake'</i>	71

CHAPTER 4

<i>Figure 1: Spectrogram and Textgrid for the word [nĩ'mĩjo] 'hummingbird'</i>	124
<i>Figure 2: Acoustic representation of (4.61a) and (4.61b)</i>	151
<i>Figure 3: Acoustic representation of (4.62a) and (4.62b)</i>	152
<i>Figure 4: Acoustic representation of (4.63a) and (4.63b)</i>	153
<i>Figure 5: Acoustic representation of (4.64a) and (4.64b)</i>	153
<i>Figure 6: Acoustic representation of (4.65a) and (4.65b)</i>	153
<i>Figure 7: Acoustic representation of (4.66a) and (4.66b)</i>	154

CHAPTER 7

<i>Figure 1: Word classes in Kubeo</i>	232
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INDEX OF MAPS

CHAPTER 1

<i>Map 1: Geographical Distribution of the Kubeo Speaking Population.....</i>	<i>1</i>
<i>Map 2: Distribution of Kubeo Phratries.....</i>	<i>3</i>

LIST OF ABBREVIATIONS

/	either		
1/2/3IN	verb inflection: first person plural, second person and third inanimate	CL.LONG	classifier of long objects with a sharp or pointed tip
2	second person	CL.OVAL	classifier of oval objects
3	third person		
AN	animate	CL.RIVER	classifier of river
ANPH	anaphora	CL.RND	classifier of round
ASM	assumed		objects
ASM	assumed	CL.THICK LINE	classifier of thick line
BE	to be (bound-stem)		objects
BEN	benefactive/malefactive	CL.THIN LINE	classifier of objects resembling a thin line
CAUS	causative		
CL	classifier		
CL.3D	classifiers of three dimensional objects	CL.TIED.UP	classifier objects in configuration "tied up"
CL.AN.COL	classifier of animate collective	CL.TREE	classifier of trees and other vertical objects
CL.CNVX	classifier of convex objects	CNT	inanimate count
		CNV	converb
		COL	collective
CL.CONT	classifier of objects functioning as containers	COP	copula
		DOUBT	clitic expressing doubt in interrogative clauses
CL.EMB	classifier of a collection of discrete elements or the embodiment of mass and abstract elements	E.FC	emphatic focus
		EXC	exclusive
		FC	focus
		FEM	feminine
		FRUST	frustrative
		FUT	future
CL.FLAT	classifier of large and flat surfaces	GN	generic
		HER	<i>hi</i> 3 rd person possessive personal determiner (exceptional paradigm)
CL.HOLLOW	classifier of hollow objects		
CL.HOUSE	classifier of house	HIS	<i>hi</i> 3 rd person

	possessive personal determiner (exceptional paradigm)	PRF	perfective
		PRMS	permissive
HORT	hortative	PSS	possessive
HST.PST	historical past mood	PST	past
HYP	hypothetical mood	REP	reportative
IF	if, conditional	RND	round
II	class ii inflectional verb paradigm	S	singular
		SR	switch reference
IMP	imperative	ST	stative aspect and nominalizer of dynamic
IMPF	imperfective		verbs
IN	inanimate		
INC	inclusive	VBZ	verbalizer
INDEF	indefinite	VOC	masculine vocative
INF	infinitive	VOT	Voice Onset Time
INFR	inferred evidential		
INSTR	instrumental		
INT	intentional		
INTR	interrogative		
INTS	intensifier		
IRR	irrealis		
IRR2	irrealis 2		
LOC	locative		
LOC.SPCF	locative specific		
MOT	motion		
MSC	masculine		
MSS	inanimate mass		
NEG	negative		
NMZ	nominalizer		
OBL.SAME	oblique case + focalizer "same as"		
P	plural		
P.V	speaker/narrator's point of view		
PAG	perform action with a goal (verb derivation al prefix)		
PAS	passive		
PERM	permissive		
PRB	probable modal		
PRCSLY	focus: precisely		

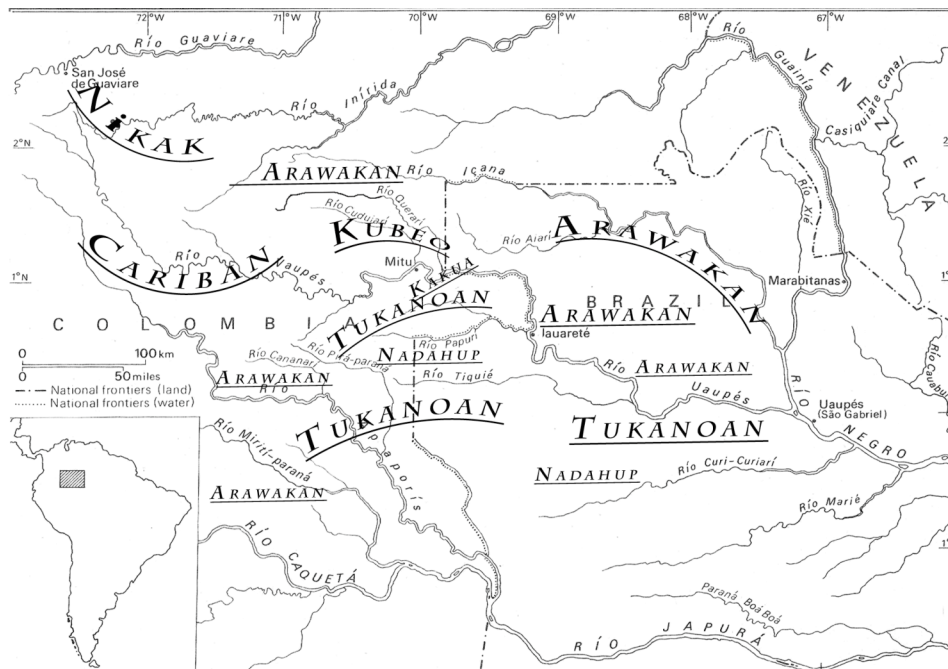
1. Introduction

1.1 The Kubeo People

1.1.1 Society and social history. This section is a summary description of Kubeo society and their language in a comparative and areal perspective (cf. Chacon *forthcoming-b*).

The Kubeo-speaking population lives in the Northwest Amazon, located in the upper and middle sections of the Vaupés river, and its tributaries, the Querarí and the Cuduyarí, as well as on the headwaters of the Aiyari River, and more recently also on the Guaviare River. The Kubeo are often seen geographically and figuratively as a marginalized group in the Vaupés. They are located in the “border area” between Tukanoan, Arawakan, and Cariban speaking groups, a transitional zone in the cultural context of the Vaupés (see map in (1) below, adapted from S. Hugh-Jones 1979:19 and www.ethnologue.com).

(1.1) *Map 1: Geographical Distribution of the Kubeo-Speaking Population*



In comparison to patterns of social organization, ethnicity, and language ideology among other Tukanoan groups of the Vaupés, the Kubeos are better seen as a

conglomerate of different ethnic groups, who share the same language and general cultural traits, but ultimately have distinct ideologies about their history and membership into different social spheres.

Different from most ethnic groups in the Vaupés, the Kubeos lack of a definite ethnonym (see Koch-Grünberg 2005 [1909]; Goldman 2004), which can be taken as evidence of their ethnic pluralism. The term “Kubeo” is a name given by outsiders to the whole Kubeo-speaking population. The Kubeos also use that name in relating to the outside world. Among themselves and among whoever they think is aware of their internal social organization, the Kubeos use names relatives to their sibs (clans). In their language, as Koch-Grünberg (2005 [1909]) suggests, “Kubeo” might come from *ki-be-wi* (exist-NEG-3.IN) ‘there is not’ – a phrase that was probably often repeated to the Portuguese violent traders and nativized in local *Lingua Geral*¹ and from there later in Portuguese and Spanish as “Kubeo”.² Another common ethnonym is *pamiwa*, which, in a more restricted sense, refers only to the sibs in Phratry-I³ (see below for the definition of the phratries). *Pamiwa* may also refer to all Kubeo-speaking peoples (the people that speak *pamie* or *pami kamu* ‘Kubeo language’), in contrast with non-Kubeo-speaking indigenous people. Or it can be used even in a more general sense as related to anything that is indigenous (or non-white).

The typical view about the societies in the Vaupés is that ethnic groups are composed of three basic elements: *descent* (hierarchically organized agnatic and patriarchal sibs with the same place of mythical origin), *language* (a single language is spoken by the same ethnic group) and *exogamy* (every group must find marriage partners from another exogamous group, which forms a different ethnicity and in most cases speaks a distinct language) (cf. Jackson 1983, Chernela 1996). Because language acts as an institutionalized social boundary and has implications to the establishment of exogamous group, intermarriage between different ethnic groups creates multilingual societies and polylingual individuals (cf. Sorensen 1967).

Among the Kubeos several subgroups have different historical origins, with separate descent ideologies and forming distinct exogamous groups, despite speaking

¹ *Lingua Geral Amazonica* is a Tupí-Guranian language, heavily influenced by Portuguese during the early decades of Portuguese colonization of the Grão-Pará and Maranhão colony in Northern Brazil. It was the language of the colonization of the Amazon in Brazil and it is still spoken in the Upper Rio Negro area.

² Variations of this term include *kuvewa*, *cubeo* and *kubewa*.

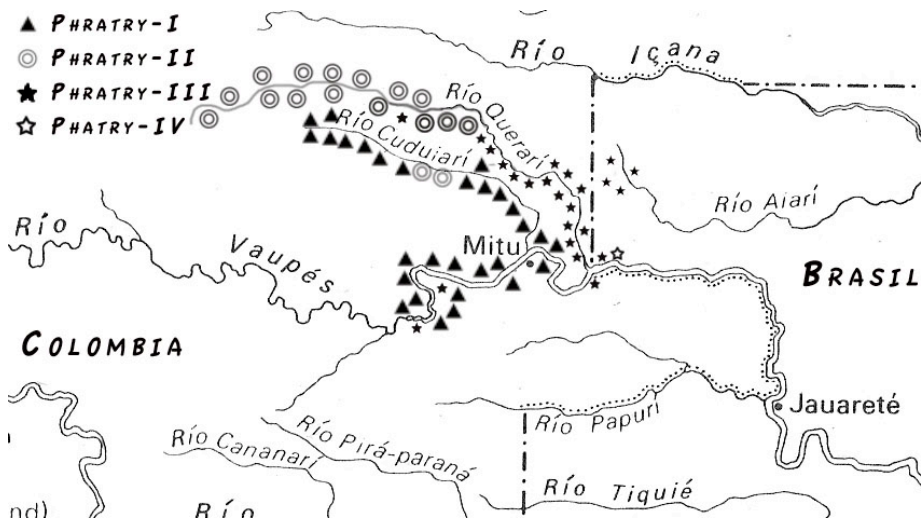
³ Goldman (2004) has suggested that *Hehenawa* is the name for the entire Phratry-I. My impression is that this is not the case. What seems to be the case is that some groups within Phratry-I have the name *Hehenawa* added to their sib names, while some other sibs of the same phratry do not have *Hehenawa* in their ethnonyms.

the same language. While most Tukanoan groups in the region are formed only by agnatic subgroups (sibs), the Kubeos are formed by affine groups, called *phratries* (Goldman 1963 and 2004). Each phratry is in turn formed by sibs. Each phratry acts as an exogamous group (comparable to other typical Tukanoan groups in the area), intermarrying with other Kubeo phratries as well as with other ethnic groups in the Vaupés, especially with Wananos.

There are four phratries among the Kubeos, each formed by smaller groups called sibs, which in general share a common descent ideology and concept of territory (Goldman 1963, 2004, initially counted three, but research for this dissertation suggests that there are actually four in total).⁴ For Goldman (2004:72–3), the phratries were the real political bodies in Kubeo society and, although there is no centralized power, they are bound by relations of ritualistic, kinship, social/economic cooperation and solidarity among neighboring agnatic groups (although it is likely that inter-sib hierarchy and leadership was stronger in the past, cf. Goldman 2004).

With some marked exceptions, each phratry occupies a specific river section, roughly illustrated in the map below:

(1.2) *Map 2: Distribution of Kubeo Phratries (adapted from Hugh-Jones 1979:19)*



The phratric organization and ethnic diversity among the Kubeos are the result of fusion of distinct ethnic groups from the Vaupés during the formation of the Kubeo-speaking society (cf. Goldman 2004). Phratries III and IV proclaim that a few generations ago they used to speak an Arawakan language and are originally from the

⁴ The fourth group is composed of a single sib only, the Yúriwawa ‘people of the Yúri deity’ (inhabitants of Açai village in the Brazilian Vaupés), which can intermarry with any other Kubeo sib, although mythologically they were agnatically related to the sibs from another phratry (Phratry-III, see below).

Aiyari River (i.e. not from their current location). Members of Phratry II are the original inhabitants of the area and there is a good amount of evidence that they were Arawakan speaking groups as well. Members of Phratry I are the original speakers of pre-Kubeo. In addition, several smaller groups from different ethnic backgrounds have been incorporated into one or another phratry, given that the up-river zone where the Kubeos live is historically a place where many groups came to seek refuge in times of regional instability (cf. Goldman 2004:72).

The strong Arawakan substrate and adstrate in Kubeo society can be observed on their language and culture. A particularly relevant example of hybridism is the modification of Arawakan deities, such as *Kúwai* (in Phratry-I and II) and *Yúri* (in Phratry-III and IV) (*Dzuliferi* in Baniwa mythology, cf. Wright 2009) with Tukanoan symbolism.

Linguistically, it is remarkable that Kubeo, although sharing many of the most fundamental grammatical and lexical elements characteristic of Tukanoan languages, is demonstrably relatively more differentiated from its sister languages than other Tukanoan languages are. This is likely related to a strong Arawakan influence in the lexicon and grammar, supporting the inference that there was an intense and long contact between a pre-Kubeo-speaking population and an Arawakan-language-speaking population.

1.1.2 Cultural Summary

In the regional system of the Vaupés, groups such as the Kubeos have a strong cultural identification with an economic life based on river resources and agriculture. Their economy is largely based on the cultivation of large manioc fields and other crops such as chili, yam, sweet-potato, banana, several types of palms with edible fruits, and palm-hearts, corn, gourd, avocado, and many others. Agriculture is typically an activity of women, although men and the rest of the family are often requested for the initial preparation of gardens and when it is necessary to do the harvest and carry big loads of crops. Men are dedicated to fishing, which is almost a daily activity, and hunting, which is more sporadic. Seasonal forest products in the vicinities of Kubeo villages are also very much appreciated, though the Kubeo do not explore the depths of the forest ordinarily.

The Kubeos live in single-family houses. Traditionally they used to live in longhouses, i.e. communal houses in which several nuclear families dwelled. Today I have not visited any nor heard of any report of longhouses serving as places for anyone

to live permanently. They have been abandoned for some time due to pressures from missionaries and the nearby non-indigenous society. However, more recently some Kubeos started to be built them once again, and they are now serving as gathering places for festivities, public meetings, as ceremonial center and a symbol of ethnic identity.

Kubeo cosmology is based on an elaborate temporal conception of the universe in a sort of teleological and circular concept of history (cf. Goldman 2004). The world is understood as divided into different layers, each one reserved for distinct anthropomorphic beings, including a set of deities that had distinct personalities and roles during the creation of the universe and humankind. Humanity is the product of the will from a masculine and a feminine deity, who created people from holes near imminent rapids and set them out in a journey through local rivers in search for their homeland, or more exactly the places where they could emerge as humans and "dry out" their fish or anaconda scales. Thus humans were once undifferentiated from aquatic beings.

The history of the world is divided in two phases: a first phase where the demiurges and human prototypes existed along with the essential substances that were used to create the worlds, and a second phase referring to the history of the actual clans (or sibs) (cf. Goldman 2004). The essence of ceremonial life is the performance of rituals and consumption of substances (coca, tobacco, and ayahuasca [*Banisteriopsis caapi*]) that somehow try to actualize the primordial energy from the first phase in the history of the world. Much of shamanistic activity is also intended to keep this primordial energy flowing in daily life.

1.2 Kubeo Language

1.2.1 Genetic Classification. Kubeo is an Eastern Tukanoan (ET) language, according to the traditional classification of Mason (1950) and to a more recent review of the classification of the family in Chacon (*forthcoming-a*) and a paper that exclusively aims to uncover the comparative and areal issues of Kubeo (Chacon *forthcoming-b*).

One of the goals of the research for this dissertation was to test the hypothesis that Kubeo should be classified as Central Tukanoan, proposed by Waltz and Wheeler (1972) and more recently reaffirmed by Barnes (1999) and often repeated. The basic arguments for the classification of Kubeo as Central Tukanoan are theoretically problematic: Waltz and Wheeler (1972) claim that Kubeo displays lexical and phonological similarities with *both* Eastern and Western Tukanoan (WT). This makes

one wonder whether the concept of a ‘central’ branch is misleading, since genetically a language cannot share properties from different branches, unless language contact is involved.

There are other problems as well: first, for their classification they also relied on percentage of shared cognates, which is misleading since relatedness can only be based on shared innovations, but cognates can be shared as result of retentions in different languages (Campbell 2004); second, their reconstruction of many proto-sounds is inaccurate, which biases interpretation of reflexes in terms of innovations and retentions among different languages (cf. Chacon *forthcoming-a*).

A central reconstruction problem is related to the interpretation of what feature was present in the contrast of stops and affricates. Waltz and Wheeler (1972) interpret them as having the feature of contrastive voicing, hence reconstructing **p*, **t*, **k* and **b* **d* **g*. Chacon (*forthcoming-a*) reconstructs creaky voiced stops **p'* **t'* **k'* (where reflexes in some languages involve laryngeal features) instead of the voiced stops.⁵

This difference in reconstruction has dramatic consequences for the classification of the family, because, according to Chacon, all Eastern Tukanoan languages changed creaky voiced stops to voiced stops in word initial position. Hence, if voiced stops were reconstructed, innovations would end up being analyzed as retentions.

The following charts illustrate the reconstruction of the creaky voiced series with the reflexes of **p'* in word initial and medial position. The subgrouping yielded by the reflexes of **p'* is supported by the correspondences for all other major consonants (for details see Chacon [*forthcoming-a*]).

(1.3) *Table 1.1: Reconstruction of *p' in word initial position*

KUBEO	DESANO	TUKANO	WANANO	MAIHUNA ⁶	SEKOYA	KORE-GUAJE	SIONA	P-T	GLOSS
<i>bia</i>	<i>bia</i>	<i>bia</i>	<i>bia</i>	<i>?bia</i>	<i>pia</i>	<i>pia</i>	<i>p'ia</i>	<i>*p'ia</i>	CHILI
<i>bo</i>	<i>bore</i>	<i>buti</i>	<i>bo'ta</i>	<i>?bo</i>	<i>po</i>	<i>po</i>	<i>p'o</i>	<i>*p'o</i>	WHITE

(1.4) *Table 1.2: Reconstruction of *p' in word medial position*

KUBEO	DESANO	TUKANO	WANANO	MAIHUNA	SEKOYA	KORE-GUAJE	SIONA	P-T	GLOSS
<i>jeba</i>	<i>jeba</i>	<i>je'pa</i>	<i>ja'pa</i>	<i>jiha</i>	<i>jeha</i>	<i>jeha</i>	<i>jiha</i>	<i>*jip'a</i>	LAND
<i>kābū</i>	<i>gābī</i>	<i>ō'bē</i>	<i>kā'bō</i>	<i>gāhō</i>	<i>kāhō</i>	<i>kāhō</i>	<i>k'āhō</i>	<i>*k'āp'o</i>	EAR

⁵ For practical orthographic reasons I am using the sign "'" to indicate creaky voicing, rather than representing ejective stops, as usually conveyed by this symbol.

⁶ Also known as Orejón, a pejorative name.

Reflexes of **p'* in word-initial position show that all ET languages (non-shaded cells) changed **p' > b*. WT languages have more different outcomes, whereas Siona retained **p'*. In word-medial position, Kubeo, Tanimuka, and Desano changed **p' > b*. Tukano and Wanano laryngealized the preceding vowel **Vp' > V'p*. All WT languages merged **p'* with **p*, and later changed *p > h*.

Another important feature that differentiates ET languages (including Kubeo) from WT languages is the allophonic variation of voiced stops and nasal spreading rules. In ET languages, every voiced phoneme has a nasalized allophone in nasalized words (e.g., /b/ > [m]), and nasalization may spread across morpheme boundaries when the morpheme to the right of the nasalized morpheme has a voiced onset, but never if it has a voiceless onset. (See chapter 3.)

In WT languages the most relevant feature for nasal spreading is whether the syllable to the right of a nasalized syllable has a sonorant phoneme in its onset, which means that there will be nasal spreading even across /h/, a voiceless but sonorant phoneme (Cook and Criswell 1993; Johnson and Levinson 1990; Wheeler 1987).

For all these factors, Kubeo should be classified as an ET language, a position assumed in this dissertation.

1.2.2 Areal issues. Chacon (*forthcoming-b*) argues for two general properties of Kubeo that are relative to its status within the regional context of the Vaupés area:

- i. Kubeo has several independent innovations and archaisms in comparison with closely related languages, which indicate that the language has been relatively more isolated from related languages for a considerable amount of time.
- ii. Kubeo has borrowed many linguistic traits and some structural proprieties from an Arawakan language or languages.

The social and historical motivations for the development of these features are pointed out in section 1.1.1 above.

The following is a list of properties that support point (i) (based on Chacon *forthcoming-b*):

- (a) Kubeo vocabulary has undergone several independent semantic innovations in comparison to ET and WT languages;
- (b) Kubeo has fewer phonotactic constraints on the formation of vowel clusters (similar to diphthongs, see chapter 2) than other ET languages;

- (c) Nasalization is bound to the syllable and not the entire morphemes, as is the case in other ET languages (see chapter 3);
- (d) Lack of typical phonetic features that act as isoglosses of linguistic subareas in the region, such as pre-aspiration of root internal voiceless stops (typical in the Vaupés) or phonetic gemination of word internal stops (typical on the Pira-Parana River, cf. Gomez-Imbert 2004).
- (e) Many independent sound changes, such as: laryngeal sounds **ʔ* and **h* were deleted (merged with zero); all sibilant sounds from Proto-Tukanoan changed to /h/; independent development of /tʃ/ (Wanano and Pisamira /tʃ/ has distinct sources; see chapter 2); it is the only Tukanoan language where /j/ has [ɔ̃] as an allophone, a feature that is difficult to account for if it is a retention, borrowing or independent innovation (see chapter 2, and Chacon *forthcoming-a*); it is the only ET language where [r] and [d] alternate across morpheme boundaries (see chapter 2).
- (f) Kubeo has converbs instead of serial verbs (see section 8.2.4, chapter 8, for an overview of converbs);
- (g) Kubeo has an intricate system of copulas: 3 phrase-affixal copulas, one bound-stem copula, one negative copula, an existential copula, and the verb ‘to have’ (see chapter 6 and 8).

The following is a summary of factors relevant to point (ii) above:

- (A) Several lexical borrowings from an Arawakan language in distinct semantic categories, such as PLANTS, ANIMALS, SOCIAL STATUS, RELIGION AND COSMOLOGY, etc.
- (B) Borrowing of a possessive morpheme from an Arawakan language (cf. chapter 9);
- (C) Borrowing of the distal demonstrative from an Arawakan language (cf. chapter 9);
- (D) Restructuring of the noun classification system based on structural and semantic patterns of an Arawakan language (cf. Gomez-Imbert 1996, and for other details see section 8.1.1 and 8.1.3, chapter 8).

1.2.3 Typological Summary. The following is a summary of relevant typological points that are treated in this dissertation:

- (i) Reduced phonemic inventory: 6 vowels and 11 consonants (cf. chapter 2);
- (ii) Nasal Harmony (cf. chapter 3):
 - Source of nasality: syllable;
 - Target of nasality: voiced segments;
 - Blockers: voiceless segments;
 - Direction of harmony: left to right;
 - Domain of harmony: the phonological word;
- (iii) Stress (cf. chapter 4): iambic foot, assigned from the left to the right; all words are stressed.
- (iv) Tone (cf. chapter 4): most roots are underlyingly marked for tones; two underlying tones: H and HL; syllable as the tone bearing unit; tone spreading from left to the right; can target simplex words and compounds; derivationally dependent on metrical structure: tone spreading is limited to one foot to the right of the first foot head in a word.
- (v) Syllable (cf. chapter 5): Root level syllable structure (C)V(V); across morpheme boundaries can go up to (C)V(V)(j); syllabification goes from left to right;
- (vi) 5 distinct categories of grammatical bound-morphemes, with contrasting morphosyntactic and morphophonological properties: AFFIX, ENCLITIC, PROCLITIC, PHRASAL-AFFIX and BOUND-STEM (cf. chapter 6).
- (vii) Complex grammatical system of noun classes, gender and noun classifiers (cf. chapter 8).
- (viii) A closed class of adjectives with only 6 roots, corresponding to three of Dixon (2004)'s four semantic types of adjectives (cf. section 8.4, chapter 8).
- (ix) Issues on verb inflection (cf. chapter 8):
 - Animacy and person hierarchies (cf. section 8.2.2.1, chapter 8);
 - Four evidentiality categories: FIRST-HAND, INFERRED, ASSUMED and REPORTATIVE.
 - Four-level tense distinction: FUTURE, PRESENT, RECENT PAST and REMOTE PAST.

- Complex aspectual system, with interlocking categories of lexical aspect, grammatical aspect, dynamic and stative verb classes, and other categories of verbs, such as transitivity, tense and evidentiality.
- (x) Nominative-Accusative alignment and subjectless clauses (cf. 8.2.2.2);
- (xi) Variation in possession strategies between head-marking and dependent-marking structures (cf. section 9.1).

1.3 Documentation of Kubeo

This dissertation is part of a larger enterprise that aims to document and build an infrastructure of language and cultural enhancement among the Kubeo.

The communities where this larger project is based are in the Açaí and Querarí villages in Brazil, whose main population is from the Yúriwawa (Phratry IV) and Yuremawa (Phratry III) sibs, respectively.

The project has partners in Colombia as well, and several meetings between the Kubeos in Colombia and Brazil have been promoted as part the goals of the documentation project.

The goals of this larger project can be summarized in the following points:

- (a) Production of reference and educational materials for Kubeo native speakers on language and cultural.
- (b) Empowering the native community by offering training in language documentation, creating a large database of texts with valuable cultural information, developing strategies within the community and local schools to improve language and traditional culture teaching.
- (c) Expanding the linguistic and anthropological scholarship on Kubeo.

The more tangible outcomes that are in process to be completed or have been initiated are the following:

- (A) An encyclopedic-dictionary, with references in Kubeo and translations to Portuguese, Spanish, Tukano and Wanano. It is a sort of encyclopedia since many words are defined with short texts in Kubeo, defining the words and giving further cultural explanations of them, which were produced by the native community.

- (B) A school-based project, where graduating students in high-school and junior-high-schools develop a year-long project on the research and documentation of cultural relevant subjects that are in process of being forgotten by the younger generation. The project started in 2012; its outcomes will be in several formats, including books and different media to be used in local schools. The topics of the research project that will be undertaken each year by the students are the following:
- i. Native Geography: how the Kubeos perceive the space surrounding them? What are the sacred places? What are their stories? What do they represent to the Kubeos? Where are they?
 - ii. Medicinal Plants and healing: what are the plants used in healing practices? Where are they found? What are their stories? What shamanistic knowledge is associated with them? How to raise and use these plants?
 - iii. Ceremonial objects: what is the traditional ceremonial paraphernalia? What was the meaning of each object and their stories? What was their ceremonial function? How to make them?
- (C) The native speakers documentation team: a group was created in 2010 with four native speakers that were young schoolteachers or had recently graduated. They were trained in language documentation and basic linguistic analysis. This dissertation owes a lot the analysis and the corpus developed with their aid. Now, they became valuable resources in their community and will be of great support to future documentation projects.
- (D) A comprehensive Grammar of Kubeo, to be completed after this dissertation.

I acknowledge with great gratitude a few institutions for their support to one or several phases in the Kubeo documentation project. They are, in chronological order of when the support was granted:

1. *Endangered Language Fund, 2008.*

2. *Coordenadoria Geral de Estudos e Pesquisa (FUNAI), 2009.*
3. *Endangered Language Development Program, 2010-2011.*
3. *Museu do Índio (FUNAI), 2010.*
4. *National Science Foundation (Dissertation Improvement Grant), 2011.*

1.4 This Dissertation

1.4.1 Data, Research and Methodology. The research for this dissertation was undertaken between the Summer of 2008 and the Fall of 2011, during five fieldwork trips to Kubeo communities in Brazil and Colombia.

Most of the fieldwork time was spent in the Kubeo communities in Brazil, specifically in the Açaí and Querarí villages (Phratry III and IV), with whom I developed closer bonds and where the Kubeo documentation project is centered.

Consequently, most of the naturally occurring speech texts were gathered among speakers of those villages. Nevertheless, since we developed several workshops where Kubeos from different communities participated, there is also a lot of data gathered among speakers of northern dialects in the Cuduyarí and Vaupés rivers in Colombia (Phratry I).

I traveled the Cuduyari River once where I collected a few texts and have worked for several weeks in two separate occasions in the Colombian town of Mitú, the capital of the Vaupés province ("Departamento"), and in the traditional Kubeo territory. In Mitú I was able to work with highly fluent speakers in Kubeo and Spanish, which was a great opportunity to analyze texts, discuss questions about the data and make elicitation.

Texts were often gathered by myself, but a larger portion was recorded by one of the native speakers in the documentation team. All texts were translated and transcribed with the aid of native speakers.

Elicitations were made with several individuals. Questionnaires were prepared both in advance, before going to the field, and within the field as new questions and topics arose during the preliminary analysis of the data.

In the examples in this dissertation I gave preference for naturally occurring speech, though some data were only gathered through elicitation. I did not include data from elicitation when I was unsure about its status and could not find an equivalent in naturally occurring speech

The corpus that forms the basis for the writing of this dissertation is described below:

- (i) A Lexicon of about 3000 words extracted from naturally occurring texts, elicitations of grammatical and phonological subjects, and lexical elicitations during work for the Kubeo dictionary.
- (ii) About 14 hours of recording of texts and elicitation, from which about 5 hours of texts were transcribed and translated. From these, there are 24 texts about tales and mythology; 16 tokens of daily dialogues, public speeches and instructions about how to prepare foods and make objects; 6 chants; 4 traditional prayers.
- (iii) There is also a lot of data based on written material only, such as field notes and many texts produced during the dictionary workshops.

It must also be highlighted that the research for this dissertation benefited immensely from the *Diccionario Ilustrado Bilingüe Cubeo-Español/Español-Cubeo*, compiled by Morse and her group of linguist and native speakers (cf. Morse et. al 1999). The dictionary was published by the Summer Institute of Linguistics in Colombia; it has about 5.000 words. Many of them are inflected and predictable forms, but nevertheless its scope and example sentences were a great support to my research.

The *Cubeo Grammar* (Morse and Maxwell 1999) offered a good starting point for the initial phase of my research; this grammar often presents good terminologies and has a good systematization of most paradigms. Nevertheless, it lacks of profundity, extent and accuracy of most grammatical and especially phonological elements. Of course, now it is much easier to notice these problems, and their work must be acknowledged for shading some light into an obscure, complex and fascinating language.

1.4.2 Description, Theory, Typology and Diachrony. Description, theory, typology and diachrony are interrelated tools used in the analysis of the data in this dissertation. There is nothing in science that is atheoretical and every theory is always a partial comprehension of "reality".

The descriptive goals of this dissertation are to present new and detailed data on aspects of Kubeo phonology, morphophonology and some aspects of the morphosyntax. It is also intended to be meta-descriptive, i.e. to describe data sources and the scope and

pitfalls of available data. Ultimately it aims to be descriptively responsible by not omitting relevant information and discussing counter examples.

The dissertation in itself is a theory about the organization of the Kubeo language. It is not purely descriptive or limited to presenting isolated analyses of distinct portions of the language. It aims to describe the language as a system, how each element is linked others in harmonic and disharmonic ways.

Specific theoretical models are used as a tool to expand the analytical perspective on facts that are not directly captured from the surface manifestation of certain phenomena. Science cannot stop asking what can be more profound, more general than the facts themselves. However, I make no commitments to any specific theory. This dissertation is not organized to test any theory nor the data used to illustrate any theory.

The same is valid for the way typology and diachronic reasoning are used. Typology is useful to make generalizations comparable elements from a broader cross-linguistic perspective, avoiding arbitrary explanations and making explanations more meaningful for theoretical reasoning. Diachronic reasoning can make arbitrary synchronic facts seem more natural. It also expands the understanding of facts as a result of processes, which elucidates the dynamics of the language in general.

1.5 The scope of this dissertation and future work

This dissertation is an in-depth account of the segmental phonology, prosody and morphophonology of Kubeo. It also describes and analyzes key aspects of morphosyntax, especially the word-class system, inflection, derivation and closed word classes.

The aim in all chapters is to present analysis as profound and extensive as possible. This is not always possible, though, and I opted to give priority to presenting more profound analysis of fewer elements than shallow analysis of more elements. Hence, the goal for future work is to write a full grammar, covering what has not been covered in this dissertation and keeping the analysis as detailed as possible.

Below is a summary of topics that were not covered entirely or not covered at all in this dissertation, but will figure in the future grammar. It will be noticed that this dissertation does refer to certain elements listed below, though reserves detailed treatment of these for the later grammar.

(A) Future tense;

- (B) Modality;
- (C) Word order;
- (D) Topic and Focus;
- (E) Non-finite verb forms other than nominalizations;
- (F) Relative Clauses;
- (G) Adverbial Clauses;
- (H) Periphrastic verb constructions;
- (I) Valency;
- (J) Negation;
- (K) Prosody in Syntax;
- (L) Definiteness and genericness;
- (M) Most more complex aspects of subordination and coordination.

2. Segmental Phonology

In this chapter vowels, consonants and segmental phonological processes are discussed. Vowels and consonants are presented both as autonomous and integrated systems.

Kubeo has a typologically very common system of six vowels, a property also found in the great majority of Tukanooan languages:

(2.1) *Table 1: Kubeo Vowels*

	FRONT	CENTRAL	BACK
HIGH	i	ɨ	u
MID	e		o
LOW		a	

There are only 11 contrastive consonants:

(2.2) *Table 2: Kubeo consonants*

	LABIAL	ALVEOLAR	PALATAL	VELAR	GLOTTAL
VOICELESS OCCLUSIVE	p	t	tʃ	k	
VOICED OCCLUSIVE	b	d			
CONTINUANT	w	(ð)	j		h
FLAP/TAP		(r)			

Consonants (ð) and (r) are the results of recent phonemicization in the language. They are allophones of /j/ and /d/, respectively, but also have a few cases of phonemic contrast (cf. sections 2.2.4 and 2.2.5). It should also be noticed that /ð/ is an *ad hoc* symbol that represents an interdental approximant, and not a fricative obstruent, as discussed in section 2.2.2.4.

The absence of nasals from the Kubeo phonemic inventory might seem unusual, but every voiced phoneme has a nasal allophone, which is related to the fact that Nasality is not an underlying feature of segments, but rather it is part of the prosodic system of the language, as discussed in chapter 3.

The chart below provides the set of distinctive features analyzed for Kubeo. Each feature is proposed based on the following criteria:

- phonetic and phonological naturalness based on universal and language specific criteria;
- paradigmatic phonemic contrasts between pair of sounds;
- establishing natural classes;
- explanation of phonological processes;
- universal principles underlying the organization of sounds and the parametric view where languages can recruit a limited set of features to be encoded in the lexicon (cf. Chomsky and Halle 1968; Keating 1988; Archangeli 1988; Halle 1995; Clements and Hume 1995; Hume and Odden 1996).

(2.3)

Table 3: Distinctive Features in Kubeo

		p	t	tʃ	k	b	d	r	ð	w	j	a	e	i	ɨ	o	u	h
CONSONANT		+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-
VOCALIC		-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	-
SONORANT		-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	+	-
VOICE		-	-	-	-	+	+											
SPREAD GLOTTIS																		+
LABIAL		x				x				x							x	x
CORONAL	ANTERIOR		+	-			+	+			-							
	DISTRIBUTED		-	+			-	+			+		x	x				
DORSAL					x							x				x	x	x
LOW												+	-	-	-	-	-	
HIGH												+	+	-	-	+	-	

Brief comments about distinctive features in Kubeo are given in the following paragraphs. The motivation for each feature is given throughout this chapter and chapter 3, which deals with nasality.

The chart above assumes [+sonorant] and [+consonantal] as the major class feature in Kubeo (cf. Halle 1995). In addition, it assumes [+vocalic] as another major class feature, which is used following Padgett (2008) in order to motivate an underlying distinction between vowels and glides. Glides as [-vocalic] undergo different syllabification processes than vowels, which are [+vocalic] (cf. section 2.1.1.1 and chapter 5). Also, having glide as [-vocalic] can explain the trend for glides in Kubeo to be realized with greater constriction than in typical instances of [j] and [w] (cf. section 2.2.2.3 and 2.2.2.4). In section 2.1.1.1 it is shown that while /u/ and /w/ are clearly

contrastive, /j/ and /i/ have distinct phonological properties though evidence for a clear contrast of these sounds are lacking.¹ In addition the status of underlying glides as featurely distinct from vowels is in accordance with a growing body of arguments in the recent literature that show that there are certain types of glides cross-linguistically that cannot be analyzed simply as vowels in non-nuclear syllabic position (cf. Halle 1995:14 e.g. (13), Hume 1995, Padgett 2008, Levi 2008).

The liquid /ɾ/ and the phoneme /ð/ are analyzed as [+sonorant][+consonantal]. The sound /ð/ in Kubeo is not a fricative: phonetically it sounds more like an interdental liquid consonant and phonologically it pairs with other consonants that are target of nasal harmony (cf. section 2.2.2.4 for more details about this sound).

Kubeo explores two phonation types, represented by the feature [±voiced] and [±spread glottis] (cf. Halle 1995). Every [-sonorant] sound is specified for a phonation type feature. The feature [±voiced] is contrastive for the class of obstruents ([-sonorant][+consonantal]). It is also a relevant feature for capturing the behavior of nasality in Kubeo where all voiced segments but no voiceless segments are target for nasal harmony (cf. chapter 3). Hence I assume a redundant feature where [+voiced] is assigned to all [+sonorant] segments (cf. Mohanan 1991). In the same line, the feature [nasal] is dependent on the feature [voiced], in the sense that [nasal] is only licensed to segments bearing the feature [+voiced] (cf. chapter 3).

The feature [spread glottis] is used to characterize only the phoneme /h/, which is analyzed as [-sonorant][-consonantal][-vocalic] and is deprived from place features (cf. Halle 1995). There are several co-articulatory processes which follow from the lack of a place feature in /h/ (cf. section 2.2.2.6).

Following Clements and Hume (1995) I propose an analysis of the place features that allow for a unified characterization of consonants and vowels. The common place features for vowels and consonants are [dorsal], [coronal] and [labial]. The features [labial] and [dorsal] are monovalent, since there is no evidence for processes of "delabialization" or "develarization" (cf. Clements and Hume 1995). Features that are monovalent are represented by an "x" in the chart above.

The feature [coronal] is subdivided for consonants in [±anterior] and [±distributed]. Segments classified as [+anterior][-distributed] are produced with the

¹ It has been proposed that the feature [consonantal] is superfluous, given that the contrast of consonant and vowels can be achieved by prosodic phonology under some approaches, as well as other features can be used instead of [consonantal] to represent natural classes and phonological processes (cf. Hume and Odden 1996). Nevertheless, under the approach developed here for Kubeo, the feature [consonantal] is necessary to express the contrast of glides and other [-vocalic] sounds.

apical part of the tongue; segments [-anterior][+distributed] are produced with the laminal part of the tongue in contact with the hard palate; and /ð/ is classified as [+anterior][+distributed] since it is produced with the laminal part of tongue in interdental position (cf. section 2.2.2.4). On the other hand, front vowels /i/ and /e/ are classified monovalently as [coronal], giving that there is little evidence for extending the [+anterior] and [+distributed] distinction to them, except for the allophonic realization of /j/ after /i/, which might suggest that /i/ should be analyzed as [+distributed] (cf. section 2.2.2.4). In addition, it should be added that as already noted by Chomsky and Halle (1968) the features representing the articulation of vowels also have implication to the secondary articulation of stops, which in Kubeo is particularly seen in the allophonic alternations involving the phonemes /d/, /w/ and /j/ (cf. section 2.2.2).

The flap /r/ is unmarked for a place feature. I assume a redundancy rule where the flap is automatically assigned to [coronal] place. The reason for /r/ being unmarked for place is because place is not necessary for a phonemic contrast of /r/ and another sound, in addition that because /r/ is the single flap in the language it follows from universal principles that it has [coronal] as its default place (cf. section 2.2.2.5). This classification of /r/ is necessary in order to explain the /d/ and /r/ alternations in bound morphemes (cf. section 2.2.2.5).

The feature [labial] is used with both vowels and stops. It should be emphasized that [labial] in vowels have a redundancy rule where [labial] implies [round] (see sections 2.1.1.2 and 2.1.2.2 for constraints on rounding rather than labials in Kubeo).

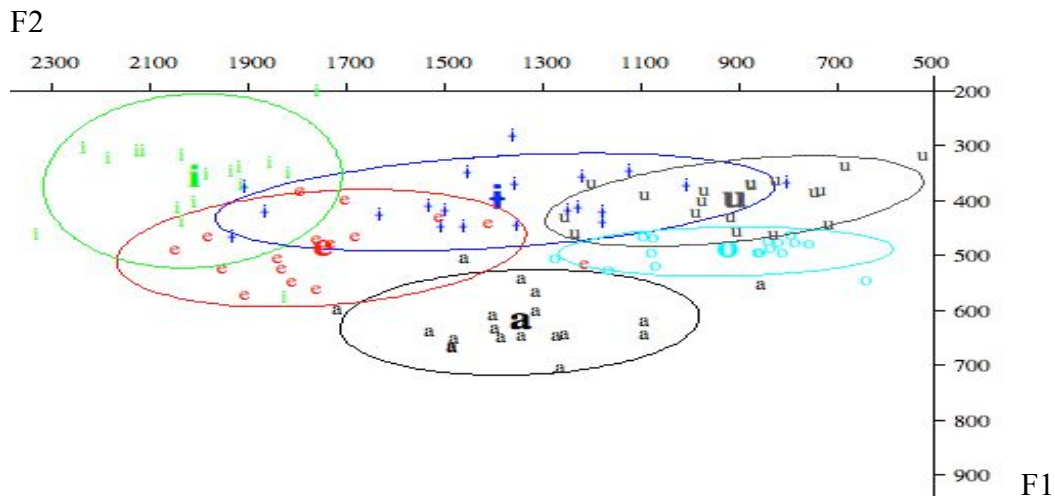
In addition, vowels have the tongue body height distinction that traditionally is represented by [+high] and [+low] features (cf. Chomsky and Halle 1968, Halle 1995). I prefer these traditional labels, rather than the [open] feature in Clements and Hume (1995) because of the correlation of vowel places of articulation and its effect on consonantal place of articulation. Nevertheless, Clements and Hume 1995 system by emphasizing the phonetic aspect of vowel aperture, could be successfully used in Kubeo when explaining a sonority hierarchy of vowels given in section 2.1.1.2, where vowels that are relatively more open are also relatively more sonorous.

2.1 Vowels

Chart 1 below provides an acoustic distribution of vowels based on the frequency values for Formant-1 and Formant-2.²

² Chart in (2.3) was plotted from the speech of a 30 year old Kubeo speaker. He is from the Yúriwawa sib. Data for this plot was based in connected speech from sentences and texts. About 110 acoustic vowel measurements were made for the production of this chart.

(2.4) *Figure 1: Kubeo Vowels Plot*



Most vowels have phonetic realizations close to their phonological representations, though /i/ tends to assimilate to realizations typical of /i/ and /u/ in some contexts, while /e/ can be realized as [e] or [ɛ], and /o/ as [o] or [ɔ]. Allophonic variations are more commonly found in vowel clusters, which are discussed in section 2.1.1.2 below. See also chapter 4 for the effects of tones and stress in vowel quality.

The following words represent the minimal contrast of vowels in Kubeo.³ The demonstration of the contrasts is limited to the vowels that are produced adjacently in the vocal space. Two examples are given for each vowel contrast – one in non-nasal and the other in nasal contexts:⁴

- (2.5)⁵
- | | | | |
|----|----------------------|-----|----------------------|
| | /a/ | vs. | /i/ |
| a. | <i>ta-bi</i> [ta'bi] | | <i>ti-bi</i> [tɨ'bi] |
| | swim-3MSC | | fall-3MSC |
| | 'he swam' | | 'he fell' |
| b. | <i>bã</i> ['mã] | | <i>bĩ</i> ['mĩ] |
| | 'macaw' | | 'you' |

³ Tones are disregarded in these examples given that they affect very little the segmental phonology in Kubeo.

⁴ Throughout the Phonology part of this dissertation, words are represented mostly phonologically and phonetically. The phonetic detail of transcriptions may vary according to the issue in focus. Although nasality has scope over the entire syllable, it is phonologically represented as a tilde over the vowel.

⁵ Morpheme boundary gloss: ‘-’ affix, phrasal affix and bound-stem, ‘=’ clitic, ‘#’ dependent stem. See chapter 6.

- (2.6) /a/ vs. /e/
- a. *wako* [wa'ko] 'cacao' vs. *weko* [we'ko] 'parrot'
- b. *hã-bi* [hã'mĩ] crash-3MSC 'he crashed (himself)' vs. *hẽ-bi* [hẽ'mĩ] hold-3MSC 'he held (it)'
- (2.7) /a/ vs. /o/
- a. *hia* ['hia] 'river' vs. *hio* ['hio] 'plantation'
- b. *dã* ['nã] 'they' vs. *dõ* ['nõ] 'that one, there' (anaphoric)
- (2.8) /e/ vs. /i/
- a. *beho* [be'ho] 'war club' vs. *biho/* [bi'ho] 'vomit'
- b. *jãbẽ* [nã'mẽ] 'who?' vs. *jãbĩ* [nã'mĩ] 'night'
- (2.9) /i/ vs. /ĩ/
- a. *hapipo-bi* [ha'pipobi] masturbate-3MSC 'he has masturbated' vs. *hapipo-bi* [ha'pipobi] push-3MSC 'he pushed (it)'
- b. *dĩ-bi* [nĩ'mĩ] go-3MSC 'he went' vs. *dĩbĩ* [nĩ'mĩ] 'season, epoch, time'
- (2.10) /i/ vs. /u/
- a. *tĩ-bi* [tĩ'bi] fall-3MSC 'he fell' vs. *tu-bi* [tu'bi] carry.on.back-3MSC 'he carried on his back'
- b. *dĩ-bi* [nĩ'mĩ] go-3MSC 'he went' vs. *dũ-bi* [nũ'mĩ] suck-3MSC 'he sucked'

(2.11)	/o/	vs.	/u/
a.	<i>popo-i-dō</i> [po'poinō]		<i>pupu-i-dō</i> [pu'puinō]
	dry-ST-CNT		cure-ST-CNT
	'to dry, a dried thing'		'to cure, a healing ceremony'
b.	<i>kōa</i> ['kōã]		<i>kūa</i> ['kūã]
	'pan'		'bone'

2.1.1 Vowel Phonotactics. In this section, distributional properties of vowels are discussed. Emphasis is given to the distinction between vowels and glides and the complexity of vowel clusters.

In Kubeo, vowels are the only type of segments that can be the nucleus of a syllable. The basic syllable structure in the language is (C)V(V) (cf. chapter 5). There are many cases of syllables and words composed only of a single vowel:

(2.12) a.	<i>u</i>	['u]
	'sloth'	
b.	<i>ĩ</i>	['ĩ]
	'he'	
c.	<i>ō</i>	['ō]
	'she'	
d.	<i>a-bi</i>	[a.'bi]
	say-3MSC	
	'he said'	
e.	<i>ẽ-wĩ</i>	['ẽ.wĩ]
	burn-3IN	
	'it has burned'	
f.	<i>idã</i>	[i.'nã]
	'these ones (animate)'	

The single vowel as the nucleus of a syllable does not get lengthened as it has been reported for other Tukanooan languages (cf. Ramirez 1997a; Gomez-Imbert 2004; Stenzel 2004).

The behavior of vowels in a (C)VV syllable is discussed in the next subsection, following of the discussion of vowels and glides.

2.1.1.1 Vowels and Glides. It has been proposed that glides are actually consonantal realization of underlying vowels, i.e. that the vowels /i/ and /u/ can surface as [j] and [w] depending on specific phonotactic conditioning (cf. Clements and Hume, 1995; Ladefoged and Madiesson 1996). Although a distinction between glides and vowels has never been at issue in Tukanoan Linguistics (cf. Gomez-Imbert 2011; 2004), it is definitely a point of theoretical interest and, therefore, deserves proper treatment in this dissertation.

This section discusses the distinction between glides and vowels, showing that despite the evidence that /u/ and /w/ are distinct phonemes, there are reasons to suspect that /i/ and /j/ are not contrastive underlyingly, though they have distinct phonological statuses in the derivation.

/i/ vs. /j/

The vowel /i/ can function as the nucleus of syllables with and without an onset, such as in words like *ĩ-bi* [ĩ'mĩ] 'he took it' or *bĩbĩ = jo* [mĩ'mĩjo] 'hummingbird'.

In more complex syllables, such as VV or CVV, /i/ has different behaviors. First, monomorphemically, there are no syllables with two vowels and no onsets (VV) where the first vowel is /i/. All cases of attested vowel sequences where /i/ is the first vowel of the sequence (cf. chart in (2.21)) are of the CVV type, as illustrated in the examples in (2.13).

- (2.13) a. *bia* ['bia]
 'chili pepper'
- b. *hio* ['hio]
 'garden'
- c. *bĩe* ['mĩẽ]
 'anteater'
- d. *bĩu* ['mĩũ]
 'thorn'

The paradigm of the PROXIMAL DEMONSTRATIVES (cf. chapter 9) is an interesting example that shows how /i/ can never form a syllable with another vowel if there is no consonant in the onset of the syllable. The underlying form of the proximal demonstrative is *i-*, which is shown in the examples in (2.14a,b,c). When /i/ is followed by another vowel, two possible outcomes can occur: either /i/ surfaces as /j/ (as in

(2.14d) and (2.14e)); or an on-glide is inserted between /i/ and a morpheme in another syllable as in (2.14c):

- (2.14) a. *i-dã* [i.'nã]
 this-AN.PL
 'these ones (animates)'
- b. *i-ko* [i.'ko]
 this-FEM
 'this female one'
- c. *i=e* [i'je]
 this = MSS
 'this mass thing'
- d. *jo* ['ɕo]
 'this count thing, here'
- e. *jãi* [jã.ĩ]
 'this masculine one'

On-gliding in as in (2.14c) is a productive rule in Kubeo phonology as is discussed in-depth in section 2.1.2.6, chapter 2, and chapter 5. The forms in (2.14d) and (2.14e) are not based on synchronic rules, but are the result of diachronic changes and reanalysis.

Additional pieces of evidence for a diachronic change of /i/ > /j/ can be seen with the SIMULTANEOUS NOMINALIZER affixes, discussed in chapter 8. As with the PROXIMAL DEMONSTRATIVE, when /i/ was historically in the same syllable with another vowel, *i changed to /j/, resulting in *-jĩ* 'masculine nominalizer' and *-jo* 'feminine nominalizer' (from **-i-i* and **-i-o* respectively), such as in *da-jĩ* (come-NMZ.MSC) 'the one who is coming'. Therefore there is a diachronic tendency for /i/ to fill the onset slot of syllables that lack onsets (following the universal preference for CV syllables over V or VV syllables).

Synchronically, the only case where /i/ can start a VV syllable is across a stem and a suffix, such as with the verb *ĩ-* 'take', the only root composed of just the vowel /i/. When combined with suffixes starting with a vowel, as in *ĩ-abẽ* [ĩã.mẽ] 'he took it' (take-II.3MSC), /i/ does not surface as a consonant.

Another important synchronic fact that can be added to this discussion is the failure of the application of the rule *Identical Vowel Deletion* (cf. 2.1.2.4) between /i/ and /j/ (see also chapter 5). In the normal situation, when two /i/ vowels are joined

across morpheme boundaries in the same syllable, one of them is deleted, as in (2.15) below. However, this process fails to apply when /i/ and /j/ are in sequence, as (2.16) shows:

- (2.15) a. $V_i \rightarrow \emptyset / V_i _]\sigma$
 b. 'hi-i-bi ['hibi]
 give-ST-3MSC
 'he gives it'
 c. 'bĩ#ibãđõ ['mĩmãrõ]
 your#village
 'your village'
- (2.16) a. 'hi-ja-bã ['hijamã]
 give-ST-3PL
 'they are giving it'
 b. 'bĩ#jo-ki ['mĩjoki]
 your#young.sibling-MSC
 'your younger brother'

The failure in the application of the *Identical Vowel Deletion* rule in (2.16) could be interpreted as a consequence of /j/ and /i/ being distinct phonemes (or else, the result of rule ordering issues, see (2.17) below). In connection with these examples, it is possible to find a few words like 'jiru-ko (cricket.sp-FEM) 'cricket sp.', where /j/ and /i/ are within the same syllable and still there is no *Identical Vowel Deletion* rule. It should be noticed that the sequence /ji/ is very rare (cf. chart in (2.76) below).

Nevertheless, it is always possible that an alleged rule that change underlying /i/ to surfacing /j/ may take place before the rule *Identical Vowel Deletion*, hence bleeding the application of this rule, as illustrated below:

- | | |
|-----------------------------|-------------|
| (2.17) 0. UNDERLYING LEVEL | //iiru-ko// |
| 1. GLIDE FORMATION | jiruko |
| 2. IDENTICAL VOWEL DELETION | -- |

In this case, the facts in (2.15) and (2.16) should not be taken necessarily as evidence for a distinct status of /i/ and /j/.

Another fact that must be considered comes from the allophonic rules of /j/ (cf. section 2.2.2.4). Examples in (2.18) below show /j/ surfacing as [ð] between non-high

vowels, while examples in (2.19) show similar contexts where /i/ fails to undergo the same alternation.

- (2.18) a. /j/ → [ð] / [-high] ___ [-high]
- b. *ã-abẽ=ja* [ˈãbẽða]
eat-II.3MSC = REP
'Uaupés river'
- c. *bãhẽ#jo-ki* [mã'hẽðoki]
1pl.incl.poss#younger.sibling-msc
'our little bother'

- (2.19) j → Ø / Vi__V
- a. *kai=e* [ˈkaije]
every = MSS
'every thing'
- b. *dẽi#ewa* [ˈnẽi.jewa]
buriti#parrot.sp.
'buriti parrot (bird sp.)'

If /i/ could freely surface as some form of /j/ it would be hard to understand why the language would prefer forms such as CVV.CV as in (2.19), instead of CV.CV. This seems to follow from the fact that /i/ and /j/ are distinct phonemes at least in levels where /j/ allophones are computed. On the other hand, this is not conclusive evidence that /i/ and /j/ are different phonemes underlyingly.

It is important to highlight the unique behavior of the vowel /i/ with respect to syllabification. As summarized in chapter 5, /i/ is ambisyllabic, creating an on-glide in the following syllable under special circumstances, as the examples in (2.19) illustrate (see also section 2.1.2.6). Second, /i/ is the sole segment in Kubeo that can surface in a syllable coda position.

In addition, the glide /j/ is only manifested as [j] between vowels when it is preceded by /i/. Also, /i/ seems to have caused the palatalization of /t/ in pre-Kubeo (cf. section 2.2.2.7).

The above segmental syllabic properties of /i/ highlight its resemblance to /j/ in the phonology of Kubeo beyond simple phonetic terms. One way to formalize such a resemblance is to analyze /i/ [coronal][+distributed] sound, a somewhat controversial analysis, but which finds phonological motivations in the language.

In summary, the above discussion has shown that while there are reasons to suspect that /i/ and /j/ may correspond to the same phoneme underlyingly, it also the case that at certain phonological levels /i/ and /j/ have distinct phonological properties, justifying the analysis of them as two separate phonemes. In this dissertation, I integrate both situations into relevant theoretical discussions (see in particular chapters 5 and 6), though I will opt for describing them as distinct phonemes (as in fact they are at least in certain phonological levels).

/u/ and /w/

It is possible to find contrastive or very similar environments between /u/ and /w/, such as in words as *wãrĩ* [wãrĩ] 'fish sp.' vs. *ũa* [ũã] 'ash', and *wěbõ* [wěmõ] 'sister in law' vs. *ũe = bũ* (nose = CL.THICK.LINE) [ũēmũ] 'nose'.⁶ Hence, contrary to /i/, /u/ can contrast with /w/ and surface as the first vowel of a VV syllable in a single morpheme.

Nevertheless, it is intriguing why only in nasal environments one is able to find such pairs. It probably has to do with the fact that nasalization is a feature that triggers a more lenis realization of phonemes, which is also attested in Kubeo synchronic alternations of /j/ and /w/ (cf. section 2.2.2.4 and 2.2.2.3).

As with /i/, /u/ in most cases can only appear as the single member of a vowel sequence if there is a stop in the onset of the syllable, as examples in (2.20) illustrate.

- (2.20) a. *kuekubã-bi* ['kuekumãmĩ]
 get.frighten-3MSC
 'he got frightened'
- b. *bui-di = kũ* [bui'dikũ]
 get.full-NMZ = CL.EMB
 'a full/loaded canoe'
- c. *hũa-dõ* ['hũãrõ]
 red-CNT
 'a red thing'

Unlike with /i/, there is little data that supports the idea that /u/ evolved into /w/ diachronically in syllables lacking an onset. But considering also related languages, sequences of /u/ and another vowel in syllables lacking a stop in the onset are also

⁶ The word for 'ash' is pronounced as a single syllable, as well as the first two vowels of the word for 'nose'.

extremely rare. Therefore, the two words *ũa* [ʔũã] 'ash' and *ũe* [ʔũẽ] 'nose' are likely two of the few examples of this sort of sequences.

Kubeo disallows sequences of two round vowels, /u/ and /o/, morpheme internally (cf. section 2.1.1.2), and it also disallows sequences of /w/ and /u/ (cf. section e.g. (2.74)). Syllables like /wo/ are found only in two partially homophonous roots: *wo-* 'to open, to bloom, get peeled off' (*i.v*), and *wo-* 'to look for'.⁷ It follows that the language avoids two rounded phonemes within the same syllable.⁸ These two words with /wo/ are exceptions to this pattern. No cognates of these words were found in other Tukanoan languages.

Because of the clear restriction of */uo/ sequences, which also seems to be true for the majority of Tukanoan languages, but the existence of a /wo/ sequence, it seems plausible that the language treats /w/ and /u/ as distinct phonemes. This piece of evidence together with the contrastive or near contrastive pairs between /u/ and /w/ presented above are sufficient evidence to treat both sounds as distinct phonemes in the language.

In addition, it should be added that because Kubeo allows /wo/ but not */uo/, it is likely that the /u/ and /o/ share some kind of feature that is absent from /w/. I propose that this feature is [round], which is the result of a redundancy rule of the [labial] feature in vowels. In section 2.1.2.2 additional evidence for */uo/ as a violation of the Obligatory Contour Principle will be presented.

2.1.1.2 Vowel Clusters. In Kubeo, there are interesting vowel sequences inside a single syllable, which I describe as vowel clusters. My use of the term "vowel cluster" is based on an analogy with "consonant clusters". Both types of clusters are constrained to language specific and universal *paradigmatic* and *syntagmatic properties* that allow only a limited set of possible combination of otherwise *independent phonemes*. They are distinct from diphthongs, on the one hand, by not acting as a single phoneme, and, on the other hand, are distinct from hiatuses,⁹ since they are parsed in a single syllable.

⁷ As mentioned, the distinction between these words is only tonal, *wo-* 'to open, to bloom, get peeled off' has HL tone and *wo-* 'to look for' has H tone (cf. chapter 4).

⁸ The restriction is about roundedness, rather than labialness, since combinations of such as /bu/, /bo/, /pu/ and /po/ are very common.

⁹ A hiatus is analyzed when two vowels are following each other, with no interleaving consonant, in different syllables, such as in Portuguese *lua* [ʔlu.a] 'moon'. To say it differently, a hiatus is a sequence of heterosyllabic vowels.

Table 3 below gives all possible combinations of vowel clusters that occur monomorphemically inside a single syllable. The vowel sequences that are not present in Table 3 are banned in the underlying representation of morphemes:¹⁰

(2.21) *Table 4: Kubeo Vowel Clusters*

BEGINNING	ENDING					
	a	e	o	i	u	i
a	*	<u>a</u> e	<u>a</u> o	<u>a</u> i	<u>a</u> u	<u>a</u> i
e	<u>e</u> a	*	<u>e</u> o	∅	∅	<u>e</u> i
o	<u>o</u> a	<u>o</u> e	*	∅	∅	<u>o</u> i
i	<u>i</u> a	<u>i</u> e	<u>i</u> o	*	∅	<u>i</u> i
u	<u>u</u> a	<u>u</u> e	∅	<u>u</u> i	*	<u>u</u> i
i	<u>i</u> a	<u>i</u> e	<u>i</u> o	∅	<u>i</u> u	*

Given that Kubeo syllables do not allow codas except when there is a sequence of three vowels and the right most vowel is an /i/ (cf. chapter 5), we must analyze all the segments in (2.21) as true vowels. The syllable structure of the language also does not allow CCV syllables, so vowel clusters initially formed by /i/ and /u/ must also be analyzed as VV sequences. Phonetically, these claims are also true, since Kubeo vowel clusters have vowels in general being tenser and longer than non-nuclear vowels in diphthongs cross-linguistically.

There are several facts that show that Kubeo vowel clusters are part of a single syllable and not of two different syllables. These are discussed in the subsection *Internal Properties of Vowel Clusters*. But before that, I show how vowel clusters should be analyzed as a distinct type of what is generally understood by diphthongs cross-linguistically.

¹⁰ An ‘*’ indicates that the language does not allow a sequence of two identical vowels (also related to the process of *Identical Vowel Deletion*, cf. section 2.1.2.4 below). Vowel sequences in *italics* indicates that the sequence is rare, with usually 1 to 3 occurrences but no more than 5 tokens in our 3.000 word lexicon, and the symbol ‘∅’ indicates that the particular vowel sequence does not exist. The most prominent vowel in a sequence is marked with an underline.

Vowel Clusters versus diphthongs

The next paragraphs present different points that distinguish vowel clusters from diphthongs.

(i) Considering the relative proportion between the number of diphthongs and number of individual phonemic vowels cross-linguistically, it would sound really odd if one had to analyze all Kubeo vowel clusters as diphthongs, given that usually the number of diphthongs per language is smaller than the number of phonemic individual vowels. If Kubeo vowel cluster were diphthongs one would have the odd figure of 23 diphthongs for 6 vowels.

Moreover, it is not only the proportion of more vowels clusters than phonemic vowels but also the productivity of combination of vowels in a vowel cluster in Kubeo that strikes one as a different type of phenomenon from diphthongs, given that inside a diphthong vowels have a more limited set of combinatory possibilities.

(ii) Reduplication is a limited process in Kubeo morphology, which can be analyzed in two types: stem reduplication and syllabic reduplication (cf. chapter 6). The syllabic reduplication can cause a split in a vowel sequence, so that one of the two vowels is separated and repeated in the reduplication, as in the following words: the verb root *wai-* 'to pass by, to go through' can be reduplicated as *waiwa-* 'to hike, to march'.

In some languages that have diphthongs and reduplication, one would expect that the whole diphthong would be reduplicated, since diphthongs are phonological units just like individual phonemes (cf. Rehg 2007).¹¹

(iii) Vowel clusters can usually have different syllabification patterns due to marked paralinguistic motivations. A sequence of two vowels can be parsed as a single syllable or as two syllables (hiatus), depending, for instance, on speech rate and register.

For instance, the words below show that vowel cluster can be parsed in one or two syllables (they were collected in very careful, slow speech in elicitation of lexical items):

(2.22) a. *jai = ki* ['ɕai.ki] ~ ['ɕa.iki]
 rubber = CL.TREE
 'rubber tree'

¹¹ That might also depend on the phonological status of diphthongs. In case where in a given language diphthongs are analyzed as the juxtaposition of two vowels (not as truly a single phoneme) reduplication can use one but not two phonemes.

- | | | | | |
|----|--|----------|---|------------------------|
| b. | <i>ãu-dõ</i>
cassava-CNT
'a cassava bread' | [ˈãũɾõ] | ~ | [ˈã. ^w ũɾõ] |
| c. | <i>kũi-wi</i>
end-3IN
'it is over' | [ˈkũĩwĩ] | ~ | [ˈkũ. ^ɨ wĩ] |
| d. | <i>hio</i>
'garden' | [ˈhio] | ~ | [ˈhi. ^j o] |

For different reasons, splitting vowel clusters into a hiatus is marked with respect to the pronunciation of tautosyllabic vowels. First, my data shows that this happens only in very careful speech, as in lexical elicitation. Second, it can only occur in stressed vowel clusters, in which case the second vowel becomes unstressed although it keeps a high pitch from the standard [Low-High] pitch melody that occurs inside stressed vowel clusters (cf. section *Internal Properties of Vowel Clusters*).

However, in unstressed vowel clusters, hiatus can never be formed, so the words in (2.23) must be invariably parsed as a single syllable:

- (2.23) a. *jai-bi* [ɕai.'bi]
die-3MSC
'he has died'
- b. *dãidũ* [nãĩ.'nũ]
'evening'
- c. *'ijeĩ* [i.ɕeĩ]
'Amazonian grape'

Third – and most importantly – creation of hiatus is constrained in two important ways: (1) most types of hiatus occur when at least one of the vowels inside the cluster is a high vowel /i/ or /u/, which seems to follow from their ability to create on-glides;¹² (2) it has been observed that when neither of the two vowels are /i/ or /u/, a hiatus can only be created when the most prominent vowel of the cluster is the first vowel (V₁ in a V₁V₂ vowel cluster, see section *Internal Properties of Vowel Clusters* for the concept of prominence).

¹² On-glide in the next syllable, [u.^w] and [i.^j], will be discussed in more detail in section 2.1.2.6.

Although hiatuses are a marked type of construction, it is definitely a relevant property that must be taken into account in the comparison of vowel clusters and diphthongs. In the latter, such splits are rarely if ever possible. This shows that vowel clusters in Kubeo have vowels phonologically more independent than in diphthongs cross-linguistically.

(iv) There are some segmental processes across a morpheme boundary that can target one but not the two vowels inside vowel clusters, showing a relative independence between the two vowels, which is different from what one expects from diphthongs. These processes are discussed in section 2.1.2 below.

Internal Properties of vowel clusters

I now turn to crucial facts that suggest that vowel clusters are not hiatuses. The most important of them is native speakers' intuitions, who whenever explicitly asked to syllabify words with vowel clusters always parse vowel clusters as single syllables. Other facts are related to phonological properties that target vowel clusters as a single syllable. See below.

(I) *Prominence and Sonority scale*: The table in (2.21) above marks the most prominent vowel of a vowel cluster with an underline. Prominence is based on impressionistic judgment of which vowel is perceived as the loudest and longest in a vowel cluster. The following sonority scale predicts that whenever two distinct vowels, V_1 and V_2 , are grouped within the same syllable, the most prominent vowel is always the one on the left in the hierarchy in (2.24). In (2.24a) vowels are listed in their respective hierarchical order and in (2.24b) I give the hierarchy represented accordingly to vowel distinctive features:¹³

- (2.24) a. a > e / o > i / u / i
- b. [+low][-high] > [-high][-low] > [+high][-low]

The hierarchy could also be represented as a relative degree of vowel aperture, where more open vowels are more sonorous than less open vowels.

It is worth of future research a more detailed study of this type of hierarchy, such as whether in clusters such as [eo] and [oe] there is a more prominent vowel, or whether /a/ is truly more prominent than /e/ and /o/.¹⁴

¹³ ">" indicates greater to smaller hierarchical level and "/" indicates equal hierarchical status.

¹⁴ The lack of awareness of this hierarchy and the lack of distinction between prominence in a vowel cluster and stress at the syllable level was responsible for Morse and Maxwell (1999) to interpret that /a/ would

(II) *Stress and Tone within a vowel cluster*: There is little difference between the behavior of stress and tones in vowel clusters compared to their behavior in syllables with a single vowel (cf. chapter 4). This is particularly relevant for the phonology of vowel clusters, showing that for stress and tone purposes they are treated similarly to (C)V syllables.

For stress, it is significant to notice that in CVCV words stress can fall either on the first or second syllable, as in *ku'ja-bi* 'he bathed' (bathe-3MSC) versus *'kuja-bi* 'he ran' (run-3MSC) (cf. section 4.1.1, chapter 4). In words with vowel clusters the same is true, as the example below illustrate (showing that (C)VV syllable do not necessarily attract stress):¹⁵

- (2.25) a. *'hoa-ha-ki* [*'hoaha₁ki*]
 roast-IMP-MSC
 'roast it!'
- b. *hoa-'ha-ki* [*hoa'haki*]
 wash-IMP-MSC
 'wash it!'
- c. *bĩa'bã-wa-wi* [*mĩã'mãwãwĩ*]
 hiccup-CAUS-3IN
 'it makes one to hiccup'

With respect to tones, vowel clusters and single-vowel syllables have the same pattern. This is mainly because tones target syllables and not individual vowels/morae (cf. chapter 4, section 4.2). The only difference is that pitch contours (as a result of stress and tone rules) inside a vowel cluster are more explicit, since that syllable is longer. Hence an H toneme in a stressed syllable usually surfaces as a pitch rise both in a CV or CVV syllable. On the other hand, an L toneme in an unstressed syllable usually surfaces as a pitch drop contour both in a CV or CVV. This indicates that pitch rise or pitch drop is not a result of a tone cluster of low-high or high-low tones respectively, but rather are the result of the standard tone melody of H or L tonemes in the language (cf. section 4.2.2).

naturally causes a "stress shift" in Kubeo morphophonology (see chapter 4 for the analysis of stress and tone in Kubeo).

¹⁵ Although heavy syllables do not attract stress necessarily, it is more common to find words with stress on the initial syllable if that syllable has a vowel cluster. Otherwise, stress usually falls by default on the second syllable. Nevertheless, both patterns have many exceptions (cf. chapter 4).

As a result, pitch contour inside a vowel cluster is never contrastive. Just as in single-vowel syllables, pitch contour is predictable based on stress location, underlying tones of a morpheme and sentence intonation. A pitch contrast in vowel-cluster syllables would be expected if Kubeo vowel clusters actually corresponded to two different syllables, or if tones targeted individual vowels/morae, instead of syllables (cf. chapter 4 for a more detailed description on stress and tones.)

(iii) *Phonotactic constraints*: Vowel clusters are structured based on syntagmatic and a paradigmatic constraints (please see table (2.21)). In a vowel cluster, which has a V_1 and a V_2 slot, if V_1 is /i/, it implies that the following vowel can only be /a/, /e/, /o/, /u/, from a set of six existing vowels (see Rehg 2007 for a similar reasoning with respect to Hawai'i vowel clusters).

To illustrate fully these types of constraints and to assess whether there is any specific directionality, I give tables 4 and 5. In table 5 (2.26) V_1 is assumed as the nuclear position from where the constraints operate, while in table 6 (2.27) V_2 is assumed as the nuclear vowel (sequences of the same vowel are not allowed, cf. (2.21) above):

(2.26) *Table 5: Syntagmatic and Paradigmatic Constraints on Vowel Clusters-1*

If V_1	Then V_2
a	all
e	not /i/ and /u/
i	not /i/
ɨ	not /u/
o	not /i/ and /u/
u	not /o/

(2.27) *Table 6: Syntagmatic and Paradigmatic Constraints on Vowel Clusters-2*

If V_2	Then V_1
a	all
e	all
i	all
ɨ	not /e/, /o/ and /i/
o	not /u/
u	not /e/, /o/ and /i/

Table 6 in (2.27) seems to provide the most general types of constraints in vowel clusters and thus I assume that the directionality of constraints is from V₂ to V₁, where V₂ restricts the possible set of V₁ vowels.

It seems that there are two types of constraints structuring vowel clusters. One type is articulatory, which prevents /u/ and /o/ from being part of the same vowel cluster, and also /i/ from being V₁ and /ɨ/ from being V₂. The other type of constraint can be analyzed as a featural (or phonological) constraint, which seems to prevent that mid vowels as V₁ (/e/ and /o/) from being combined with high non-front vowels /ɨ/ and /u/ as V₂.

The constraints seem to be the result of diachronic rules, some of which are still active in the language. For instance, the cluster */uo/ is also avoided across morpheme boundaries, causing a change from /u/ > /ɨ/ in certain conditions (cf. section 2.1.2.2). The cluster */iɨ/ seem to be avoided by adjusting it to sequences such /ijɨ/ or /jɨ/ diachronically and synchronically (cf. section on /i/ and /j/ above). The constraint that restricts /ɨ/ as V₁ and /u/ as V₂ could also be related to the fact that /u/ is further back than /ɨ/, or else it is another case of a diachronic full assimilation (as /ɨ/ still tends to assimilate to [u] in certain contexts, cf. section 2.1.2.1).

Kubeo seems to be more liberal than other Tukanoan languages with respect to the allowed combination of vowels allowed inside a vowel cluster. In other Tukanoan languages there are some constraints that do not exist in Kubeo, while all constraints found in Kubeo seem to exist in related languages. This seems to indicate that the constraints that operate within Kubeo vowel clusters are old processes in Proto-Tukanoan history.

(iv) *Nasalization*: Nasalization is another piece of evidence that shows that vowel cluster belong to a single syllable (cf. chapter 3 for a detailed description of Nasality in Kubeo).

While oral and nasal syllables can coexist in the same morpheme in Kubeo, such as *bãhi* [mã.'hi] 'to know' or *'ukũ* ['ukũ] 'shelter', in a vowel cluster nasality is "all or nothing": either both vowels are oral or both nasal. Two adjacent vowels never have distinct values for nasality, such as * $\check{V}\check{V}$ or * $\check{V}\check{V}$.

In fact, this is a constraint that operates at the syllable level, i.e. syllables are either completely oral or completely nasal (cf. chapter 3). Hence, it is clear that vowel clusters are treated as a single syllable.

Diachronic sources of vowel clusters

The main origin of vowel clusters is from the loss of syllable boundaries, that previously separated two vowels. Such syllables may have been separated by, for example, **h* and **ʔ* (but it is also possible that by default Kubeo treated CVV sequences as CV.V, for instance). Consider the examples in Table 7:¹⁶

(2.28) *Table 7: Diachronic origin of vowel clusters*

KUBEO	BARASANO	TUKANO	KOREGUAHE	SIONA	SEKOYA	PROTO-TUKANOAN	GLOSS
bã [mã]	maa	maʔa	maʔa	maʔa	maʔa	*maʔa	Path
yí	yí	yíʔí	yíʔí	yíʔí	yíʔí	*yíʔí	I
dēi [nēi]	rēe	neʔe	neʔe	neʔe	neʔe	*neʔe	Palm sp. (Mauritia sp.)
bei	bii	biʔi	pěʔe	-	pěʔe	*pěʔi	rat
wei	wee	weʔe	veʔe	-	-	*weʔe	Black wax
bã [mã]	maha	maha	maa	ma	ma	*maha	Macaw
yai	yehe	yehe	-	-	yai	*yahi	Heron
o	oho	oho	oo	o	-	*oho	Banana / Wild banana
kówi	goo	oʔo	koro	koro	horo	*kʔoʔo	Flower

Kubeo has lost both **h* and **ʔ* historically. When that happened, the two separate vowels were merged into a single syllable. When the two vowels were identical and back (**a*, **i*, **o* or **u*) one of them was eliminated (as Kubeo still deletes identical vowels within the same syllable, cf. *Identical Vowel Deletion* rule below). If the vowels were identical and fronted (**e* or **i*) Kubeo dissimilated them, creating vowel clusters,

¹⁶ Words are in the orthographic form used by the sources of information: Barasano Barasana Literacy Committee (2009), Tukano Ramirez (1997b), Koreguahe (Cook and Gralow 2001), Sekoya (Piaguaje et. Al. 1992) and Siona (Wheeler 1987). Please see Chacon *forthcoming-a* for a more detailed reconstruction of Proto-Tukanoan stops.

instead of eliminating one of them (cf. words ‘flower’, ‘black wax’, ‘rat’, ‘palm’).¹⁷ If the two vowels were distinct a vowel cluster was regularly formed too.

So it is possible that in the past most words were disyllabic and stress fell on the second syllable, and when the syllable break was lost and vowels merged into a single syllable, stress assignment was regularized on the first vowel (the vowel of the former first syllable, e.g. *CV.'V > 'CVV). This explains the different pattern of stress in words starting in vowel clusters (see subsection (ii) *Stress and Tone within a vowel cluster* above and chapter 4 on stress).

2.1.2 Vowel processes. The types of vowel processes discussed in this section are seen in table 8:

(2.29) *Table 8: Summary of Phonological Processes affecting Vowels*

ASSIMILATORY PROCESSES:	Lowering Raising Rounding Fronting
LABIAL DISSIMILATION	
STRESS PLACEMENT IN VOWEL CLUSTERS ACROSS A MORPHEME BOUNDARY	
IDENTICAL VOWEL DELETION	
DISTINCT VOWEL DELETION	
DISTINCT VOWEL FUSION	
ON-GLIDING	
RESOLUTION OF THREE VOWEL SEQUENCE:	Exceptional Coda Re-syllabification

Most processes occur in vowel clusters, both within a single morpheme and across a morpheme boundary, though assimilatory processes may apply also to vowels separated by a consonant.

Vowel clusters are definitely a crucial element in Kubeo morphophonology. Issues related to the sonority hierarchy in (2.24) and the phonotactic constraints and directionality issues from table 6 in (2.27) are related to a "conspiracy effect", which seem to have framed the set of possible types of affixes in Kubeo lacking an initial

¹⁷ This sort of dissimilation or diphthongization of long vowels seems to be common cross-linguistically.

consonant.¹⁸ Thus, there are no affixes based on /i/ or /u/, the vowels with the greatest number of restrictions when occupying a V₂ slot in a vowel cluster. In addition, many vowel clusters that are rarer morpheme internally actually have many tokens across morpheme boundaries, such as /ae/, /oi/, /ie/ and /ua/.

The table below illustrates the types of suffixes in Kubeo that have no consonantal onsets:

(2.30) *Table 9: Suffixes with no consonantal onset*

LOCATIVE	-i
POSSESSIVE	-i
STATIVIZER	-i
NARRATOR'S POINT OF VIEW	-iki and -iko
INANIMATE PLURAL	-a
PAST TENSE	-a
INANIMATE MASS	-e
CAUSATIVE	-o -owa -a

In fact the only type of syllable that can be formed across a morpheme boundary and go against the patterns in table 5 in (2.26) is the one formed by the -o allomorphs of the 'causative' suffix, when combined to a stem ending in /u/. This situation can occur, of course, and is subject to a vowel process that I call *Labial Dissimilation*, to be discussed further below.

In the following, I discuss each of the vowel processes listed in (2.29) above, starting with *Assimilatory Processes*.

2.1.2.1 Assimilatory processes. An idea of how vowels can assimilate in Kubeo can be formed by observing the chart in (2.4) above. Based on that, one can see that vowels can deviate from their proto-typical realization in two ways: (1) one in which the vowel realization differs just marginally from their typical realization; (2) where the vowel realization differs substantially from their typical realization, what usually causes overlapping in the realization of different phonemes.

¹⁸ A conspiracy in phonology can be observed when a set of output forms have a common factor that is triggering them, although such a factor cannot be stated explicitly as a rule (cf. Kager, 1999).

It is clear that the following assimilation processes are caused by co-articulation, which seems to indicate that these processes are more phonetic than phonological in nature. As such, most processes are optional, similarly to the palatalization of alveolar sounds in English Syntax, which may optionally apply: e.g. 'don't you' [dɔ̃ntʃʲə] ~ [dɔ̃nt ju:]. Or in some dialects of Brazilian Portuguese, where a mid vowel before a stressed syllable can alternate with a high vowel, such as in /tomate/ [tu'matɐ] ~ [tu'matɨ] 'tomato', /peri'kito/ [pɨri'kitu] ~ [peɾi'kitu] 'parakeet'. Optional assimilatory processes in Kubeo tend to be more regular across morpheme boundaries and more subject to variation morpheme internally.

The fact that most vowel assimilatory processes in Kubeo are optional may reflect a historical fact where categorical vowel assimilation has already been normalized (lexicalized) morpheme internally or has caused vowel changes in bound-morphemes in order to comply with the vowel cluster constraints. The latter case is analyzed as a case of conspiracy in Kubeo morphophonology (cf. discussion in section 2.1.2 above). These are the two reasons why most Kubeo vowel processes (except LABIAL DISSIMILATION) are better cases of sub-phonemic assimilation.

Vowel Raising

Vowel raising is a process where low vowel /a/ and mid-vowels /o/ and /e/ are raised because of an adjacent high vowel.

A raised /a/ surfaces as [ə]. This can be stated the change:

[+low][-high] → [-low] / __ [+high]

where [ə] is analyzed as a mid-vowel of the same height as /e/ and /o/.

The typical realization of vowels /o/ and /e/ is open [ɛ] and [ɔ], so a raised /o/ surfaces as [o] and a raised /e/ surfaces as [ɛ].¹⁹ These types of vowel raising are non-categorical in the sense that the raised realization of a vowel is sub-phonemic, not overlapping with the realization of a distinct vowel, and hence cannot be stated in a distinctive feature fashion in a principled way.

Other instances of vowel raising are categorical in the sense the realization of a raised vowel overlaps with the realization of another vowel, such as in (2.31d,e). In this case only, can one state the process as a rule in a distinctive feature fashion, such as [-low][-high] → [+high] / __ [+high].

¹⁹ Another factor causing [ɛ] ~ [e] and [ɔ] ~ [o] alternations is tone (cf. section 4.2.4, chapter 4).

Nevertheless, all rules described below are subject to variation (i.e. are optional) and it is common to find the same words with pronunciations that do not display those processes.

- (2.31) a. *hai-wi* [həiwi] /a/ → [ə] / _ i
 need-N.3AN
 'I/you/it needs'
- b. *toi-ki* [toiki] /o/ → [o] / _ i
 be.paint-MS
 'a colorful/painted/spotted animal/man'
- c. *wēi* [vei] /e/ → [e] / _ i
 'black ink (from a fruit sp.)'
- d. *jo-i* [ʤui] /o/ → [u] / _ u
 THIS.CNT-LOC
 'here, this thing'
- e. *dõ-i* [nũi] /o/ → [u] / _ u
 ANPH.CNT-LOC
 'in that place'

It is remarkable that there is no equivalent categorical raising of /e/ to [i] in the observed data.

Vowel Lowering

In vowel lowering, /u/ is realized as [o] when in the adjacency of a mid or low vowel. This can be stated as: [labial][low][+high] → [-high] / ([-high]) __ ([-high]).

- (2.32) a. *bue-i-dõ* [boe'ino] /u/ → [o] / _ e
 study-ST-CNT
 'a study, lecture'
- b. *pãu = ki* [pãõki] /u/ → [o] / a _
 hammock = CL.TREE
 'a hammock'
- c. *du-abẽ* [doamẽ] /u/ → [o] / _ a
 frustrative-II.3MSC
 'he tried to...'

It is also remarkable that no relevant noticeable cases of vowel lowering were found for /i/ and /ĩ/.

Vowel Fronting

Vowel fronting is an optional rule where high back vowels /i/ and /u/ are fronted in the adjacency of front vowels /i/ and /e/. A fronted /ĩ/ is realized as [i] while a fronted /u/ is realized as [y]. Fronting can be captured by the rule [dorsal] → [coronal] / __ [coronal].

- (2.33) a. *pueja-i-dõ* [ˈpyeðainõ] /u/ → [y] / __ e
 respect-ST-CNT
 'respect'
- b. *tu-i#pãwã* [ˈtyi pã,wã] /u/ → [y] / __ i
 pull.up-ST#area
 'a river port'
- c. *oko#kaju-e* [oˈkoka,ɕje] /u/ → [i] / __ e
 water#mix-MSS
 'purridge'
- d. *piedõ* [ˈpienõ] /ĩ/ → [i] / __ e
 'on top of, more'
- e. *waihi-e = bu* [waiˈhiebu] /ĩ/ → [i] / __ [i]
 be.tasty-MSS = COP.N.3AN.SG
 'a tasty food'

Across morpheme boundaries, one usually finds that a sequence of *i-i* surfaces as [i]. This is probably a case of two combined changes:

- (1) *Vowel fronting* [ĩ] → [i] / __ i and (2) *Identical Vowel Deletion* [ii] → [i]

- (2.34) a. *pũrãwi-i* [pũˈrãwi]
 opposite.side-LOC
 'in the opposite side'
- b. *hi#paki-i* [hiˈpaki]
 MY#father-PSS
 'my father's'

It should be noticed that this process generally occurs when the sequence [iɪ] is in an unstressed context, so in a very common word as *ĩ-i* ['ĩi] (he-PSS) 'his' the process does not apply.

In similar unstressed contexts, but outside a vowel clusters, it is also possible to find /i/ surfacing as [i], as represented in the examples below:

- (2.35) a. [dorsal][-low][+high] → [coronal] / __C_o [coronal][+high]
 b. *ãbĩ#kĩ-kĩ* [ã'mĩki,kĩ]
 name#exist-MS
 'he is named...'
 c. *i-e#ti-wi* ['ieti,wĩ]
 want-MSS#fall-N.3AN
 'I/you/it got tired'

Vowel Rounding

In vowel rounding, /i/ surfaces as [ʊ] in the adjacency of a labial vowel /o/ and /u/ as in (2.36) or a labial stop /b/, /w/ and /p/, as in (2.37). This process can be captured by the rule:

[dorsal][+high][-low] → [labial] / ([labial]) __ ([labial]).

- (2.36) a. *hatio-wi* [ha'tʰowĩ] /i/ → [ʊ] / _ o
 cook-N.3AN
 'I/you cooked'
 b. *hio-wi* ['hʊowĩ] /i/ → [ʊ] / _ o
 cure-N.3AN
 'I/you cured (him)'
 (2.37) a. *hariwa-i-dõ* [harʌwainõ]
 throw.away-ST-CNT.NMZ
 'something that was thrown away'
 b. *'bijo-ko* ['bʊdʒoko]
 lizard.sp-FEM
 'a lizard sp.'

2.1.2.2 Labial Dissimilation. This term refers to a process where /u/ in stem final position is forced to form a vowel cluster with /o/. In this situation, /u/ dissimilates to

/i/, because of the prohibition of /u/ and /o/ to be in the same syllable (cf. chart in (2.21) above).

Such a process is within the general class of dissimilation processes caused by the violation of the Obligatory Contour Principle (OCP), in which two (partially) identical adjacent segments are prohibited (cf. Clements and Hume 1995). Such a process can be formalized by "delinking" [labial] from the feature representation of /u/, as in:

$$[\text{dorsal}][\text{labial}][+\text{high}][-\text{low}] \rightarrow [\text{dorsal}][+\text{high}][-\text{low}] / _ [\text{labial}].$$

The feature [labial] in vowels redundantly implies the feature [round], which is absent from consonants such as /w/. This becomes evident when one realizes that Kubeo allows syllables such as /wo/, but no syllables such as /*uo/ (cf. section 2.1.1).²⁰

This process has been found only with respect to suffixation of the causative morpheme *-owa*, in particular with its allomorph *-o*. The following examples illustrate in letter (a) the stem ending in /u/ in its plain form and in (b) in its derived form.

(2.38) a. *kũ-bi* [kũmĩ]

bite-3MSC
'he bited it'

b. *kũ-o-bi* [kĩõmĩ]

bite-CAUS-3MSC
'he made it bite (it)'

(2.39) a. *dũ-bi* [nũ'mĩ]

suck-3MSC
'he sucked it'

b. *dũ-o-biko* [nĩõmĩko]

suck-CAUS-3MSC
'she breastfed it'

2.1.2.3 Stress in vowel clusters across morpheme boundaries. In the subsection *Diachronic Sources of Vowel Clusters*, I suggested that what explains the exceptional stress pattern in vowel clusters was a change that formed vowel clusters from two originally distinct syllables, causing the stress to shift from the second syllable (the

²⁰ The language does not allow /*wu/ syllables neither (cf. section 2.2.1).

regular pattern) to the first syllable when the first syllable is the result of the merging of two formerly different syllables (the irregular pattern).

Similarly to this diachronic process, when vowel clusters are formed across morpheme boundaries, stress can also shift from the regular pattern (the second syllable) to the irregular pattern (the first syllable). Consider the examples below, where the words in (a) show that stress should fall by default in the second syllable, but when vowel clusters are formed stress falls on the first syllable, as in the (b) examples:

- (2.40) a. *tí-bi* [tí'bi]
 fall-3MSC
 'he fell down'
- b. *tí-o-kakí* ['tiokakí]
 fall-CAUS-II.1MSC
 'He dropped it'
- (2.41) a. *ã-be#te-wí* [ã'mětewí]
 eat-NEG#do-N.3AN
 'I did not eat'
- b. *ã-i-bíko* [ãimíko]
 eat-ST-3FEM
 'She is eating'
- (2.42) a. *wo-debu* [wo'rebu]
 bloom-INFRR.N.3AN
 '(the flowers) bloomed'
- b. *wo-i-wí* ['woiwí]
 bloom-ST-N.3AN
 '(the flowers) are blooming'

This is the result of syllabification rules taking place after this particular stress rule (*Accent Projection*, cf. chapter 4), which means that when the stress rules apply the stem (root and affixes) is underlyingly disyllabic (cf. also section 6.7, chapter 6 on phonological levels). This can be represented by the rule as $\sigma\sigma \rightarrow '\sigma$ (cf. chapter 5).

On the other hand, there is no stress shift when stress has been previously assigned to the same syllable where a vowel cluster is formed across a morpheme boundary. The following examples show two different patterns corresponding to this situation. In (2.43) a vowel cluster is formed in the second syllable of the word, the

exact location of the default stress. In (2.44) a vowel cluster is formed in a monosyllabic stressed root, which is exceptional by being underlyingly stressed.

- (2.43) a. *a-be-biko* [a'bebiko]
 say-NEG-3FEM
 'she is not telling'
- b. *a-be-ako* [a.'bea.ko]
 say-NEG-II.3FEM
 'she never tells'
- (2.44) a. *ẽ-wĩ* ['ẽwĩ]
 burn-N3AN
 'it is burning'
- b. *ẽ-awĩ* ['ẽã.wĩ]
 burn-II.1/2/3IN
 'it was burnt'

All of the examples from this section are cases of syllable merger and it is remarkable that they all preserve the prosodic properties that originally belonged to one of the two previous syllables. This seems to be a universal tendency in syllabification processes and also found in several languages that avoid hiatuses (cf. Hayes 1995:43), reinforcing our claims about vowel clusters.

2.1.2.4 Identical Vowel Deletion. Kubeo does not have long vowels in underlying representations nor does it allow two identical vowels within the same syllable. If two identical vowels fall under the same syllabification domain due to morphological processes the second vowel is deleted: $V_i \rightarrow \emptyset / V_i _$.²¹

Such a process is very similar to the formation of vowel clusters across morpheme boundaries, the only difference being that here the two vowels are identical. Hence, when this process occurs, prosodic properties such as nasalization, tone and stress are also preserved on the remaining vowel.

The examples below show a stress shift occurring from the second to the first syllable of words (see also chapter 3 for the nasalization pattern in *identical vowel deletion* rule). Examples in (a) show words with a regular stress placement on the

²¹ This correlates with the fact that Kubeo does not have the type of vowel lengthening reported to other Tukanooan languages (Ramirez, 1997; Gomez-Imbert 2004; Stenzel 2004) where a CV root surfaces as [CVV] to meet a word minimality constraint of two morae.

second syllable. Examples in (b) show stress occurring on the first syllable after stress shift due to vowel deletion:

- (2.45) a. *a-be-wi* [a'bewi]
 say-NEG-N.3AN
 'I do not say'
- b. *a-abẽ* ['amẽ]
 say-II.3MSC
 'He said'
- (2.46) a. *wĩ-kaki* [wĩ'kaki]
 inhale-II.1MSC
 'I inhaled (it)'
- b. *wĩ-i-kaki* [wĩkaki]
 inhale-ST-PST.NMZ.MSC
 'the one who was inhaling (it)'

The type of stress shift observed in the examples above is due to the same reasons presented for the behavior of stress in morphophonemic vowel clusters in section 2.1.2.3.

Identical Vowel Deletion seems to have operated also diachronically, as some of the examples in (2.28) above show.

Identical Vowel Deletion, like other segmental rules, is obligatory across morpheme boundaries within a word, but is optional in compounds. For instance the two compounds below have been attested to occur with two possible pronunciations:²²

- (2.47) a. *põe #eta* [põẽta] ~ [põẽ eta]
 people leave
 'mythological birth place of humanity (lit. people's leaving place)'
- b. *kĩrã #abođo* [kĩ'rã^mbođo] ~ [kĩ'rã abođo]
 house #pole
 'the pole sustaining the roof in a longhouse'

²² These examples show that the phonological juncture between stems in a compound is subject to variation. For instance the compound *ja'wi#bĩ* 'bird sp.' (jaguar#bird) can have the same pronunciation as the monomorphemic word *ja'wibĩ* 'dog'.

2.1.2.5 Distinct vowel deletion and Distinct vowel fusion. It is common in fast speech for speakers to produce two types of phonological processes in vowel clusters: *Distinct Vowel Deletion* and *Distinct Vowel Fusion*. In *Distinct vowel deletion* it is common in Kubeo for V_1 to be deleted and V_2 to be maintained: $V_1V_2 > \emptyset V_2$ / FAST-SPEECH. This can be seen in the examples below:

- (2.48) $ea \rightarrow a$
- a. 'kɨ #te-abẽ [kɨtamẽ]
 exist #do-II.3MSC
 'He lived'
- b. 'aipe #a-jɨ [ʼaipadʒɨ]
 what make-NMZ.MSC
 'what are you doing?'
- (2.49) $ie \rightarrow e$
- a. pari-e [pa're]
 be.strong-MSS
 'intensely'
- b. koðo-hi-e [ko'ðohe]
 dirrea-VBLZ-MSS
 'repulsion, disgust'
- (2.50) $ii \rightarrow i$
- a-içɨ-ibã [ʼaiçimã]
 say-IRR-PAST.3AN.PL
 'They said (I guess)'
- (2.51) $ie \rightarrow e$
- ihɨ-e#te-jɨ [i'hetedʒɨ]
 pain-mss#dyn-nmz.msc
 'the sick male one'
- (2.53) $ia \rightarrow a$ [mã'tiiye]
 bĩati-i-e
 exactly.when-ST-MSS
 'always'

Less often than being deleted, a sequence of two vowels can monophthongize, fusing into a single vowel. This can be captured by the rule where vowels /a/ is fused

with /e/ or /i/ and the new vowel preserves the height features of /a/ and the place features of /e/ and /i/:

(2.53) [dorsal][+low][-high] → [coronal] / __ [coronal][-low]

The examples below show /ae/ fusion in (2.54) and /ea/ fusion in (2.55)

(2.54) *ae* → *æ*

- a. *baja-e* [ba'ðæ]
 traditional.performance-MSS
 'a collection of traditional songs'
- b. *ih̄i ba-e = de* [ih̄i 'bæde]
 summer be-MSS = OBL
 'during summer'

(2.55) *ea* → *æ*

- 'ke a-i-ede* ['kæijede]
 thus make-ST-WHEN
 'thus when doing that'

Distinct vowel fusion and *Distinct vowel deletion* are very common in situations where three vowels are in sequence. They are one of the most important resources Kubeo has to avoid syllables with three vowels. In three vowels sequence, *Distinct vowel fusion* operates by collapsing the second and third vowels or the first and second vowels as exemplified below:

(2.56) *ea* → *æ*

- a. *pie-a* [piæ]
 basket-IN.PL
 'baskets'
- b. *ea-ibã = ja* ['æimãða]
 find-PAST.3PL.AN = REP
 'they found (it), one says'
- c. *koe-ako = ja* [koækoða]
 slash-PST.3FEM = REP
 'it is said she slashed it'

- (2.57) *ae* → *æ*
- a. *hũa-e* [ˈhũaɛ]
 be.red-MSS
 'red things/mass thing'
- b. *hidoha-e* [hiˈdohæ]
 be.dangerous-MSS
 'dangerous things/mass thing'
- c. *hio-i = ta* *ea-wi* [hioˈtæawi]
 plantation-LOC = E.FC arrive-N.3AN
 'I arrived at the garden'
- (2.58) *ai* → *e*
- boa-i#põe-ki* [boe põeki]
 kill-ST#person-MS
 'hunter, warrior, soldier'

When *Distinct vowel deletion* occurs in a three-vowel sequence, it is usually V_2 that gets deleted, which can be formalized as $V \rightarrow \emptyset / V_ -V$. See the examples below:

- (2.59) *ae* → *e*
- a. *hoa-e* [hoe]
 be.long-MSS
 'a long time'
- b. *bũa-e* [mẽ]
 be.good-MSS
 'well'
- c. *oe-i-biko* [oibiko]
 sweep-ST-3FEM
 'she is sweeping (the floor)'
- d. *hai-e = bu* [hæbu] (←[haebu])
 need-MSS-COP.N.3AN.SG
 'It is necessary'
- e. *hẽ-o-abẽ = ja* [hẽãmẽða]
 stuck-CAUS-PAST.3MSC = REP
 'he made it get stuck'

2.1.2.6 On-gliding. This is a process where the high vowel /i/ produces a transitional glide in the next syllable if it lacks an onset: $j > \emptyset / i \text{ } _\circ[_\text{V}]$, which result in configuration as [i.jV].

This process can be better understood as a phenomenon of ambisylabification, since /i/ appears as a full vowel in one syllable and as a glide in the following syllable (cf. chapter 5). When it occupies the onset position of the following syllable /i/ becomes [-vocalic], thus behaving as a surface glide (cf. chapter 5).

On-gliding will occur whenever either of the following situations are met:

- i. /i/ belongs to a syllable from a stem or clitic and the following syllable is from another clitic or stem, but never from a suffix.
- ii. /i/ is V_2 or V_3 in a vowel cluster and is followed by vowel-initial affix or clitic.

The following examples illustrate cases related to condition (i) above:

- (2.60) a. *'bĩ = e* [ˈmĩje]
 your = MSS
 'your things'
- b. *di = ěkãrĩ* [diˈjẽkãrĩ]
 ANPH = riverbank
 'that riverbank (conversation topic)'
- c. *'hi #ãbĩja* [ˈhĩãmĩja]
 my #name
 'my name'

The next example illustrates how with suffixation, instead of cliticization, on-gliding does not take place between a /i/ and another vowel.

- (2.61) a. *'hi-ako* [ˈhiako]
 give-II.3FEM
 'she gave (it)'
- b. *kõpĩ-a* [kõˈpĩã]
 tooth-IN.P
 'teeth'
- c. *ĩ-abẽ* [ĩãmẽ]
 take-II.3MSC
 'he took it'

The next examples show on-gliding occurring when condition (ii) is met:

- (2.62) a. *'kai = e* [*'kaije*]
 every = MSS
 'everything'
- b. *eda-i-ako* [*edaijako*]
 arrive-ST-PAST.3FEM
 'she is used to arrive...'
- c. *hoa-i-abẽ* [*hoaijamẽ*]
 wash-ST-PAST.3MSC
 'He is used to wash'

Please notice that only in this situation can on-gliding occur between a stem and a suffix.

The morpheme *-i* 'stative' has a special allomorph *-ja* for 3rd person animate plural. A hypothesis worthy of more investigation is whether this allomorph was originated (and later generalized to other 3rd person animate plural forms) as the result of epenthesis of /a/ when *-i* 'stative' clashes with the /i/ from the morpheme *-ibã* 'class II 3rd person animate plural' (cf. chapter 8). The allomorph *-ja* would be inserted to avoid a three vowel sequence where V₁ is the vowel from the stem, V₂ is *-i* 'stative' and V₃ is /i/ from *-ibã* 'class II 3rd person animate plural'. See the examples below:

- (2.63) a. *pupu-ja-ibã* [*pupu-ɕja-ima*]
 pray/blow.spell-ST-II.3AN.P
 'they (the shamans) always pray...'
- b. *kopipo-ja-ibã* [*kopipoðaima*]
 press-ST-II.3AN.P
 'the are used to shake ('press') hands'

This process seems to be related with the prohibition of a three vowel sequence that would be formed by the vowel from the stem plus *[i.ji].²³

²³ This case is unique and there are no other cases where two vowels /i/ from affixes are joint morphophonemically, a problem for a more refined definition of this process. Nevertheless, it is remarkable the fact that the two vowels /i/ could more easily suffer *Identical Vowel Deletion*, instead of allomorphy suppletion (or epenthesis of /a/). Also, the allomorph /ja/ of the stative suffix *-i* has been generalized to other cells for the inflection paradigm of 3rd person animate (cf. chapter 8).

2.1.2.7 Three Vowel Sequence Resolution. There are no morphemes in Kubeo that have a three-vowel sequence underlyingly. Such a pattern results exclusively from processes across morpheme boundaries.

In the previous two sections I have referred to three different ways that three vowel sequences are resolved in Kubeo: *Distinct vowel deletion* and *Distinct vowel fusion*, in section 2.1.2.5, and *On-gliding* in section 2.1.2.6. There are two remaining processes: *Exceptional Coda* and *Re-syllabification*.

It is important to notice that all of the processes related to the resolution of three vowel sequences function to allow a maximum of two full vowels in a syllable, which follows from Kubeo syllabic template (C)V(V) (cf. chapter 5).

Exceptional Coda

Exceptional Coda is one of the most common processes in the resolution of three vowel sequences because of the high productivity of bound-morphemes composed only by the vowel /i/ (cf. table in (2.30)).

In this process, V_3 is /i/ and it is reduced to the extent that it is acoustically very similar to, if not the same as, a glide [j]. Kubeo only have open syllables, so based on this more general phonological property I analyze this process as an exception. See the examples in (2.64):

- (2.64) a. *hio-i* ['hioj]
 plantation-LOC
 'in the plantation'
- b. *pẽo-i = dī* ['pẽõjdi]
 light-ST = CL.RND
 'a lamp'
- c. *hoa-i* [hoaj]
 be.far-LOC
 'faraway'
- d. *tõa-i#dĩbĩ* [tõãjnĩmĩ]
 break-ST#time
 'when I broke (my leg) (lit. leg breaking time)'

Assuming that /i/ can occupy a coda position, the Kubeo syllabic template has possible, maximum format (C)V(V)(j), which only occurs across morpheme boundaries (cf. chapter 5).

Instrumental research in this area is needed, especially because it creates a paradox for constraint based phonological theories: why avoiding three full vowels inside a syllable would cause the language to allow codas exceptionally?

Re-syllabification

In careful speech, three vowel sequences are usually syllabified in two distinct syllables: one containing a vowel cluster and another with a single vowel, (C)V.VV or (C)VV.V. This is a marked pattern, analogous to what is seen in paragraph (ii) in section 2.1.1.2.²⁴ Consider the examples below:

- (2.65) a. *hio-i* [ˈhio.i]
 plantation-LOC
 'in the plantation'
- b. *pẽo-i = dɨ* [ˈpẽõ.i.dɨ]
 light-ST = CL.3D.SMALL
 'a lamp'
- c. *pie-a* [ˈpie.a]
 basket-IN.PL
 'baskets'
- d. *ã-o-abẽ = ja* [ã.ˈõã.mẽða] ~ [ã.ˈwã.mẽða]
 eat-CAUS-II.3MSC = REP
 'he fed (him), so they say'
- e. *koe-ibã = ja* [ˈkoe.i.mã.ða]
 slash-II.3AN.P = REP
 'they cleaned (the forest)'
- f. *tʃia-i = dɨ* [ˈtʃi.jaidɨ]
 buzz-ST = CL.RND
 'cicada'

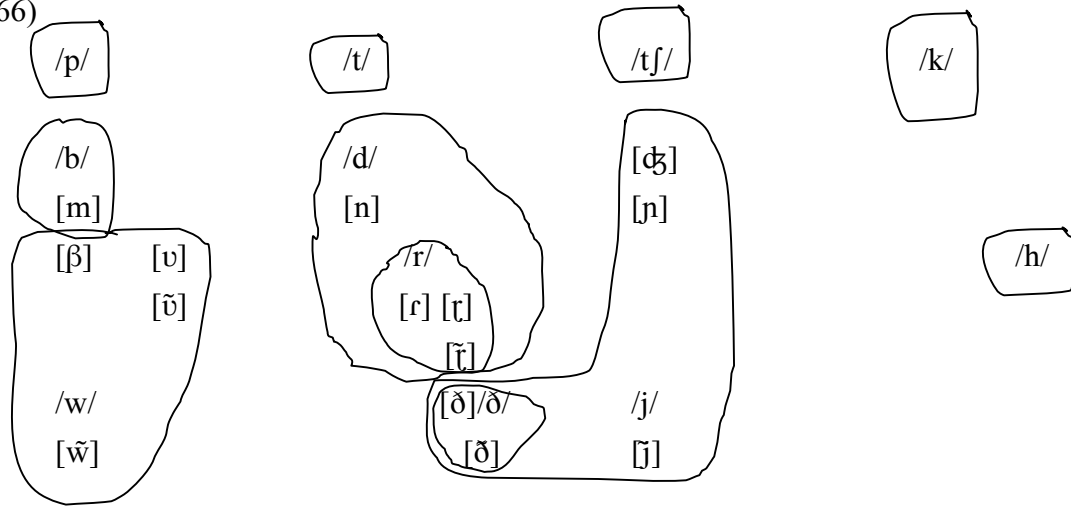
2.2 Consonants

The following chart summarizes each consonant and its allophones. Allophones are indicated by a circle that encompass the underlying form of the phonemes (represented by / /) and their allophones (represented by []). In the case of /ð/ and /r/,

²⁴ In both processes of re-syllabification, it feels like that the prosodic elements, that usually correlate, such as stress and tone, are suffering an unnatural division. More research in this area is necessary.

which are also allophones of /j/ and /d/, respectively, there is a phonemic representation and an allophonic representation.

(2.66)



The following compared words illustrate the phonological contrast of consonants that present similar place and manner of articulation (tones are not transcribed given that they do not affect the realization of stops).

(2.67)

a.

/p/

vs.

/b/

pako [pa'ko]
'mother'

bako [ba'ko]
'daughter (vocative)'

b.

a-be-ki [a'beki]
say-NEG-MSC
'the one who doesn't say'

ape-ki [a'peki]
other-MSC
'another one'

(2.68)

a.

/b/

vs.

/w/

bo-bi [bo'bi]
be.white-3MSC
'he is white'

wo-bi [vo'bi]
search-3MSC
'he searched'

b.

abia-ko [a'biako]
star-FEM
'a star'

awia [a'via]
sun/moon
'sun/moon'

(2.69)

a.

/d/

vs.

/t/

da-bi [da'bi]
come-3MSC
'he has come'

ta-bi [ta'bi]
swim-3MSC
'he has swam'

- b. *eda-bi* [e'dabi] vs. *eta-bi* [e'tabi]
 arrive-3MSC leave-3MSC
 'he has arrived' 'he has left'
- (2.70) /d/ vs. /r/
 a. *ãdĩ-* [ã'nĩ] *ãrĩ* [ã'rĩ]
 this- where
 'this' 'where?'
- b. *'tʃidu-ko* [tʃiduko] *'jiru-ko* [ʃiruko]
 fish.sp-FEM cricket.sp-FEM
 'A fish species' 'A cricket species'
- c. *dudu-kɪ* [du'dukɪ] *duru-i-dõ* [du'ruinõ]
 lizard.sp.-MSC fall.apart-ST-CNT
 'a lizard species' 'the thing that is falling apart'
- (2.71) /j/ vs. /tʃ/
 a. *'jiru-ko* [ʃiruko] *'tʃidu-ko* [tʃiduko]
 cricket.sp-FEM fish.sp-FEM
 'A cricket species' 'A fish species'
- b. *'juri* [ʃuri] *tʃu'ri* [tʃu'ri]
 deity wound
 'a deity' 'a wound'
- (2.72) /j/ vs. /ð/
'jawa-bi [ʃawabi] *'ða-wa-bi* [ðawabi]
 speak-3MSC make-hab-3MSC
 'he has spoken' 'he always makes (it)'
- (2.73) /tʃ/ vs. /t/
 a. *tʃawa = bi* [tʃa'wabi] *tawa* [ta'wa]
 big.ear = CL.CONT area
 'a person with big ears' 'area'
- b. *tʃubi* [tʃu'bi] *tu-bi* [tu'bi]
 rheum carry.on.back-3MSC
 'rheum' 'he carried on his back'

(2.74)	/k/	vs.	/h/
a.	<i>koa-i-dō</i> ['koajnō] dry(river)-ST-CNT 'to dry (river)'		<i>hoa-i-dō</i> ['hoajnō] roast-ST-CNT 'to roast/a roasted thing'
b.	<i>kā-bi</i> [kā'mī] sleep-3MSC 'he has slept'		<i>hā-bi</i> [hā'mī] hit-3MSC 'he has hit himself'

In section 2.2.1 below, the phonotactic distribution of each consonant is given. In 2.2.2, general phonological processes, allophonic alternations and more detailed discussion of interesting phonemes is given.

2.2.1 Consonants Phonotactics. The following chart provides the distribution of consonants with respect to their position in stems and bound-morphemes:

(2.75) *Table 10: Distribution of consonants in different morphophonological contexts*

	Stem Initially (#_)	Stem Medially (V_V)	Stem Initially and Medially (#_V, V_V)	Affix Initially	Clitic Initially
p	✓	✓	✓	-	✓
t	✓	✓	✓	-	-
tʃ	✓	✓	✓	-	-
k	✓	✓	✓	✓	✓
h	✓	✓	✓	✓	✓
b	✓	✓	✓	✓	✓
d	✓	✓	✓	✓	✓
r ²⁵	-	✓	-	-	-
w	✓	✓	✓	✓	✓
j	✓	✓	✓	✓	✓
ð ²⁶	✓	-	-	-	-

✓ means the pattern has been widely attested, - means that the pattern has not been attested

The fact that only one voiceless phoneme (/k/) can be in the onset of an affix may suggest that the other voiceless stops, if they ever appeared in this position, became voiced in the independent history of Kubeo (see Chacon *forthcoming-a* for comparative evidence to this analysis). In this regard, /h/ is also an interesting phoneme, precisely because it appears in affixes but not in clitics (cf. section 2.2.2.6). Also, consonants with

²⁵ Not every manifestation of [r] is analyzed as the phoneme /r/. Some instances of [r] are cases where [r] is an allophone of /d/. <r> in this table refers only to the phoneme /r/. Please see section 2.2.2.5.

²⁶ Not every manifestation of [ð] is analyzed as the phoneme /ð/. Please see section 2.2.2.4.

more restricted distribution, /ð/ and /r/, are the ones that reflect recent phonemicization in the language (cf. sections 2.2.2.4 and 2.2.2.5 respectively).

Table 10 provides the distribution of consonants with respect to vowels within the same syllable.

(2.76) *Table 11: distribution of consonants and vowels within the same syllable CV²⁷*

	<u>_i</u>	<u>_e</u>	<u>_i</u>	<u>_a</u>	<u>_o</u>	<u>_u</u>
p	✓	✓	✓	✓	✓	✓
t	rare	✓	✓	✓	✓	✓
tʃ	✓	✓	✓	✓	✓	✓
k	less- common	less- common	✓	✓	✓	✓
h	✓	✓	✓	✓	✓	✓
b	✓	✓	✓	✓	✓	✓
d	✓	✓	✓	✓	✓	✓
r ²⁸	✓	✓	-	-	✓	✓
w	✓	✓	✓	✓	rare	-
j	rare	✓	✓	✓	✓	✓
ð	-	-	-	✓	-	-

✓ means the pattern has been widely attested

'-' means that the pattern has not been attested

Distribution patterns classified as 'rare' were the ones where the combination of a consonant and a vowel occurred just once in my entire lexicon (~ 3000 words). In these cases, it is possible to search for a phonological or diachronic reason for the rareness of such patterns. The fact that /j/ and /i/, in one hand, and /w/, /o/ and /u/, on the other hand, are almost never in the same syllable has to do with the issues mentioned in section 2.1.1 above. 'Less common' means that a consonant and a vowel occurred within the same syllable in a few tokens (from 3 to 5), but that does not seem to follow from a fundamental motivation.

2.2.2 Consonant Processes and Allophones. In this section I begin by characterizing general phonological process that target whole classes of consonants. Afterwards, I discuss in more detail allophonic alternations and important issues of specific phonemes.

²⁷ The same reasoning for /r/ applies for /ð/.

²⁸ See footnote for /r/ and /ð/ in the previous chart.

There are three general phonological processes that can affect consonants in general:

Nasalization: all voiced consonants become nasalized in a nasal syllable and when they follow a nasal syllable from a different morpheme.

Lenition: several types of process result in weakening the strength of articulation of different consonants, including deletion.

Glide Fortition: Glides are realized as fricatives or affricates in word initial position and when adjacent to specific vowels in a word.

In the following, I discuss each process in turn. Glide fortition is discussed along with the discussion of /w/ and /j/ in sections 2.2.2.3 and 2.2.2.4 respectively.

2.2.2.1 Nasalization. As is explained in chapter 3 in greater detail, voiced obstruents and sonorant consonants (/b/, /w/, /d/, /r/ and /j/) do not contrast with their nasal counterparts. The latter are allophones of voiced stops, which become nasal in the onset of a nasal syllable. Vowels, which are non-consonant sonorant sounds, also have nasal allophones.

Given that phonetically in Kubeo vowels, glides, liquids and voiced stops all share the property of being voiced, and all have nasalized allophones, I propose a redundant rule where [+sonorant] → [+voiced], which is necessary to express the how any [+sonorant] and [+voiced][-sonorant] sounds pattern as a natural class.

One can thus propose a rule where [nasal] is assigned only to segments bearing [+voiced] feature, such as [+voiced] → [nasal] / ____]_{NASAL}. This is illustrated in (2.77):²⁹

- (2.77) a. /b/ > [m]
 bĩbĩ-dĩ [mĩmĩnĩ]
 blink-CNV
 'to blink'
- b. /d/ > [n]
 /dĩ-'dĩ/ [nĩ'rĩ]
 go-CNV
 'to go'

²⁹ As discussed in chapter 3, it is descriptively impossible to determine the source of nasality in nasal syllables, whether the source of nasality is a nasal vowel or a nasal stop, which I interpret as result of nasality being a prosodic feature of the entire syllable.

- c. /r/ > [ɾ]
 /ɾrẽ/ [ɾrẽ]
 'pupunha (palm sp.)'
- d. /w/ > [w̃]
 /wĩ-dĩ/ [w̃ĩnĩ]
 inhale-CNV
 'to inhale'
- e. /j/ > [ɲ]
 /jãwã-dĩ/ [ɲãwãĩ]
 steal-CNV
 'to steal'

The best examples that show a clear alternation between voiced stops and their nasal counterpart come from alternations across a morpheme boundary. Morphemes with a nasal syllable further nasalizes the morphemes on the right, provided that the latter have a voiced sound in the syllable onset. In every example below, examples in (a) illustrate a nasalized realization of a morpheme and examples in (b) illustrate a non-nasalized realization of the same morpheme:

(2.78) /-bi/ '3MSC'

- a. *dĩ-bi* [nĩmĩ]
 go-3MSC
 'he has gone'
- b. *da-bi* [dabi]
 come-3MSC
 'he has come'

(2.79) /-du/ 'IF'

- a. *ĩ-du* [inũ]
 take-IF
 'if taking'
- b. *ihí-du* [ihidu]
 be.in.pain-IF
 'if being in pain'

- (2.80) /-jĩ/'NMZ.MSC'
- a. *ẽbẽ-jĩ* [ẽmẽjĩ]
descend-NMZ.MSC
'the one who is descending'
- b. *epe-jĩ* [epeɟĩ]
leave/let-NMZMSC
'the one who is leaving (it)'
- (2.81) /-wa/'AN.P'
- a. *põe-wa* [põẽwã]
person-AN.P
'people'
- b. *hoewe-wa* [hoewewa]
toucan-AN.PL
'toucans'

Voiceless stops do not have nasal allophones, although /h/ might seem to be phonetically nasalized (as might also be the case for other voiceless stops, though nasality is only instrumentally observed, but not acoustically perceived). Hence, /p/, for instance, contrasts with /b/ in oral syllables (as in (2.82)) and with [m] in nasal syllables (as in (2.83)).

- (2.82) a. *pako* [pa'ko]
'mother'
- b. *bako* [ba'ko]
'daughter (vocative)'
- (2.83) a. *pĩpĩ = jĩ* [pĩ'pĩjĩ]
palm.sp. = CL.HOLLOW
'a palm species'
- b. *bĩbĩ = jo* [mĩmĩjo]
hummingbird = CL.LONG
'a hummingbird'

Finally, it is important to notice that a nasal allophone will always be almost identical in terms of point of articulation to its non-nasal realization. Hence: /j/ -- [ɟ], [ð] and [j] correspond to [ɲ], [ð] and [j]; /w/ -- [w], [β] and [v] correspond to [w̃] and

[ṽ]; /d/ → [d] and [r] correspond to [n] and [r̃]; and /b/ corresponds to [m]. However, in some cases a nasal allophone seem to correspond to the simplification of two correspondent oral allophones, for example where [w̃] corresponds to either [w] or [β]. An interpretation to this fact seem to be rooted in the phonetic properties triggered by nasalization, which seem to 'soften' the environment that otherwise would have triggered the fortition of /w/ to [β].

In addition, identity in place of articulation between nasal allophones and oral consonants further suggests that nasality is supra-segmental, interfering minimally in segmental features, such as place and manner of articulation. See chapter 3 for a more detailed analysis of Nasality in Kubeo.

Pre-nasalization of stops in Kubeo will be discussed in detail in section 3.2.3 from chapter 3.

2.2.2.2 Lenition. Lenition processes in Kubeo apply to stops between vowels in word internal position. The allophonic alternations of stops, to be discussed further below, present several cases of lenition, especially /d/ > [r] and dropping of many sounds, especially [ð], [r] and /h/. Also, allophonic alternations triggered by nasalization can also be analyzed as cases of lenition as well.

/p/ and /k/ > /h/

Alternations of /p/ and /k/ with /h/ happen in post-tonic and pre-tonic syllables within a word or compound. This type of alternation does not occur in a systematic fashion as nasalization does. It is subject to speaker variation and is more often heard in fast speech.

It can be generally stated as debuccalization rule, where [+consonantal][-sonorant] → [-consonantal][-sonorant] (cf. Halle 1995). Consider the examples below:

- (2.84) a. *'aipe#te-dĩ* [*'aiheteni*]
 what#do-CNV
 'what happened?'
 b. *'hapura-bi* [*'hahurabi*]
 be.heard-3MSC
 'He is heard'
 c. *kaidĩ = kũ-ba-kadõ* [*[mãhãrõ]*]
 whole = CL.EMB-BE-PST.NMZ.CNT
 'which was the whole bunch'

- d. *ʼjãhi-ki-dõ* [ʼjãhi_hinõ]
suffer-FUT.NMZ-CNT
'a future suffering'
- e. *dũ-de ku-kebãwi* [nũ'rẽ hu_kkemãwĩ]
smoke-COMPL walk-PST.ASM
'he used to smoke'

Deletion of voiced stops

A seemingly sporadic type of phonological process is deletion of voiced stops. The stop /d/ has a strong tendency to be dropped when it occurs in affixes, such as *-dã* 'animate plural' and *-dĩ* 'converb'. Consider the examples below:

- (2.85) a. *ã-dãhadã-bã* [ãrãhã mã]
eat-FUT.NMZ-3.AN.P
'they will eat'
- b. *do**ba**-rã d**ĩ**-kadã* [do'bã nĩ'karã]
sit-AN.P go-II.1.EXC
'We went to sit'
- c. *eko-rĩ da-ha-rã* [e'koĩ da'harã]
enter-CNV come-IMP-AN.P
'come on in!'

After the deletion, if the vowels are they same they are deleted (cf. *Identical Vowel Deletion*, section 2.1.2.4)

This process is also sporadic and optional, subject to speaker variation and speech rate. However, despite being sporadic, it bears some amount of psychological reality, rather than being purely phonetic (or accidental). This becomes evident from the fact that in many pieces of writing in Kubeo schools the form < ã > (corresponding to *-dã* 'converb') is systematically written instead of < rã > (the full form). Since writing is per-se a more 'careful register' than ordinary speech, this cannot be subsumed to the fast/non-careful vs. slow/careful speech rate/register.

Also, when speakers are questioned whether the pronounced [i] variant corresponds in fact to [ĩ] (for *-dĩ* 'converb') they do not automatically correlate both forms. These facts seem to suggest that [i] and [ĩ] are evolving in some ways into mutually exclusive allomorphs, though the phonological conditioning context is still

murkier for the linguist than the psychological representation of the two allomorphs in native speakers' minds.

The voiced stop /b/ is frequently deleted in the bound-stem morpheme *-ba* 'be' in fast speech. The following examples illustrate this sporadic process:

- (2.86) a. *da-kiyi-ba#te-bi* [da'kiyiatebi]
 come-FUT.NMZ.MSC-BE#do-3MSC
 'He has come'
- b. *ĩ-ba#te-kebã-awĩ* [ĩãtekemãwi]
 he-BE#do-PST.ASM-II.1/2/3IN
 'that was him'

2.2.2.3 The glide /w/. The glide /w/ has five basic types of allophones: [w], [β], [v], [ũ] and [w̃], which have different rules of realization depending on their position in the word, as described in table 12:

(2.87) *Table 12: Allophones of /w/*

	WORD-INITIAL POSITION	WORD-MEDIAL POSITION
[β]	before non-front vowels	before most vowels (less-frequent than [w])
[w]	mostly before /a/, but sometimes also before /o/ and /i/	before most vowels
[w̃]	in most nasal syllables	in most nasal syllables
[v]	before front vowels /i/ and /e/	less-frequent than in word-initial position, but also attested before front vowels
[ũ]	usually before front vowels in nasal syllables, though [w̃] is also attested before /i/ and /e/	less-frequent than in word-initial position, but also attested before front vowels in nasal syllables

In general terms, fortition of /w/ becoming a fricative [β] and [v] can be stated by the rules: [-consonantal][-vocalic][+sonorant][labial] → [+consonantal]. As [+consonantal][+sonorant] sounds, some allophones of /w/ pairs with /r/ and /ð/ in Kubeo, which can also be nasalized and behave as approximants.

Feature theory is still at odds in how to represent the distinction of bilabial and labiodental sounds (cf. Keating 1988, Clements and Hume 1995). Given that this distinction is also sub-phonemic in Kubeo, it is preferably stated in more general

phonetic terms as in the table above. Nevertheless, there is a certain correlation between labiodental and [coronal] vowels /i/ and /e/.

Nasalization is better seen as a "top-down" rule, where segmental rules that determine whether /w/ is realized as [β], [v] or [w] are computed separately from the assignment of the [nasal] feature from the syllable node. Nevertheless, it is evident that the nasalized allophone [w̃] is more common than other nasalized allophones, which indicate that nasalization can also prevent in certain contexts glide fortition.

The most general and common allophonic realizations of /w/ are illustrated in (2.88) below:

- (2.88) a. *'wai-wi* ['waiwi]
 go.through-N.3.AN
 'I went through'
- b. *awawa-ki* [a'wawaki]
 forest.entity-MS
 'A forest entity (Curupira/Madremonte)'
- c. *wi-i = kũ* [βiikũ]
 fly-ST = CL.EMB
 'an airplane'
- d. *wea* ['vea]
 'corn'
- e. *wio = bi* ['viobi]
 cheek = CL.CONT
 'cheek'
- f. *wãrĩ* [wã'rĩ]
 'fish sp.'
- g. *wĩt/ã-ko* [wi'tfã'ki]
 bird.sp.-FEM
 'bird.sp.'

2.2.2.4 The glide /j/ and the approximant /ð/. This section is divided into two parts, one where /j/ and /ð/ are treated as contrastive phonemes and another where [ð] is an allophone of /j/.

/j/ vs. /ǰ/

The examples in (2.72) gave a minimal pair with /j/ and /ǰ/. Phonemic contrast between these sounds is limited to the verb *ǰa-* 'to make', the only morpheme where it occurs contrastively. There are no other roots where /j/ surfaces word-initially as [ǰ].

The sound represented by /ǰ/ [ǰ] can be characterized as an alveolar approximant, where the laminal and apical part of the tongue is project to the anterior part of the mouth interdentially, but does not touch the alveolar ridge nor the upper teeth. The overall position of the tongue is lower than its position in the production of [j]. That is the reason for classifying its place feature as [coronal][+anterior][+distributed].

The result is a sound that has some audible similarities with a lateral with some friction. It sounds more lateral and more approximant-like than the Spanish intervocalic /d/, perhaps closer to Icelandic or Danish [ǰ], as described by Ladefoged and Maddieson (1996:144-5). In addition, the fact that Kubeo [ǰ] is an approximant, rather than a fricative, can also be observed from the fact that there are several instances of nasalized realizations of the sound [ǰ] (please see examples in (2.101) below). This is the main reason why it is treated as a [+sonorant] consonant.

There seems to be no clear reason for the evolution of [ǰ] as a distinctive phoneme in Kubeo, except due to borrowing, which brought the sound into the language in contexts not predictable by the ordinary allophonic rules.³⁰ Nevertheless native speakers of Kubeo feels that [ǰ] is not a simple allophone of /j/ as [ɕj], [j] or [ɲ]. They are much more conscious of the different realization of [ǰ], than of the distinct phonetics of the latter sounds, which are hardly perceived as different by them.

Allophones of /j/

Table 12 provides the allophonic realizations of /j/ and its contexts:

³⁰ A possible explanation could be the borrowing of the word *dzeekata* 'to make' from Baniwa, an unrelated Arawakan language with which Kubeo speakers have close historical contact.

(2.89)

Table 13: Allophones of /j/

	WORD-INITIAL POSITION	WORD-MEDIAL POSITION
[ɕ]	Commonly before any vowel, especially in word initially stressed syllables	- After high back vowels: /i/ and /u/ - Before any high vowel
[j]	Sometimes before non-high vowels, especially in non-stressed syllables, but less frequently than [ɕ]	Always after /i/
[ð]	Never	Always in between non-high vowels (/a/, /e/ and /o/)
[ɲ]	The nasal counterpart of [ɕ]	
[j̃]	Always the nasal counterpart of [j]	
[ð̃]	The nasal counterpart of [ð]	

In general terms, allophonic alternations of /j/ can be stated by the following rules:

(2.90) /j/ [-consonantal][-vocalic][+sonorant][coronal][-anterior][+distributed] →

- a. [-sonorant] / ([+high]) __ ([+high]) [ɕ]
 b. [+consonantal][+anterior] / [-high] __ [-high] [ð]
 c. (no change) / [coronal][+high] [j]

In word initial position, the realization of /j/ alternates between [ɕ] and [j], but [ɕ] is more common. Hence it makes sense to analyze [ɕ] as the "elsewhere" realization of /j/ (see nasal allophones in examples (2.98) through (2.100)).

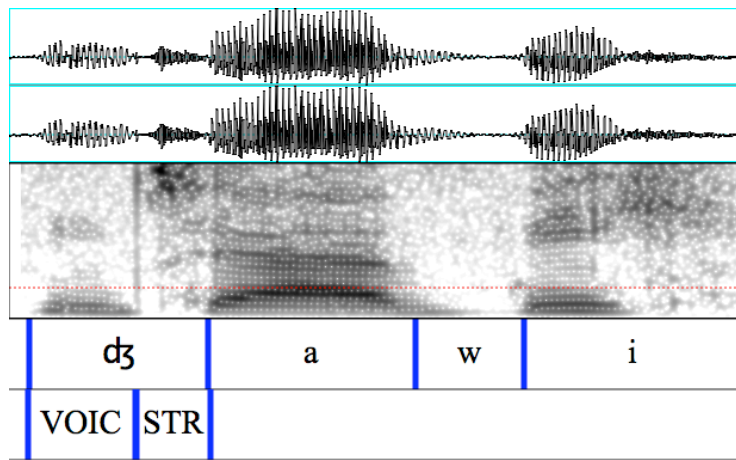
The allophone [ɕ] can be regarded as the most fortis realization of /j/. It is realized constantly in word initial position as in the words below illustrate:

- (2.91) a. *jawibī* [ɕa'vimī]
 'dog'
 b. *'jeka* [ɕeka]
 'rubber'

Please notice that the [ɕ] allophone cannot be predicted by stress, giving that it can occur both in stressed (as in (2.88b)) and unstressed syllables (as in (2.88a)).

The sound [ɕ] in word initial position is acoustically very interesting. Some speakers tend to produce it with very early voice onset time, preceding the oral stricture; the oral stricture, however, is voiceless and quite long. So in a word as *ja'wi* 'jaguar', one first gets early voicing preparing for [ɕ], then vocal folds stop to vibrate, and later vibration resumes in order to produce the vowel /a/. See Figure 1:

(2.92) *Figure 2: Spectrogram and Textgrid for the word jawi 'jaguar'*



'VOIC' means 'voicing'; 'STR' means 'voiceless stricture'

Such an unusual realization of /j/ can be described as a voiced palatal stop that has a transition to a voiceless palatal stop before a vowel, i.e. something like [j̥c] or [d̥j]. In addition, it should be said that when one gets a true [ɕ] (i.e. without the voiceless stricture) its voice-onset time is also quite long.

Continuing with the allophone [ɕ], this sound is the default realization for when there is at least one high non-back vowel preceding or following it. Consider the examples below:

- (2.93) a. *'baji* [ˈbaɕi]
 'Daddy (vocative)'
- b. *'kuja-bi* [ˈkuɕabi]
 run-3MSC
 'he ran'
- c. *hiji-ki* [hiˈɕiki]
 Courassow-MS
 'Black Courassow (bird sp.)'

- d. *'juku = kɨ* [ʔɟukukɨ]
 tree.sp = CL.TREE
 'tree sp.'
- e. *'bijo-ko* [ʔbiɟoko]
 lizard.sp-FEM
 'a lizard sp.'

The glide [j] alternates with the affricate [ɟ] in word initial position in a non-stressed syllable. Consider some words below where [j] occurred in word initial position:

- (2.94) a. *jawibĩ* [ja'vimĩ]
 'dog'
- b. *jabe* [ja'be]
 'seed'

After /i/, /j/ always surface as [j]. Consider the examples below:

- (2.95) a. *bĩbĩ = jo* [mĩmĩjo]
 humming.bird = CL.LONG
 'hummingbird'
- b. *bue-bi = ja* [buebija]
 study-3MSC = REP
 'It is said that he studied'
- c. *'hi-jĩ* [ʔhijĩ]
 give-NMZ.MSC
 'the one who gives'

The allophone [ɔ̃] occurs whenever there is a non-high vowel both before and after /j/. Consider the examples below:

- (2.96) a. *poja* [po'ɔ̃a]
 'hair'
- b. *doje* [do'ɔ̃e]
 'Traira (fish sp.)'
- c. *kaja#te-jĩ* [ka'ɔ̃atedɟĩ]
 support#do-NMZ.MSC
 'the one who helps'

[ð] can be considered the most lenis realization of /j/, the one that is often dropped in fast speech and that involves less effort of production. See some cases where dropping of [ð] was attested (in those cases other important phonological processes involving three-vowel sequences resolution had occurred after [ð]'s dropping (cf. section 2.1.2):

- (2.97) a. *běa#ða-rĩ* ['měãðãĩ] → [měãĩ] → [měã.ĩ] → [mãĩ]³¹
 be.good#CAUS-CNV
 'to fix, to make peace, to improve'
- b. *hiejo-ki* ['hieðoki] → [hieoki] → [hioki]
 child-MS
 'a boy'

Nasal allophones of /j/ can have the exact same place of articulation as oral allophones and usually there is a parallel between the environment where a particular nasal allophone occur and the environment where its correspondent oral allophone occurs. Consider the examples below which contrast an oral and nasal realization of the suffix *-jo* 'feminine simultaneous nominalizer':

- (2.98) a. *'bi-jo* ['biðjo]
 start-NMZ.FEM
 'the one that is starting'
- b. *ðĩ-jo* [nĩ'jo]
 go-NMZ.FEM
 'the one that is going'
- (2.99) a. *dupi-jo* [du'pijo]
 hide-NMZ.FEM
 'the one that is hiding'
- b. *ĩ-jo* [ĩ'ð]
 take-NMZ.FEM
 'the one that is taking'
- (2.100)a. *epe-jo* [e'peðo]
 leave-NMZ.FEM

³¹ All these forms have been attested in our corpus and yet they are paradigmatic cases to illustrate the frequent dropping of [ð].

'the one that is leaving (it)'

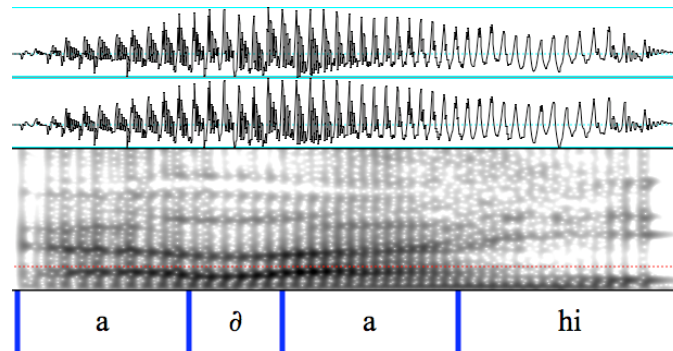
- b. *ẽbẽ-jo* [ẽ'mẽðõ]
 descend-NMZ.FEM
 'the one that is coming down'

Nevertheless, as in the case of /w/, there is a tendency for nasal allophones to simplify somewhat the complexity of oral allophones, so, for instance [j] may correspond to both [ɟ̃] and [j] in a nasal environment. It thus seems that nasalization may trigger a more lenis realization of allophones when compared to their oral counterpart.

Finally, examples (2.98) show a spectrogram distinction of a nasalized [ð̃] and an oral [ð] in the near minimal pairs below. It should be noticed that because nasalization is manifested throughout the [ð̃] sound, there is more reason for treating it as an approximant, rather than a fricative.

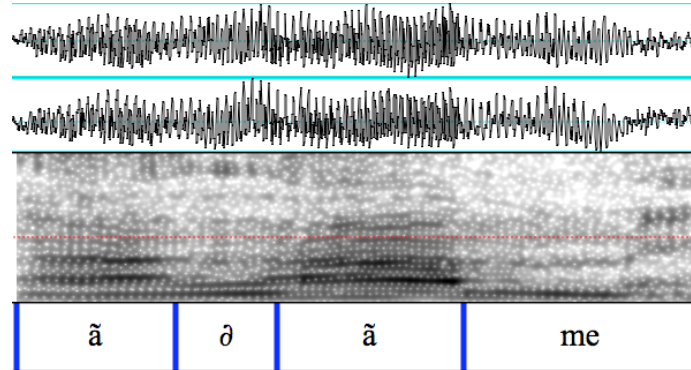
- (2.101)a. *aja-hi* [a'ðahi]
 put.on-PERM
 '(where) may I put (it)?'

Figure 3: Spectrogram and Textgrid for the word *ajahi* '(where) may I put (it)?'



- b. *ãjã-be* [ãðãmẽ]
 snake-COP.AN.SG
 'snake'

Figure 4: Spectrogram and Textgrid for the word *ãjã-be* 'it is a snake'



2.2.2.5 The stop /d/ and the flap/tap /r/. The contrast of /d/ and /r/ is exemplified in (2.70) above. These sounds can be analyzed as distinct phonemes only in root internal position. In bound morphemes (across morpheme boundaries) their contrast is neutralized, and allophonic alternations are subject to the following rules:

(2.102)

Table 14: Allophones of /d/

	WORD INITIAL POSITION	AFTER A VOWEL IN WORD INTERNAL POSITION
[d]	Always in oral syllables	- after /i/ and /e/ - in words that were borrowed and end in a consonant
[n]	Always in nasal syllables	- after nasalized /i/ and /e/
[r]	never ³²	- regularly elsewhere (after /a/, /i/, /o/ and /u/)
[ɾ]	never	- same environment as [r], though before /i/ and /e/.
[ɽ]	never	- regularly elsewhere in nasal environments

In this dissertation, the phonemic symbol /r/ represents a tap [r] or a flap [ɾ]. Its nasal counterpart < ã > is always a flap [ɽ].³³

³² The single exception to this rule comes from the borrowing of the Spanish and Portuguese name *Luis*, which is nativized either as /dui/ or /rui/ by Kubeo speakers. In the latter case, /rui/ 'Luis' contrasts with /duika/ 'down-river'.

³³ The flap and tap alternation in Kubeo is actually murkier than the above contexts suggest. Nevertheless, this is the best generalization I could make based on frequency of occurrence of each sound in my corpus. This alternation also finds analogous situations in other Tukanoan languages, where usually an [l] has been perceived/transcribed instead of a flap [ɾ].

There are different ways to analyze the contrast and neutralization of /d/ and /r/. The way I opted is to represent /d/ and /r/ as distinct phonemes in lexical roots, since in this environment they never alternate. In bound morphemes, where the contrast is neutralized and they alternate across morpheme boundaries, I represent them only as /d/. There is a diachronic reason for that: /r/ in lexical roots is the result of recent phonemicization, whose main source is probably borrowings.

The most general rules that capture [d] and [r] as allophones of /d/ are the following:

- (2.103) /d/ [-sonorant][+consonantal][coronal][+anterior][-distributed] →
- a. (no change) / #__ [d]
[coronal][-consonantal] __ [d]
- b. [+sonorant] / [dorsal][-consonantal] __ [r] ~ [ɾ]

The contrast between [r] and [ɾ] does not have a principled expression in distinctive features. Their alternation is based on the vowels following each sound: [ɾ] occurs before [coronal] and [r] before [dorsal] vowels.

While the rule /d/ > [r] is expected intervocalically as a case of lenition, where a [-sonorant][+consonantal] sound becomes [+sonorant] one, it is not clear why a [coronal] vowel /i/ and /e/ would trigger [d] instead of [r], since phonetically both sounds have a very similar place of articulation. The only solution I can think of for this problem is to assume that [r], as the single flap in Kubeo consonants, has an unmarked place of articulation. This entails that in the [d] vs. [r] alternation that occurs intervocalically, [r] is the allophone with the least specific conditioning, so if the environment never specifies [coronal], [r] is the default surface form, a classic case of Panini's Law.³⁴

The following examples illustrate the contexts where allophones of /d/ and /r/ occur. Only [d], but never [r], can occur in word initial position:

- (2.104)a. *doje* [do'ðe]
'traira fish'
- b. *da-bi* [da'bi]
come-3MSC
'he came'

³⁴ Please notice that the allomorph [d] is the marked surface form between vowels both because it goes against a general rule of lenition intervocalically and because it can only occur after a coronal stop.

- c. *du-bi* [du'bi]
 escape-3MSC
 'he escaped/released (from the hook)'
- d. *'dii = bo* [diibo]
 swamp = CLASS.MARKER
 'inundated forest'

In a nasal syllable in word initial position, [n] is the surface realization of /d/:

- (2.105)a. *'dēo* [nēō]
 'greese, fuel'
- b. *dĩ-bi* [nĩ'mĩ]
 go-3MSC
 'he went'
- c. *'dō* [nō]
 that.anaphoric
 'that one, that thing'
- d. *dũ-bi* [nũ'mĩ]
 suck-3MSC
 'he sucked'

In word medial position, i.e. after a vowel, by far the most common pattern is for /d/ to surface as [d] or [n] after /i/ and /e/ or as [r] or [ř] after any other vowel. Consider the examples below that show the [d] and [n] realizations:

- (2.106)a. *hede = wa* [he'dewa]
 outside = CL.FLAT
 'outside the house, in the yard surrounding the house'
- b. *eda-abě* [e'damě]
 arrive-II.3MSC
 'he arrived (long ago)'
- c. *etfidi* [e'tfidi]
 'inajá palm'
- d. *hidoha-dō* [hi'dohařō]
 be.dangerous-NMZ.CNT
 'A dangerous place or thing'

- (2.107)a. *ēdũ-wí* [ɛ̃'nũwĩ]
 get.wet-N.3AN
 'it got wet'
- b. *pedã* [pe'nã]
 'powder'
- c. *idã* [i'nã]
 'these ones animates'
- d. *pidĩdĩ* [pi'nĩ'dĩ]
 'last, end side'

There are 'exceptional' [d] and [n] phones in morpheme internal position too. Please consider the examples below:

- (2.108)a. *bãderu = bo* [mãⁿderubo]
 bird.sp. = CL.OVAL
 'bird sp.'
- b. *dudu-ki* [duduki]
 lizard.sp.-MSC
 'a lizard species'
- c. *ãdõ* [ãnõ]
 THAT.CNT
 'there, that inanimate one'

Turning now to /r/, the following examples show this phoneme in root internal position.

- (2.109)a. *kira* [kíra]
 'feces'
- b. *para-wí* [parawí]
 lie.down-N.3.AN
 'I lied down'
- c. *kari* [kaɾi]
 'now'

- (2.110)a. *k̃rãbĩ* [k̃rãĩ] 'house'
 b. *õrẽ* [õĩ] 'banana'
 c. *ĩrẽ* [ĩĩ] 'pupunha (Palm sp.)'

There are also 'exceptional' occurrence of /r/ in root internal position as well. See the examples below:

- (2.111) a. *bãderu = bo* [mãⁿderubo]
 insect.sp. = CL.OVAL
 'insect sp.'
 b. *'jiru-ko* ['dʒiruko]
 cricket.sp-FEM
 'A cricket species'
 c. *jukira* [dʒu'kira]
 'salt'
 d. *tʃirura* [tʃi'rura]
 'pants'

Because of the 'exceptional' occurrence in root internal position of [r], [ɾ], [ĩ], in one hand, and [d] and [n], on the other hand, one is forced to recognize them as allophones of different phonemes in this context: /r/ and /d/ respectively. This is a very specific situation, which seems to be a shift from a time where [d], [r], [n] and [ĩ] were different allophones of the same phoneme. This innovation seems constrained to lexical roots, possibly reflecting the introduction of borrowing and creation of new words.

Some clear instances of borrowings are *jukira* 'salt' (from Ñeengatu, perhaps via Baniwa), *'jiruko* probably a borrowing from Baniwa <dzii.ɔ> 'creeket' or from Portuguese *grilo* 'creeket', *tʃirura* 'pants' from Portuguese via Lingua Geral /siroula/ 'undergarment'. Please, also see chapter 9 for a discussion of the DISTAL DEMONSTRATIVE as borrowing from an Arawakan language.

In bound morphemes, however, one finds a much more regular scenario. One could argue that /d/ and /r/ contrast is neutralized in this environment, or, as I prefer,

that this innovation (i.e. the contrast of /d/ and /r/) has not reached grammatical levels beyond lexical roots. Please consider the examples below, which show the regular alternations between the allophones of /d/ (based on rules in (2.103) above):

(2.112) *-de* 'OBLIQUE'

- a. *'hio-de* [ˈhioɾe]
 plantation-OBL
 'to/at the plantation'
- b. *'jawi-de* [dʒaˈvide]
 jaguar-OBL
 'to/at the jaguar'

(2.113) *-dã* 'ANIMATE PLURAL'

- a. *ã-dãhi-wi* [ãɾãhiwi]
 eat-FUT.INT.AN.P-N.3.AN
 'I will eat'
- b. *'kihĩ-dã* [ˈkihĩnã]
 small-AN.PL
 'the small ones'

(2.114) *-du* 'IF, CONDITIONAL'

- a. *ku-du* [kuˈru]
 walk-IF
 'if one walks...'
- b. *ki-be-du* [kiˈbedu]
 exist-NEG-IF
 'if there wasn't...'

(2.115) *-di* 'INTERROGATIVE'

- a. *oka-di* [okaɾi]
 rain-INTRR
 'has it rained?'
- b. *oka-i-di* [okaidi]
 rain-ST-INTRR
 'is it raining?'

(2.116) -*dĩ* 'CONVERB'

- a. *hã-dĩ* [*'hãĩ*]
 see-CNV
 'seeing...'
- b. *ĩ-dĩ* [*'ĩĩ*]
 take-CNV
 'taking...'

In all these examples it is not necessary to analyze /d/ as anything except the underlying phoneme, given that every allophone is regularly predicted by rule. In addition, when Kubeo speakers make use of Portuguese or Spanish terms that end in a consonant, it is always the phone [d] that surfaces as the default form, such as in '*professores = de*' (teachers = OBL) 'to, at, for the teachers'.

There is only a single morpheme, however, where this regular alternation does not occur. This morpheme is =*dẽ* and it means 'HORTATIVE MOTION' or 'let's go do X'. In the example below, one would expect the form [*ĩẽ*], but what one gets is [*nẽ*]:

- (2.117) *bue-dã = dẽ* [*buenãẽ*]
 study-AN.P = MOT.HORT
 'let's go studying'

This morpheme is a clitic, a morpheme type that always shows segmental allophonic alternations as other bound morphemes (see chapter 6). It is the result of a new development in some southern dialects of Kubeo (Phratry IV, cf. chapter 1), and originally it was formed by the word *dĩ-re = wĩ* [*nĩĩẽwĩ*] (go-OBL = CL.AN.COL) 'let's go'. The form is still fully pronounced in other dialects, very often with the omission of =*wĩ* 'CLASSIFIER ANIMATE COLLECTIVE'. Hence, the exceptional clitic =*dẽ* 'hortative motion' actually comes from a contraction of a full, independent stem. It is thus a relative matter whether one should treat it as being relevant for the overall analysis of /d/ and /r/, or not.

In conclusion, there are alternative ways to analyze the relationship between /d/ and /r/ in Kubeo. The one I think is the best is to assume that /r/ and /d/ contrast only in a few exceptional lexical items and that in bound-morphemes there is only a single phoneme /d/, where the /d/ and /r/ contrast is neutralized.

2.2.2.6 The phoneme /h/. The phoneme /h/ has a wider distribution in Kubeo than /h/ has in some Tukanoan languages, such as Desano and Tukano, where /h/ can only occur morpheme medially, (C)V_V. As the words below can show, /h/ in Kubeo can occur word initially (2.118a), medially (2.118b) and in the onsets of affixes (2.118c):

- (2.118)a. *hebẽ = bo* [he'mẽ^mbo]
 paca = CL.OVAL
 'An agouti paca'
- b. *kahe* [ka'he]
 'skin'
- c. *'hiejo = hĩ-ki* ['hieðohĩ^oki]
 child = DIM-MS
 'little boy'

Such less constrained distribution of /h/ in Kubeo when compared to /h/ in Tukano and Desano, for instance, has to do with the fact that /h/ in these other languages is the reflex of Proto-Tukanoan *h, which already had a very limited distribution, while /h/ in Kubeo (as well as in languages such as Bará and Tatuyo) is the result of a merger of sibilants in Proto-Tukanoan which ultimately changed to /h/ (*s, *ts, *ts', *tʃ > h, cf. Chacon *forthcoming-a*). This change occurred after Kubeo had Proto-Tukanoan *h merged with zero, as some correspondence given in (2.28) can illustrate.

The sounds /h/ (along with [ð] and to a lesser extent /r/) is one of the weakest sounds in Kubeo. /h/ is usually dropped between vowels, which feeds the creation of a vowel cluster and feeds phonological processes such as *Distinct vowel Fusion* and *Distinct vowel Deletion* (cf. section 2.1. 2) as the examples in (2.115) show:

- (2.119)a. *koe-deha-abẽ* [koedæmẽ]
 slash-HST.PST-II.3MSC
 'he made a clearing (in the jungle)'
- b. *ĩhẽ* [ʃĩẽ] ~ [jẽ]
 our.exc
 'our (exclusive)'
- c. *kuitote#kahe* [kui'tote,ka]
 cotton#skin
 'clothe'

This process is very common with several verb endings that have /h/, and it can be very tricky for transcription.

An interesting sporadic process that occur with /h/ is *Pre-Vocalization*, where a vowel following /h/ is also pronounced just before /h/. Consider the examples in (2.120):

(2.120)a.	<i>hitira</i> manioc.flour 'manioc flour'	[^h hitira]	
b.	<i>hia</i> 'river'	[^h hia]	
c.	<i>bioha-wi</i> finish-N.3.AN 'I finished (it)'	[bio ^a hawɨ]	~ [biahawɨ]

This is a phenomenon of co-articulation, where speakers start pronouncing the vowel before producing /h/. Because /h/ has no place of articulation within the mouth, it is a very susceptible phoneme for such a co-articulatory processes to occur.

This can be observed also in Phonetic Nasalization (cf. chapter 3) where nasalization spreads to a vowel through /h/. This type of nasalization cannot be considered the same type of nasalization that is characteristic of Nasal Harmony, discussed in detail in chapter 3. Below there are some examples of Phonetic Nasalization of syllables whose onset has /h/:

(2.121)a.	<i>hã-he = bu</i> hit-HYP = PROB '(he) was going to crash'	[hãhẽ ^m bu]
b.	<i>dũ-ha-kɨ</i> suck-IMP-MS 'suck it!'	[nũhã ^h kɨ]
c.	<i>ã-hi</i> eat-PERM 'May I eat?'	[ãhĩ]

2.2.2.7 The palatal affricate /tʃ/. The palatal affricate /tʃ/ (an underlying stop) is interesting for the historical study of Kubeo. First, as mentioned before, Kubeo seems to have merged all palatal and alveolar sibilants from Proto-Tukanoan (cf. Chacon *forthcoming-a*). After that, it created new instances of /tʃ/ by different means.

One of these ways was by an independent change of $*t > tʃ / _i$. This change is the reason why in Kubeo /t/ before /i/ is extremely rare, as showed in (2.76) above, existing only in the words /tiwidujo/ 'bird sp.' and /ʃitʃiaro/ 'tree sp.' (based on my corpus and Morse et. al (1999) combined). While correspondences of [ti] syllables in Tukanoan languages are also not very common, the two cognate sets in Table 15 confirm that Kubeo changed $*t > tʃ / _i$:

(2.122)

Table 15: $*t/_i$ correspondences

TUKANO	KUBEO	WANANO	DESANO	GLOSS
uti	utʃi	ti	uti	wasp
ʃi'ko	tʃio	ʃi'a	-	smash

Some additional instances of /tʃ/ in Kubeo were introduced by borrowings from an Arawakan language, probably Baniwa, e.g. Kubeo *tʃia* 'male vocative': Baniwa *atsia* 'man'; and Kubeo *tʃibã* 'affine (in-laws)': Baniwa *tsimaʃi* 'affine (in-laws)' (for the Baniwa data, see Ramirez 2001).

There are also some words which seem to have no relation to words in other languages, such as *tʃawabo* 'a big-eared person', *tʃubi* 'rheum', *kãtʃidõ* 'below', *butʃi* 'tobacco', *tʃuri* 'wound' and the 'irrealis 2' suffix *-itʃi*. Some words may be cases of onomatopoeic forms, such as *tʃiaidi* 'cicada' and *ãtʃiãidõ* 'to sneeze'.

Finally there are many borrowings whose original words had /s/ in the donor languages but were phonologically nativized as /tʃ/, e.g. 'Kubeo *etʃidi* 'Inayá Palm' from Baniwa *wéesiʃe*, Kubeo *tʃubãdã* 'week' from Portuguese *semana* 'week', Kubeo *tʃirura* 'pants' from Portuguese via Lingua Geral *siroula* 'undergarment', Kubeo *tʃerutʃu* 'a saw' from Spanish *serucho* and Kubeo *arutʃo* 'rice' from Portuguese or Spanish *arroz*. These borrowings are important for a relative chronology of sound changes and the history of contact of Kubeo with other languages.

2.3 Scope of Phonological Segmental Rules

In the conclusion to this chapter, it is important to say that all segmental rules occur obligatorily in word internal position, i.e. between a stem, affixes and clitics. They are optional rules between stems in compounds and between syntactic phrases. To be 'optional' means that in compounds they do not take place in careful speech and in syntax they take place only in faster speech. This observation is relevant for the discussion of morpheme types and the relation of phonology, morphology and syntax (chapter 6).

3. Nasality

This chapter discusses nasality as a relevant suprasegmental unit that interacts with segments, phonological distinctive features and morphophonological boundaries. It suggests that the best way to represent nasality is in an auto-segmental fashion, i.e. independently from segments. The following chart summarizes the typological and theoretical properties of nasality in Kubeo and the relevant sections of this chapter where those issues are discussed:

(3.1) *Table 1: Summary of nasality Properties in Kubeo*

THEORETICAL & TYPOLOGICAL PARAMETERS	KUBEO TYPES	CROSS-REFERENCE
LOCATION OF THE SOURCE OF NASALITY IN A MORPHEME	unpredictable (underlyingly specified)	section 3.1
MINIMUM DOMAIN OF NASALITY	syllable	section 3.1
MAXIMUM DOMAIN OF NASALITY	phonological word [BASIS + AFFIX-PHRASAL AFFIXES]	section 3.2
TARGETS OF NASAL HARMONY	voiced segments	section 3.2
BLOCKERS OF NASAL HARMONY	voiceless segments	section 3.2
DIRECTION OF NASAL HARMONY	progressive (from the left to the right) regressive = not phonemic	section 3.2
SOURCE OF NASALITY	auto-segmental [nasal]	section 3.3

This chapter is organized as the following: section 3.1 discusses the distribution of nasality in Kubeo words. Section 3.2 analyzes nasal harmony in detail, where I also propose a distinction between Phonetic and Phonological nasalization. Section 3.3

present additional arguments showing that nasality is an independent element from segments.

Section 3.4 shows how historical processes lead to the emergence of the patterns of nasality in Kubeo, including the development of the feature [voiced]. Section 3.5 concludes with a consideration of different theoretical approaches to nasality in Kubeo.

3.1 Distribution of nasality

This section will show how nasality is distributed in Kubeo syllables and in the underlying representation of morphemes. It will also present preliminary evidence against analyzing nasality as a feature of vowels or consonants, suggesting that it is a feature of entire syllables.

As discussed in chapter 2, all Kubeo voiced segments present nasalized allophones, while voiceless segments do not. As a result, a voiced stops such as /b/ contrasts with a voiceless stop such as /p/ with two different allophones: [b] vs. [p] in non-nasal environments, and [m̃] vs. [p̃] in nasal environments (see examples (2.80) and (2.81) in chapter 2).

Whenever there are voiced segments in a syllable, they will be either all oral or all nasalized. The following table summarizes the pattern of nasality according to different syllabic configurations:¹

(3.2) *Table 2: Distribution of nasality within different types of syllables*

	(I) All oral syllables	(II) All nasal syllables	(III) Partially oral and partially nasal syllables
VOICED STOPS	[ba]	[mã]	*[bã] or *[ma]
SONORANT STOPS	[ja]	[nã]	*[jã] or *[na]
VOICELESS STOPS	[pa]	-	[pã]
NO STOPS	[a]	[ã]	-

If nasality would be sought as a segmental feature, it would be impossible to tell whether the source of nasality is the vowel or the consonant in nasal syllables with a voiced consonant in the onset. If, however, one prefers to interpret nasality as a feature

¹ See Gomez-Imbert (1980) and Peng (2000) for similar reasoning in languages related to Kubeo.

of the entire syllable, the redundancy regarding nasalization between voiced consonants and vowels within a syllable is more directly explained.

In languages where there is a clear contrast between phonemic nasal vowels and phonemic nasal stops, combinations within a CV syllable in the form of 'Oral Stop & Oral Vowel' (e.g. [ba]), 'Oral Stop & Nasal Vowel' (e.g. [bã]), 'Nasal Stop & Oral Vowel' (e.g. [ma]) is likely to be possible, as in Portuguese words *lá* [la] 'there', *lã* [lẽ] 'wool', *maia* ['maja] 'Mayan', *mãha* ['mãja] 'ruse, malice'. Such permutations do not exist in Kubeo.

Regarding the syllables whose onset is a voiceless stop, it could be argued that in those syllables the source of nasality is the vowel, since it is clear that it cannot be the stop. However, what is at issue in syllables such as [pã] is the inability of voiceless segments to show audibly and phonologically distinct nasal allophones.²

In syllables with vowel clusters (cf. section 2.1.1.2 in chapter 2), the two vowels always agree in nasality, being either all oral or all nasal, as the roots below illustrate:

- | | | | | | | | | |
|-------|----|-------|-------|----------------------|----|-------|-------|------------------|
| (3.3) | a. | /boa/ | [boa] | 'to kill' | b. | /bõa/ | [mõã] | 'fish' |
| | c. | /toa/ | [toa] | 'fire' | d. | /tõa/ | [tõã] | 'to break (i.v)' |
| | e. | /hio/ | [hio] | 'plantation' | f. | /hĩo/ | [hĩõ] | 'to grind' |
| | g. | /kua/ | [kua] | 'to hunt with a dog' | g. | /kũa/ | [kũa] | 'bone' |

Since nasality is pervasive over the entire syllable, the phonological representation of nasality has a single tile "~" above the first vowel of a syllable, assuming that phonetically both vowels and voiced consonants will be nasalized.

When vowel clusters are formed morphophonemically from a nasalized syllable and an oral syllable, the nasal trait prevails over the oral trait, so the result is a fully nasalized syllable. Consider the pair of examples below where examples in letter (a) show a non-nasalized word and examples in (b) show a nasalized word:

- | | | | |
|-------|----|----------------------------|----------------------|
| (3.4) | a. | <i>hiađo</i> = <i>we-a</i> | [<i>'hiađowea</i>] |
| | | tree.sp = CL.BLADE-IN.P | |
| | | 'a paddle' | |

² It is a matter of debate whether opaque or transparent segments in nasal harmony systems are acoustically nasalized or not. Walker (1998) has shown that in Guaraní these types of stops are not nasalized, while Silva (2009) has shown in Desano (a related language to Kubeo) that voiceless stops are phonetically nasalized in harmonic environments.

- b. *hiaðo = kũ-a* [ˈhiaðokũã]
 tree.sp = CL.EMB-IN.P
 'a paddle'
- (3.5) a. *pari-e* [pa'rie] ~ [pa're]
 be.strong-MSS
 'intensely'
- b. *hũa-e* [ˈhũẽ]
 be.red-MSS
 'well'

An analogous example can be observed regarding the process *Identical Vowel Deletion* (cf. section 2.1.2.4), where if one vowel is nasalized and the other is oral, the result will always be a single nasalized vowel. Consider the examples below:

- (3.6) a. *põe eta* [ˈpõẽˈta]
 people leave
 'mythological birth places of humanity (lit. leaving place of people)'
- b. *ĩ-i = wĩ* [ˈĩwĩ]
 take-ST = CL.AN.COL
 'the ones that are taking'
- c. *ã-ako = ða* [ˈãkoða]
 eat-IL.3FEM = REP
 'she ate (it), they say'

These examples show that the language does not treat a nasal vowel and an oral vowel as underlyingly distinct phonemes; they are identical, and this implies that nasality is an independent phonological entity, not an inherent property of vowels.

While nasality has scope over entire syllables, being predictable that all voiced segments within a nasal syllable will have nasalized allophones, the distribution of nasal and oral syllables in the underlying representation of morphemes is unpredictable. The following chart illustrates how morphemes can present different distribution of nasality among different syllables. They were divided in 16 logical patterns for dissyllabic roots,

according to the distribution of voiced vs. voiceless consonants in syllable onsets and four possible permutations of nasalized vs. non-nasalized syllables:³

(3.7) *Table 3: Underlying Distribution of Nasality in Morphemes*

	C _{voiced} V C _{voiced} V	C _{voiced} VC _{voiceless} V	C _{voiceless} VC _{voiceless} V	C _{voiceless} VC _{voiced} V
1 ST SYLLABLE ORAL 2 ND ORAL	(a) <i>doje</i> [doðe] 'traira fish'	(b) <i>bikɨ</i> [bikɨ] 'old'	(c) <i>popo</i> [popo] 'to dry'	(d) <i>kɨbo</i> [kɨbo] 'foot'
1 ST SYLLABLE NASAL 2 ND NASAL	(e) <i>bābī</i> [māmī] 'older sibling'	(f) <i>bāhā</i> [māhā] 'we inclusive'	(g) <i>kūkā</i> [kū ^h kā] 'to cook slowly'	(h) <i>kōrē</i> [kōrē] 'to urinate'
1 ST SYLLABLE NASAL 2 ND ORAL	(i) <i>bāwija</i> [māwiɟa] 'manikin sp.'	(j) <i>bāhi</i> [māhi] 'to know'	(k) <i>tākiko</i> [tā ^h kiko] 'to sink'	(l)
1 ST SYLLABLE ORAL 2 ND NASAL	(m) <i>wawābo</i> [wawābo] 'bird sp.'	(n) <i>jihā</i> [ɟihā] 'we exclusive'	(o) <i>úkū</i> [úkū] 'shelter'	(p) <i>tirō</i> [tirō] 'hill, inclination'

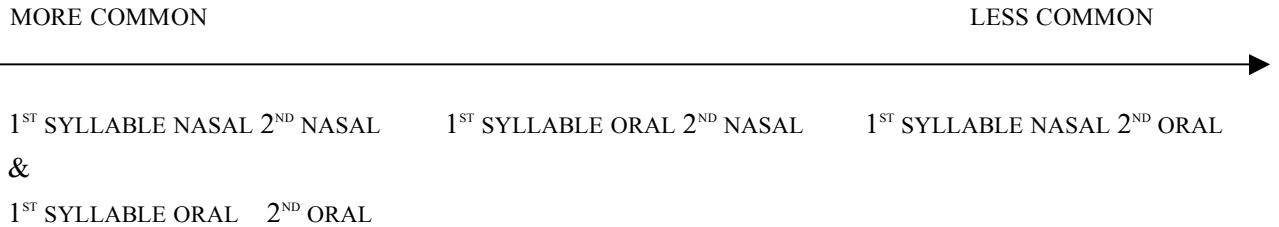
These words show that the distribution of nasal syllables in a Kubeo morpheme is arbitrary, having to be specified in the underlying representations. On the other hand, the lack of an example for the pattern (l) suggest a pattern that is of great importance for the diachronic analysis of nasalization (cf. section 3.4). Moreover, these examples show that nasality is not a feature of the entire morpheme, as in other Eastern Tukanon languages (cf. Kaye 1971; Gomez-Imbert 2004, 2011; Barnes 1996; Ramirez 1997; Stenzel 2005).⁴

³ Just one word in this table is plurimorphemic, *wawā=bo* 'bird sp.' (bird.sp = CL.OVAL), a fact that is not relevant for the point being made here. The word *úkū* shelter does not start with a voiceless stop, but this should also not be relevant either for the point being made here.

⁴ Some Western Tukanon languages and Tanimuka (Eastern Tukanon) also have the syllable as the minimum domain of nasality. Also, a few unrelated languages have been reported to have nasality as a property of syllables, rather than of specific segments (cf. Piggot 2003:388), although this is not very common. Among these languages, the neighboring languages Hup and Kakua have been reported to have nasality with scope over syllables (and morphemes, since most morphemes are monosyllabic), while these languages generally lack the type of nasal harmony that would make the word a domain for nasality (cf. Epps 2008; Bolaños 2010).

Although being unpredictable within a morpheme, the distribution of nasality presents general trends within a lexical root, which can be stated in the following hierarchy:

(3.8)



The hierarchy above states that the lexical roots in which both syllables are either both oral or both nasal are more frequent than the lexical roots where just one syllable is nasal and the other is oral. It also states that it is more common for a nasal syllable to follow an oral syllable than the contrary.⁵

In section 3.2.3 I will discuss the cases of pre-nasalized stops.

3.2 Nasal Harmony

The following points summarize in descriptive terms the rules of nasal harmony in Kubeo (see section 3.2.1 below):

- i. nasal harmony does not occur morpheme internally, it happens only across morpheme boundaries (i.e. a nasal syllable cannot nasalize an oral syllable within the same root).
- ii. It can only target voiced segments and is blocked by any voiceless segment, but there are no transparent segments.⁶
- iii. It is a word-level process (stems, affixes and phrasal affixes), not targeting clitics or different stems in a compound word.
- iv. It spreads from the left to the right in the word.

⁵ It should be said that the relative frequency of patterns being mentioned is based on my impression and some random samples. A more detailed statistical study should be done. Unfortunately, no published dictionary resources of Kubeo allow such an enterprise, since they do not mark nasalization systematically in every syllable (cf. Morse et. al 2000).

⁶ It is not very common for voiced obstruents to be targets of nasal harmony cross-linguistically, though there are definitely some cases outside the Tukanoan family, such as in Kuruaya (Picanço 2005), Mixtec, Kaingang, Gbe, Jukun, Chaoyang, Isekiri (Piggot 2004), Guaraní (Walker 1998), Jambi Malay (Durvasula 2009), Embera-Katio (Mortensen 1994) and several Chibchan languages (cf. Constenla 1981, 1985). The Kubeo facts are in conformity with Piggot's (2004) hierarchy of opaque segments to nasal harmony, which makes a claim that if voiced stops are targets for nasal harmony, then the only opaque segments will be voiceless stops.

A more formal representation of nasal harmony must make a statement that integrates lexical phonological notions and prosodic domains, as it is more generally discussed in chapter 6, section 6.7. Anticipating somewhat facts discussed in that chapter, I propose the following formalization of nasal harmony in Kubeo:

A syllable_j can be target of nasal harmony from an immediately preceding nasal syllable_i, iff (1) syllable_j is in a distinct morpheme from syllable_i, (2) syllable_j has no voiceless segments, and (3) syllable_j is in the same phonological word of syllable_i during the lexical derivation.

It is remarkable that while nasal harmony is a morphophonological process predictable by rules, nasality in underlying representations is unpredictable.⁷

Voiced segments, as discussed in chapter 2, are from two sources: [+sonorant] segments (vowels, glides and /r/) where a redundancy rule makes [+sonorant] → [+voiced] (cf. Mohanan 1991), and voiced obstruents /b/ and /d/, which are underlyingly specified as [+voiced], contrasting with [-voiced] obstruents /p/, /t/ and /k/.

Kubeo also presents regressive nasalization, which can target sporadically one syllable to the left of a nasalized syllable, provided the nasal syllable has either /h/ or an alveolar nasalized stop in its onset [ɾ̃] or [ñ] (see section 3.2.2 below).

In fact, regressive nasalization is a case of *Phonetic Nasalization*, rather than *Phonological Nasalization*. Phonological nasalization targets the whole syllable and is based and/or produces phonologically significant results, while phonetic nasalization is just a surface manifestation of nasality in the syllable, usually affecting only the vowel, and does not produce phonological significant results, such as nasal spreading in the next syllable (see section 3.2.3 below).⁸

It must be added that because an oral syllable can never 'de-nasalize' a nasal syllable, nasality is the 'marked' member of the nasal vs. oral contrast (cf. Ramirez

⁷ Most studies of nasal harmony disregard this distinction, although it seems we could benefit from it generally. For instance, consider the type of nasal harmony in most Eastern Tukanoan languages where voiceless stops are said to be 'transparent' within root morphemes, but are 'opaque' to nasal harmony in bound morphemes. Similar reasoning could be applied to Sudanese as well, where a liquid such as /l/ can block nasal spreading within a morpheme, but can behave transparently after infixation (cf. data in Durvasula 2009:58, citing Cohn 1993).

⁸ In this sense, I argue for a distinction between the concepts of nasal harmony and nasal spreading in Kubeo: nasal harmony refers to the phonological rules of the system and nasal spreading refers to the mechanics of how segments get nasalized. While nasal harmony involves nasal spreading, being a case of true phonological nasalization, phonetic nasalization involves nasal spreading but is not a case of nasal harmony.

1997), what I capture by assuming a privative feature [nasal], which is subordinated and manifested through the feature [+voiced] (cf. section 2.3 in chapter 2).

3.2.1 Nasal Harmony in Detail

Point (i) from section 3.2 above is attested in the collection of words in table (3.7), such as *bāwīya* [māwĩɟa] 'manakin (bird sp.)'. One would expect such a word to be fully nasalized, since only voiced segments follow the first nasalized syllable. This does not happen, though, as it does not happen in several words.

The following examples show suffixes and phrasal affixes being targets for nasal harmony from a nasalized stem. Examples in (a) all have suffixes being nasalized, while examples in (b) have the same suffixes in an oral context, without being nasalized (see also examples in (2.76)).

- (3.9) *-be* 'NEGATION'
- a. *ḏĩ-be-wĩ* [nĩ'mẽwĩ]
 go-NEG-N.3AN
 'I/you/it did not go'
- b. *da-be-wĩ* [da'bewĩ]
 come-NEG-N.3AN
 'I/you/it did not come'
- (3.10) *-biko* '3 PERSON FEMININE'
- a. *ã-biko* [ã'mĩko]
 eat-3.FEM
 'she ate (it)'
- b. *a-biko* [a'biko]
 say-3.FEM
 'she said'
- (3.11) *-wa* 'ANIMATE PLURAL'
- a. *ĩbĩ-wa-de* [ĩ'mĩwãẽ]
 man-AN.P-OBL
 'for/to/at the men'
- b. *jawi-wa-de* [ɟa'viβaɽe]
 jaguar-AN.P-OBL
 'for/to/at the jaguars'

- (3.12) *-di* 'INTERROGATIVE'
- a. *ĩ-di* [ĩ'nĩ]
 take-INTR
 'did he take/get (any)?'
- b. *'hi-di* ['hidi]
 give-INTR
 'did he give (it)?'

Examples (3.13) and (3.14) below show similar cases where the source of nasality is a suffix or clitic, rather than the stem (specific items are underlined, examples in (b) show the non-nasalized allomorphs).

- (3.13) Nasal Suffix: *-dã* 'ANIMATE PLURAL'
- a. *dã* *ira-dã-bu* [i'raʔãmũ]
 they big-AN.P-COP.N.3AN.SG
 'they are big/fat'
- b. *ji* *ira-ki-bu* [i'rakibu]
 I big-MS-COP.N.3SG.AN.COP
 'I am big/fat'

Nasal Suffix: *-dõ* 'INANIMATE COUNT'

- c. *ki-dõ-de* [ki'ʔõʔẽ]
 exist-NMZ.CNT-OBL
 'to/for/at the place one lives'
- d. *ki-e-de* ['kiede]
 exist-NMZ.MSS-OBL
 'to/for/at life/existence'

(3.14) Nasal clitic = *dõ* 'PLACE'

- a. *hiwa = ka = dõ-ba* [hi'wakaʔõmã]
 up.river = ORG = CNT-COP.INTR
 'is this from up-river?' (i.e. from Colombia)
- b. *hiwa = ka = ki-ba* [hi'wakaʔkiba]
 up.river = ORG = MSC-COP.INTR
 'is he from up-river?' (i.e. from Colombia)

The examples below demonstrate cases where nasal harmony is blocked by a voiceless stop. Examples in (a) show a regular process of nasal harmony, while in (b) an intervening morpheme with a voiceless onset blocks nasal harmony:

- (3.15) -bi '3RD PERSON MASCULINE'
- a. *dĩ-wa-bi* [nĩ'wãmĩ]
 go-CAUS-3MSC
 'he took (us)'
- b. *dĩ-wa-ka-bi* [nĩ'wãⁿkabi]
 go-CAUS-BEN-3MSC
 'he did not take (it for us)'
- (3.16) -be 'NEGATION' and -wi 'non 3RD PERSON ANIMATE'
- a. *běa-be-wi* [měãměwĩ]
 good-NEG-N.3AN
 'it is not good'
- b. *ĩbĩ-hi-be-wi* [ĩmĩhibewĩ]
 high-VBZ-NEG-N.3AN
 'it is high'
- (3.17) -bu 'NON 3RD PERSON SINGULAR ANIMATE COPULA'
- a. *dõ-bu* [nõmũ]
 ANPH.CNT-COP.N.3AN.SG
 'it is there'
- b. *dõ=pe-bu* [nõ^mpebu]
 ANPH.CNT = AS-COP.N.3AN.SG
 'that is like it is'

Another factor blocking nasal harmony is word boundary. Nasal harmony can spread only to words composed of a stem, affixes and phrasal affixes, but it is blocked by a clitic or between stems in a compound. Consider the examples below, where all classifier clitics have a [+voiced] segment in their onset, and nevertheless nasality is blocked:

- (3.18) a. *kãpĩ = do* [kã^mpĩⁿdo]
 beak = CL.CNVX
 'peninsula'

- b. *ũbẽ = d̥i* [ũ'mẽⁿd̥i]
 vitality = CL.RND
 'heart'
- c. *hẽbẽ = bo* [hẽ'mẽ^mbo]
 agouti.paca = CL.OVAL
 'an agouti paca'
- d. *ẽbĩbõe = ða* [ẽ'mĩmõẽða]
 açáí = CL.RIVER
 'Açáí creek'

The same is true for compounds as well, as in the examples below, where the second stem of each compound has a voiced onset, and nevertheless nasal spreading is blocked.

- (3.19) a. *bĩ #jawi* [mĩja₁wi]
 bird #jaguar
 'Arpia (eagle sp.)'
- b. *ũbẽ #da-i-dõ* [ũ'mẽⁿdainõ]
 vitality #come-ST-CNT
 'to recover from illness, to resurrect'
- c. *kõhã #bĩjo-ko* [kõ'hã^m₁bĩdʒoko]
 patauá.palm #lizard-FEM
 'skink (lizard) sp.'

Morpheme types, word boundary and more generally phonological domains (cf. section 6.7, chapter 6) are thus important elements in the dynamic of nasal harmony. Morpheme boundary is represented by symbols such as "-" for affixes and phrasal affixes – which are targets for nasal harmony – and "=" for clitics and "#" for stems, which are not targets for nasal harmony (see chapter 6 for additional motivations for the use of boundaries in Kubeo morphophonology).⁹

Nevertheless, there is a limited set of bound-morphemes with 'exceptional behavior' regarding nasal harmony, which will be discussed next.

3.2.1.1 Exceptions to Nasal Harmony. There are four morphemes that for different reasons can be regarded as exceptions to nasal harmony. Please see the chart below:

⁹ Morse and Maxwell (1999), without a more detailed acknowledgment of boundary issues in Kubeo nasal harmony, had to assume many exceptions in the lexicon to account for the type of bound-morphemes that cannot be target of nasal harmony.

(3.20) *Table 4: List of Exceptional Morphemes to nasal harmony*

MORPHEME	EXCEPTIONAL BEHAVIOR
- <i>wa</i> 'HABITUAL'	blocks nasal harmony
- <i>wa</i> 'PAST PASSIVE NOMINALIZER'	blocks nasal harmony
- <i>rebu</i> 'NON 3 RD PERSON ANIMATE INFERRED EVIDENTIAL'	first syllable can be nasalized, but not the second
- <i>bebu</i> 'COPULA: ASSUMED EVIDENTIAL'	first syllable can be nasalized, but not the second
- <i>ba</i> 'COPULA'	it can be nasalized, but does not spread nasalization to subsequent phonemes

Another type of exception comes from post-lexical rules, which bleeds the application of nasal harmony (cf. see section 6.7.2 chapter 6).

-*wa* 'HABITUAL' and -*wa* 'PAST PASSIVE NOMINALIZER'

These morphemes block nasal harmony, despite having a voiced consonant in their onset. They also behave similarly in blocking tone spreading and repelling primary accent rule (cf. chapter 4). Giving that they repel all three prosodic components in Kubeo grammar (nasality, accent and tone), one can regard them as PROSODIC REPELLENT morphemes. The examples below will suffice to demonstrate their behavior with respect to nasalization (examples in (a) do not present these suffixes and have nasal harmony, while in (b) nasal harmony is blocked due to the presence of one of these suffixes):

- (3.21) a. *ã-biko* [ã'mĩ^hko]
 eat-3FEM
 'she ate'
- b. *ã-wa-biko* [ã'wabiko]
 eat-HAB-3FEM
 'she usually eats it'
- (3.22) a. *kūkã-biko* [kũ'kãmi^hko]
 slow.cook-3FEM
 'she cooked it slowly'

- b. *kūkã-wa-de-de* [kũ'kãwaʒede]
 slow.cook-PST.PAS-NMZ.PRF.MSS-OBL
 'at/for/to the things that were slowly cooked'

The exceptional pattern of these morphemes is not the result of any apparent independent motivation (such as boundary issues). Morse and Maxwell (1999) have suggested that such a behavior is a strategy to differentiate these morphemes from a partial homophonous suffix *-wa* 'causative', which behaves normally regarding all prosodic components in the language, and precede the exceptional affixes when occurring together in the same words. Based on this idea, the exceptional morphemes were lexically specified as such in order to be differentiated syntagmatically from the causative, a nice explanation giving their outstanding (partial) homophony.

-*bebu* 'COPULA: ASSUMED EVIDENTIAL' and -*debu* 'NON 3RD PERSON ANIMATE: INFERRED EVIDENTIAL'

These morphemes are an interesting case in that the first syllable can get nasalized but the second syllable /bu/ cannot. Consider the examples below:

- (3.23) a. *primero* *ĩ-bebu* [ĩmẽ^mbu]
 first he-ASM.COP
 'he seems to be the first one/the leader'
- b. *oko* *kũi-debu* [kũi'nẽ^mbu]
 water end-INFR.N.3AN
 'the water is over/has ended'

The reason for the partial nasalization pattern of these morphemes can be sought in their morphological composition, which seems to be composed by the clitic *=bu* 'PROBABLE', a morpheme that is part of the modality system in the language and that has fed the grammaticalization of the evidentiality system (cf. chapter 8). As a clitic it can never get nasalized, as the word below illustrates:

- (3.24) *bẽa-be-e=bu* [mẽãmẽ^mbu]
 good-NEG-MSS=PROB
 '(that) is not likely to be good'

Thus, the morphemes, where *=bu* 'PROBABLE' got grammaticalized in, still preserve in a way their own etymology. One cannot really decompose them synchronically, since they always function as a single chunk, but the first syllable of

each morpheme can be related to different morphemes: the initial syllable /be/ is likely from the phrasal affix *-be* '3RD SINGULAR ANIMATE COPULA' and the initial syllable /de/ is from the suffix *-de* 'INANIMATE PERFECT NOMINALIZER'.

Yet, the morpheme *-bebu* 'COPULA: ASSUMED EVIDENTIAL' has also been attested as being fully nasalized, [memu], in the speech of several speakers, indicating a further step in the grammaticalization cline, where morphological composition is not only anymore recognized but any archaic trace is also lost.

-ba 'COPULA'

Although this morpheme can get nasalized, it does not spread nasalization to subsequent morphemes on its right. In the example (3.25a) below, *-ba* 'COPULA' is being nasalized from a preceding morpheme, but the following affixes are not nasalized. In (3.25b) the same affixes are being nasalized from another verb stem:

- (3.25) a. ĩ-*ba-i-bi* [ĩmaibi]
 he-BE-ST-3MSC
 'he is... (inherent property)'
- b. kã-*i-bi* [kãĩmĩ]
 sleep-ST-3MSC
 'he is at sleep'

The 'copula' *-ba* is also special because, while it is like a bound-morpheme -- in being target of nasal harmony and being part of the same metrical feet domain as its host -, it also behaves as a free-stem in being able to receive affixation. This mixed behavior made me analyze it as a type of BOUND-STEM, the sole morpheme of this category of morpheme type (cf. section 6.3, chapter 6).

3.2.2 Regressive Nasalization

In regressive nasalization, nasality can spread from one nasal syllable to the next non-nasal syllable on its left. There are no cases of regressive nasalization beyond one syllable. However, Kubeo nasal harmony system is by no means bi-directional. Regressive nasalization is usually sporadic and subject to variation in the speech of the same or different speakers. Nevertheless, diachronically some words were reanalyzed based on this type of process. See the discussion below.

Regressive nasalization only occurs with a nasal syllable whose onset is either /d/, /r/ or /h/, as in the following examples:

- (3.26) a. *'kihĩ-kĩ* [*'kihĩki*] ~ [*'kĩhĩki*]
 small-MS
 'small person/animal'
- b. *boro#te-ha-dã* [bo'rotehãã] ~ [bo'rotehãã]
 chat#do-IMP-AN.P
 'chat!'
- c. *epe-kĩ-dĩ* [e'pekĩĩ] ~ [e'pekĩĩ]
 leave-NMZ.PRF.MSC-2.INTR
 'did you leave (it)?'

In careful speech such words do not have regressive nasalization. This shows that regressive nasalization is always a case of *co-articulation*, where the velum is opened just before the expected time.

The sporadic nature of regressive nasalization can be seen in different pronunciations of words such as in (3.27). This reveals that regressive nasalization can reach the previous syllable only partially or fully.

- (3.27) a. *i-be-dĩ = ta* [ibẽĩ'ta] ~ [imẽĩ'ta]
 want-NEG-CNV = E.FC
 'however / none of the less'
- b. *di = dĩaĩ* [diĩĩmĩ] ~ [nĩ'nĩĩmĩ]
 ANPH = time/epoch
 'those days, that epoch'

The fact that it is sporadic does not make it less interesting theoretically, a fact that will be further discussed in chapter 6, section 6.7. Nevertheless, what is important to highlight is that regressive nasalization is not productive and predictable as progressive nasalization.

Diachronically, some word forms were reanalyzed because of regressive nasalization. This seems to be the pattern for the conjunction and the temporal adverb above in (3.27). Similarly to the cases above, the pronoun for the 'FIRST PERSON PLURAL EXCLUSIVE' has two different dialectal forms: on some dialects in the Cuduyari River it has the form as in (3.28a) and in the Querarí and southern communities on the Uaupes River it has the form as in (3.28b).

- (3.28) a. *jihã* [ɕi'hã]
 'we (exclusive)'
- b. *jĩhã* [nĩ'hã]
 'we (exclusive)'

These forms can be analyzed diachronically into two pieces: *jĩ* 'I' plus the 'ASSOCIATIVE' suffix *-hã*, which is also present in the "plural" forms of other personal pronouns (speakers are not aware of the former associative suffix in pronouns now, though, showing these are reanalyzed, see chapter 9). Nasalization carried by the 'ASSOCIATIVE' suffix extended throughout the entire syllable on its left.

Prefixes that are no longer productive and have been analyzed as part of the stem they were combined with can also illustrate regressive nasalization. This is the case, for instance, with the 'hitherto' prefix *da-* in stems as *dãhũa* [nãhũã] 'drop, make it come down', from the root *hũa* 'lying on the ground'.

Finally it is important to mention an interesting case of variation in regressive nasalization with respect to the clitic *di* = 'ANAPHORIC' morpheme. In combination with =*hĩ* 'DIMINUTIVE' associated with an affix the anaphora is nasalized, as in (3.29a,b) below. However, in a partially homophonous word, where instead of *-kĩ* 'MASCULINE' one has =*kĩ* 'TREE-LIKE CLASSIFIER', the bound stem does not become nasalized as in (3.29c).

- (3.29) a. *di = hĩ-kĩ* [nĩ'hĩ^okĩ]
 ANAPH = DIM-MSC
 'that little masculine one'
- b. *di = hĩ-e* [nĩ'hĩe]
 ANAPH = DIM-MSS
 'those little/few things'
- c. *di = hĩ = kĩ* [di'hĩ^okĩ]
 anaph = DIM = CL.TREE
 'that little tree/straight vertical thing'

It is hard to account for these facts in a principled fashion, since they have almost the same structure. It could be hypothesized a distinction in terms of different morphophonological cycles, giving that in (3.29c) one has a word formed only by clitics and in (3.29a,b) there is an affix. Nevertheless, it is hard to understand why this difference would imply in distinct nasalization patterns to the left-most clitic.

It is more likely that this example is in fact a case of a sporadic historical change. The reason why this change took place in (3.29a,b) but not in (3.29c) could be related to a higher frequency in the use of the former word in comparison to latter.

In any way, these and the other examples reveal the sporadic nature of regressive nasalization, which, despite not being systematic on a synchronic level, can result in diachronic reanalysis.

3.2.3 Phonetic vs. Phonological nasality

It is important to distinguish two types of manifestation of nasality in Kubeo, given that they can produce different results, which, nevertheless, also have different causes:

(3.30) *Table 5: Distinction of Phonological and Phonetic Nasalization*

	TYPES OF NASALIZATION	
	PHONOLOGICAL	PHONETIC
DEFINITION	It is based on phonological rules, phonological features, (e.g. [nasal], [voiced]), phonological domains (e.g. syllable, word) and is part of the underlyingly representation of morphemes.	It is the result of co-articulatory effects (e.g. delay in the closure or early opening of the velum). It cannot trigger nasal harmony.
REALIZATIONS	<ul style="list-style-type: none"> - Syllable being all oral or all nasalized - nasal harmony - Floating nasality (section 3.3) 	<ul style="list-style-type: none"> - Only in adjacent segments. - Pre-nasalized stops - Partially nasalized syllables - Regressive nasalization (synchronic only) - Surface nasalization not based on phonological rules

The clearest cases that show the distinction between phonetic and phonological nasalization is in (3.31), where the suffix *-di* 'INTERROGATIVE' does not get nasalized despite the fact that the previous suffix is (superficially) nasalized.

- (3.31) *ã-rãhi-di* [ãrãhĩⁿdi]
 eat-FUT.NMZ.AN.P-INTR
 'are we eating yet?'

The syllable /hi/ could never be nasalized phonologically, since it has a voiceless onset. Phonetically, however, it can be nasalized, due to a delay in closing the velum before /h/ when preceded by a nasal syllable.¹⁰ If the syllable /hi/ were phonologically nasalized one would expect it to nasalize the morpheme *-di* 'INTERROGATIVE' and causing the alternation to the allomorph [nĩ].

The example in (3.31) is especially interesting because it shows that the vowel /i/ from the morpheme *-dãhi* 'INTENTIONAL FUTURE ANIMATE PLURAL' triggers the allomorph [d] (cf. /d/ > [r] or [d], chapter 2) of the interrogative suffix *-di*, though nasalization over the same vowel does not spread to the suffix, as it would be expected. These examples show that although a morpheme/syllable can be superficially nasalized, this does not mean that it is phonologically nasalized.¹¹

Another common case of Phonetic Nasalization is when the phoneme /d/ in the morpheme *-dĩ* 'CONVERB' is dropped, leaving only the nasal vowel [-ĩ] as its allomorph (cf. sections 2.2.2.2 and 2.2.2.5). In this situation, the outcome can vary, with the converb surfacing with an on-glide [-ĩj], where the preceding vowel does not get nasalized, as in (3.32a); or it can surface as [-ĩ], partially nasalizing the preceding syllable as in (3.32b); and finally in (3.32c) one can see a step further in the process, where the entire converb morpheme is dropped except that nasality is kept on the preceding syllable:¹²

- (3.32) a. *hoa-dĩ* *buba-ha-ko* → [hoa.ĩj]
 wash-CONV finish-IMP-FEM
 'finish washing it!'
- b. *ã-i-ma* *boa-kiji-ba-dĩ = du-wi* → [bãĩⁿdu.wi]

¹⁰ Co-articulatory processes related to /h/ are very common, see section 2.2.2.6.

¹¹ Durvasula (2009) also show compelling evidence for a distinction of nasal harmony as an abstract, featural phonological process and phonetic nasalization in general.

¹² Several theoretical issues can be capitalized from examples in (3.31). Partially nasalized syllables (as in (3.31b)) imposes interesting questions about syllabification and rule ordering in morphophonology (cf. chapter 5 and 6).

eat-ST-PASS.AN.PL kill-NMZ.FUT.MSC-BE-CONV + FRUSTR- N.3AN
 'I went for hunting (though I did not find much/any)'

- c. *jahu-dī = du-wi* → [ɕahũⁿduwi]
 play-CONV = FRUSTR-N.3AN
 'we tried to play though'

Another interesting case of phonetic nasalization are *pre-nasalized stops*, which have two different types: one in word-initial position with voiced stops and the other in word internal position whenever a nasalized vowel is adjacent to an oral stop.

The second type of pre-nasalized stops is related to a transition from a nasal to a non-nasal sound, a case of co-articulation where the velum delays its closure, causing the appearance of a transitional nasal stop with the same place of articulation of the following non-nasal stop (several examples of this type of pre-nasalized stops are given throughout this chapter). This is an interesting phenomenon to be discussed in more detail in chapter 5 on syllable structure.

Pre-nasalized voiced stops in word initial position, such as such as in *bia* [ˈmbia] 'chili' and *doje* [ˈdoʔde] 'traira fish' can occur sporadically in the speech of the same or different Kubeo speakers. They are also related to a delay in the closure of the velum from an open position during silence or pause. As Rodrigues (1986) correctly pointed out for Tupian languages with similar processes, during silence and pause the velum is open so that one can breathe through the nose. A delay in the closure of the velum causes the pre-nasalized tokens word initially. Being a phonetic, co-articulatory process, this process does not need to be treated phonologically in Kubeo.¹³

However, besides being purely phonetic in nature, this type of pre-nasalized stops show a further correlation between nasality and [+voiced] feature, since it only occurs with voiced stops. It is likely that with voiceless stops the velum is closed more rapidly, which is a possible correlation between a phonetic fact and a phonological motivation.¹⁴

¹³ It is important to say, though, that the feature what I call voiced stops and use the feature [+voiced] can be compared with a different "class" of stops that has been proposed in the literature. Anderson (1976) observed that some languages have a particular type of obstruents with allophones presenting 'pre-nasalized voiced' realization, simple 'voiced' realization and 'fully nasalized' realization. Rice (1993) proposed the feature [sonorant voicing] to account for this type of stops, while Piggott (1992) called it 'sonorant-obstruent' and Durvasula (2009) 'Nasalized Partially-Nasal Stops'. Although they can definitely be equated typologically, it is only important to make it clear that Kubeo voiced stops present pre-nasalized allophones only sporadically.

¹⁴ I understand pre-nasalized stops word-initially are analogous to aspiration of voiceless stops in languages where aspiration is not a phonological distinctive feature, such as English. Pre-nasalization of voiced stops

We may conclude that nasality in Kubeo must have a special phonological status that is distinct from simply surface, phonetic nasalization. It is also the case that it is likely that Phonological nasalization needs a form of representation independent from segments in general, since phonetic nasalization of a segment is not sufficient for triggering nasal harmony. In addition, it should be said that Phonetic Nasalization is analyzed as a type of post-lexical process, whereas Phonological Nasalization is a lexical phonological process (cf. section 6.7, chapter 6).

3.3 Nasality as an auto-segment

The reason for proposing an auto-segmental representation of nasality is that one needs to stipulate a level for allocating nasality in Kubeo that is autonomous from the segmental level. This has been suggested in several points of this chapter, especially when discussing nasality as allocated at the syllable, rather than the segmental level (section 3.1); and when arguing for a difference between phonological and phonetic nasalization (section 3.2.3), which ultimately showed that the rules of nasal harmony cannot be equated to simple phonetic/surface manifestation of nasality on segments.

I will now discuss two other reasons that reinforce this claim: first, *Segmental rules acting independently from nasality*; and second *Floating nasality*, which is the most important argument to be made.

3.3.1 Segmental rules independently from nasality

As discussed in chapter 2, phonemes such as /d/, /w/ and /j/ have several allophones. Each of their allophones has a nasal and a non-nasal counterpart with similar point of articulation and with the same manner of articulation (disregarding nasalization). For instance, /d/ can surface as [d], [ɾ] and [ɽ] in oral environments and as [n] and [ɲ] in nasal environments; /j/ can surface as [j], [ø] and [ɕ] in oral environments and as [j̃], [ø̃] and [ɲ̃] in nasal environments.

The rules that determine segmental allophones are independent from nasality, involving mostly position within a word and relationship to vowel features. Because each oral allophone has an almost exactly corresponding nasal allophone, one may wonder if there is something else behind these phenomena. Also, segments such as [ɽ]

and aspiration of voiceless stops are non-phonological resources that while strengthening a paradigmatic contrast (e.g. voiced vs. voiceless stops), also follow from phonetic properties of segments. Both processes, however, do not follow from universal principles, since there are cases of aspirated voiced stops in several languages too. Therefore, I believe there is no universal explanation for pre-nasalized voiced stops word initially in Kubeo, and, actually, this type of phonetic manifestation seems to be a common feature in Lowland South America.

and [ð] are rare cross-linguistically and I am not aware of languages where they are distinctive phonemes.

One should also add the process of *Identical Vowel Deletion*, where vowels are treated phonologically identical irrespective whether one is nasalized or and the other is not (cf. section 3.1 and section 2.1.2.4 in chapter 2).

The idea of two levels of phonological representation can thus capture the fact that nasality not only is minimally related to segmental rules (as far as manner and point of articulation is concerned), but also that it seems to be externally or super-imposed upon segments, in top-down fashion where segmental rules are computed independently from nasalization. Hence, an auto-segmental representation is the most indicated model to represent nasalization.

3.3.2 Floating nasality

Floating nasality is defined as an underlying feature of morphemes, who in their surface form are non-nasalized, but yet can trigger nasalization in morphemes on their right. It is a case similar to latent segments cross-linguistically.

Two morphemes in Kubeo have been identified with floating nasality: *-a* 'PAST' and *=ta* 'EMPHATIC FOCUS'. The underlying nasality of these morphemes is only manifested in a following morpheme having a voiced onset. A morpheme with a voiceless onset, however, will not become nasalized, what clearly shows that floating nasality corresponds to a case of phonological nasalization and nasal harmony.

In examples (3.33) and (3.34), this phenomenon is illustrated for *-a* 'PAST' and *=ta* 'EMPHATIC FOCUS' respectively. The (a) examples show nasalization of a following morpheme, while the (b) examples show the non-nasalized versions of the same morphemes in an oral context when *-a* 'PAST' and *=ta* 'EMPHATIC FOCUS' are absent:

- (3.33) *-di* 'INTERROGATIVE'
- a. *õ 'kayu* *boa-be-a-di* [boa'beaĩ]
- she cock kill-NEG-PST-INTR
- 'has she killed the cock?'
- b. *õ* *da-di* [da'ɾi]
- she come-INTRR
- 'has she come?'
- (3.34) *-bu* 'NON 3RD SINGULAR ANIMATE COPULA'
- a. *ira-ko = ta-bu* [i'raɾkotamũ]

big-FEM = E.FC-COP.N.3AN.SG

'she is very fat!'

b. *jí ira-ko-bu* [j'rakobu]

I big-FEM-COP.N.3AN.SG

'I am fat/big'

The following example show a case where a voiceless stop follows the morpheme *-a* 'PAST', resulting in blocking nasalization:

(3.35) *jãbã-ko* *jai-ako=ja* [ɕjai'jakoða]
 deer-FEM die-II.3FEM = REP
 'the deer died (said in a tale)'

The morpheme *=ta* 'emphatic focus' has a limited distribution in the sense that it only attaches to Noun Phrases and can be followed only by copulas and by the light verb *te* (in quasi-copula function), a fact that has to do with a correlation of focalization with copula encliticization (cf. section 6.3.2, chapter 6). The light verb *te* never becomes nasalized, since it is a stem and has a voiceless onset, while every copula without exception becomes nasalized since they all have a voiced onset, as represented below with the nasal allomorphs of Kubeo copulas:

(3.36) *Table 6: Affixation of Copulas to the clitic =ta 'EMPHATIC FOCUS'*

<i>=ta</i>	/-be/ [-mẽ] 3SG.AN.COP
E.FC	/-bu/ [-mũ] N.3SG.AN.COP
	/-ba/ [-mã] INTRR.COP
	/-bebu/ [-mẽbu] / [-mẽmũ] ASS.COP
	/-ba/ [-mã-] COPULA

The morpheme *-a* 'PAST' also has a limited distribution: it is a productive morpheme in the tense forms for certain types of question formation, while it is part of the 3rd person singular irregular forms in class II verb inflection paradigm (cf. chapter 8). In (3.37) these irregular forms are presented, showing that the forms following *-a* 'PAST' are always nasalized if they have voiced onsets (as in (3.37a,b,d)).¹⁵

¹⁵ As it is shown in chapter 8, the reason for not segmenting the forms in (3.37) is because the whole past tense paradigm seems to be based in irregular forms with lots of suppletion as well. Therefore, individual forms are analyzed as single piece synchronically.

- (3.37) a. -*awĩ*
 -II.1/2/3IN
- b. -*abẽ*
 -II.3MSC
- c. -*ako*
 -II.3FEM
- d. -*a-dĩ*
 -II-INTR

Because floating nasality is not segmentally manifested until it can actually nasalize a following syllable, nasal harmony cannot be regarded simply as a local assimilation process where a voiced segment is automatically nasalized from an adjacent nasal segment. Rather, it must involve abstract representation of phonological features independently from any segment. Thus floating nasality must be treated as some sort of a latent feature in the underlying representation of a morpheme, but bearing no direct link to the syllable of the morpheme where it occurs.

3.4 The evolution of nasality in Kubeo and related languages

This section discusses how the evolution of nasality in Eastern Tukanoan languages is related with the emergence of a class of voiced stops and the reanalysis of proto-nasal vowels and stops. It also aims to explain why Kubeo has a complex pattern of distribution of nasality in lexical roots, contrary to most Eastern Tukanoan languages, where roots are either all oral or all nasalized.¹⁶

Proto-Tukanoan had proto-nasal vowels and proto-nasal stops. Consider the examples below in (3.38) for the reconstruction of proto-nasal vowels and the examples in (3.39) for the reconstruction of **m* and **n*.¹⁷

¹⁶ This is a summary of historical developments in the Tukanoan family (cf. Chacon *forthcoming-a* for more details).

¹⁷ Western Tukanoan languages are in shaded cells. In addition, following Gomez-Imbert 2004, I am using the tilde sign "~" before a word when the whole morpheme is nasalized. Voiced consonants preceded by "~" have nasal allophones, very similarly to the Kubeo facts. Words were phonemicized after the orthographic form from the source of information: for Barasano (Barasano Literacy Committee, 2009), for Tukano (Ramirez 1997), for Wanano (Waltz et. al 2007), for Koreguaje (Cook and Gralow 2001), for Sekoya (Piaguaje et. al. 1002) for Siona (Wheeler 1987).

(3.38) Table 7: Reconstruction of Proto-Tukanoan nasal vowels

KUBEO	BARASANO	TUKANO	KOREGUAHE	SEKOYA	SIONA	GLOSS	PROTO-TUKANO
<i>kābū</i>	~ <i>gabo</i>	~ <i>o'be</i>	<i>kāho</i>	<i>kāho</i>	<i>k'āho</i>	EAR	* <i>k'āp'o</i>
<i>jā</i>	~ <i>jika</i>	~ <i>jehka</i>	<i>ñuka</i>	<i>đika</i>	-	LEG HIPS KNEE	* <i>jika</i>
<i>jēkū</i>	~ <i>jiki</i>	~ <i>jeki</i>	<i>jēkui</i>	-	-	GRAND-FATHER	* <i>jēkku-</i>
<i>pīkō</i>	~ <i>hiko</i>	~ <i>piko</i>	<i>hī'k^ho</i>	<i>hīko</i>	<i>hīko</i>	PALM-WEEVIL	* <i>pīko</i>
<i>kōpī</i>	<i>guhi</i>	<i>upi</i>	<i>k^hōhi</i>	<i>kō'hi</i>	<i>k'ūhi</i>	TOOTH	* <i>k'ōpi</i>
<i>kū</i>	~ <i>kudi</i>	~ <i>ku'di</i>	<i>kū'ū'i</i>	<i>kōki</i>	<i>kū'i</i>	TO BITE	* <i>kū</i>

(3.39) Table 8: Reconstruction of Proto-Tukanoan nasal stops

KUBEO	BARASANO	TUKANO	KOREGUAHE	SEKOYA	SIONA	GLOSS	PROTO-TUKANO
<i>bēa</i>	~ <i>beka</i>	~ <i>beka</i>	<i>mek^ha</i>	-	<i>mea</i>	ANT SP.	* <i>meka</i>
<i>pābu</i>	~ <i>habo</i>	~ <i>pabo</i>	<i>hamu</i>	<i>hāmu</i>	<i>hāmu</i>	ARMADILLO	* <i>pamu</i>
<i>de</i>	~ <i>ree</i>	~ <i>de?e</i>	<i>ne?e</i>	~ <i>de?e</i>	<i>ne?e</i>	BURITI PALM	* <i>ne?e</i>
<i>bēdē</i>	~ <i>bede</i>	~ <i>bede</i>	<i>pene</i>	<i>pedē</i>	<i>p'ene</i>	FRUIT SP.	* <i>p'ene</i>

Proto-Tukanoan nasalized *j and *w when these sounds were adjacent to a proto-nasal vowel, as well as a vowel was nasalized in the same syllable of a proto-nasal stop. It had proto creaky-voiced stops (*p', *t' and *k') contrasting with plain voiceless stops (*p, *t and *k), instead of voiced stops (cf. chapter 1). Nasality originally did not spread across any of these stops, nor they had nasal allophones.

Because Proto-Tukanoan had a consonantal system lacking a natural class of voiced stops, it is likely that nasal harmony in the proto-language was similar to the pattern found in SIO and KOR.¹⁸ Nasality sources were nasal vowels and nasal stops. Syllables with nasal vowels could be partially nasalized with a non-sonorant stop (*p'ā > [p'ā̃]) or all nasalized with a sonorant consonant (*jā > [jā̃]). Nasal spreading was blocked by creaky-voiced stops and voiceless stops, but allowed through sonorant segments. Thus, Proto-Tukanoan had morphemes that were fully nasalized or morphemes partially nasalized.

¹⁸ In these languages, nasal harmony can target only vowels and sonorant consonants, since they have no class of voiced consonants (cf. Cook and Criswell 1993, Wheeler 1987).

Later, Eastern Tukanoan languages (Kubeo's branch of the family) changed creaky voiced stops to plain voiced stops (see chapter 1). Two consequences resulted from this change:

- (i) voiced stops and sonorant segments merged as a new natural class of [+voiced] sounds;
- (ii) voiced stops got nasalized before a proto-nasal vowel, causing a merger of ***m* and **b*, ***n* and **d*. Because vowels adjacent to a proto-nasal stop were also nasalized, proto-nasal stops and voiced stops merged completely in Eastern Tukanoan languages.

In most Eastern Tukanoan languages, any nasalized segment caused a whole lexical root to become fully nasalized. In Kubeo and Tanimuka, however, there are still morphemes that are partially nasalized, as the words in (3.7) above, which represent the most archaic pattern of nasalization in Tukanoan, similarly to what exists in Western Tukanoan languages.

In Kubeo, morphemes that have all syllables nasalized are the ones with a proto-nasal vowel in the first syllable, which necessarily harmonized with other vowels in the same morpheme. This explains why there are no words that can illustrate pattern (l) in (3.7), and the rarity of examples for pattern (k). On the other hand, other morphemes whose first syllable is nasalized but the second is oral (patterns (i) and (j) in (3.7)) are the result of words that had a proto-nasal stop, but no proto-nasal vowel in the past. Without a proto-nasal vowel, these roots have always been non-harmonic.

Finally, it is worth mentioning that while **h* was a transparent segment in Proto-Tukanoan nasal harmony, as it still is in Western Tukanoan languages, it is an opaque segment in Kubeo nasal harmony. This can be related to the fact that original **h* merged with zero in Kubeo, and present-day /h/ is the reflex of a change that affected all alveolar and palatal fricative and affricates (cf. section 2.2.2.6).

3.5 Further theoretical considerations about nasality in Kubeo

This section presents the challenges for a theoretical representation of nasality in Kubeo and discusses different solutions.

During this chapter I have insisted that nasality is a monovalent feature, [nasal], which is associated to syllable nodes and is manifested only in [+voiced] segments (where [+sonorant] segments are redundantly [+voiced]). Every syllable of lexical roots must be specified as having a [nasal] feature or not. Nasal harmony is a process as defined in section 3.2, where [nasal] assimilates to adjacent syllable nodes only within

the phonological word in the lexical phonological derivation, provided that there are no voiceless segments in the following syllable. Floating nasality can be represented as a [nasal] feature similarly to the representation of latent segments, where [nasal] is part of the underlying representation of certain morphemes, but bears no link to the syllable node of those morphemes, requiring an adjacent syllable (with only voiced segments) to be linked with.

Different approaches could be proposed, of course, and in the following I discuss just a few.

It could be possible to assume a binary [\pm nasal] feature, instead of a monovalent one. However, the strongest reason for assuming a monovalent feature is because there are no cases of 'de-nasalization', which means that an alleged [-nasal] feature would find no phonological motivation in general. Still, it could be argued that [-nasal] is necessary to explain exceptional morphemes such as *-wa* 'HABITUAL' and *-wa* 'PAST PASSIVE'. This can be true, but one must remember that these morphemes also repel other prosodic features, which suggests that there must be a more general "diacritic" representation of such a behavior. One could also assume a [-nasal] feature to represent syllables of lexical roots that are oral and can never get nasalized. However, this is absolutely unnecessary, since there are many cases in the literature referring to "non-harmonic" roots, and cases where phonological rules only take place across morpheme boundaries.

Also, one could try to nasalize nasality in terms of nasal phonemes, stops and/or vowels. That would, however, incur in many complications, such as:

- (a) what kind of nasal phoneme could represent floating nasality, since it is not a vowel nor a stop?
- (b) if nasal harmony is to be understood as a segment-to-segment nasal assimilation, how to account for the differences of phonological and phonetic nasalization?
- (c) enlarging the phonemic set of vowels from six to twelve (six oral and six nasal) would bring other complications, not only in terms of economy, but also one would have to decide whether there were nasal stops as well. If there were nasal stops, how could one tell what is the source of nasality in lexical roots? And how to explain that /m/ never contrast with /b/, for instance?
- (d) If one opts for the analysis of a phonemic inventory of only nasal vowels but no nasal stops, one would have to have very strong motivations for such, since languages lacking nasal stops are not common, but languages with nasal vowels and no nasal stops are extremely rare (Ferguson 1963), though there are claims

that such a system might actually exist, such as in Chibchan languages (Constenla, 1981, 1985).

The auto-segmental approach advocated by the present analysis can answer the problems above, but also create a complication: in nasal harmony, I assume assimilation of the feature [nasal] from one syllable to the next syllable in the right. The problem is that it makes necessary that syllable nodes have access to information about phonological features of segments, since [-voiced] segments can block nasal harmony. There are two technical solutions for this problem: either one assume that morphophonologically [nasal] will be reinterpreted as a segmental feature, or that the syllable node can store information about segmental features. I disprefer the first solution because it would again blur the necessary distinction between phonological and phonetic nasalization. The second solution, although make non-standard assumptions about syllable structure, seems actually the best one.¹⁹

Of course, this is just one possible set of theoretical solutions. It always depends on what are the basic theoretical premises one has and what kind of theoretical results one expects to achieve. In my case, I wanted to show the striking similarities that nasality has to tone and stress in the language, assuming a more simplistic analysis of the segment inventory and explaining redundancies found in syllables where nasalized stops never contrast with oral voiced stops. Also, in this approach, nasal harmony is also more elegantly defined in terms of phonological rules and is made distinct from simple surface, phonetic nasalization.

¹⁹ An adaptation of the concept of ‘voice fusion’ in Piggott 1992 can be used in relation to blocking of nasal harmony by a [-voiced] segment. This adaptation of Piggott’s concept could have the following form: *a syllable will be opaque to nasal harmony if it is impossible to have a voice fusion configuration within its segments, meaning that all segments must be voiced, otherwise nasal harmony will fail*. Therefore, ‘voicing’ is interpreted as an important phonological notion that is carried from segments up to the syllable node.

4. Stress and Tones

This chapter describes stress and tones in Kubeo and how they correlate with one another. It demonstrates three aspects of the phonology of these two systems:

- i. How stress and tones are integrated phenomena in the surface forms of words.
- ii. How they are independent phonological properties in the underlying form of morphemes.
- iii. And when and how in the phonological derivation they become integrated properties of words, though still maintaining much of their independence with respect to phonological rules.

It follows that I analyze Kubeo as having *both* stress and tones, according to Hyman (2006)'s typology of word prosody, and the description of the language would be impoverished if analyzed as a "pitch-accent type".

In what follows I present two charts that summarize the phonetic and phonological properties of stress and tones in Kubeo. Then, I describe stress and tones independently as far as this is possible (section 4.1 and 4.2 respectively). A phonetic analysis of stress and tones is presented in section 4.3. A general derivational model is presented in section 4.4.

In the surface forms of words in Kubeo, a variety of features generally understood as prototypical properties of either stress or tone systems can be observed (cf. Hayes 1995, Hyman 2006, 2001). In table 1, the basic phonetic correlates of stress and tones in Kubeo are represented:

(4.1) *Table 1: Phonetic Correlates of Stress and Tone*

STRESS	<p>(a) A single syllable can be perceived as more prominent than the rest of the syllables within a word.</p> <p>(b) Among the less prominent syllables, it is still possible to perceive relative degrees of prominence, following a rhythmic pattern.</p> <p>(c) Prominence is manifested as a combination of duration, intensity and pitch.</p> <p>(d) Vowels can be longer or shorter and obstruents can be strengthened or weakened, depending on whether they appear in stressed or non-stressed syllables, respectively.</p>
TONE	<p>(a) Syllables within a word have a fixed combination of pitch levels (e.g. high-high, low-low, high-low, etc.), independently from intonation.</p> <p>(b) A high or low pitch can occur on stressed and unstressed syllables.</p> <p>(c) Particular lexical roots in a word correlate with a given set of pitch levels.</p> <p>(d) Vowels quality can vary depending on the presence or absence of underling tones in a word.</p>

Stress and tone to a large extent use the same elements in their phonological derivation, though with somewhat different outcomes. These facts are summarized in table 2:

(4.2) *Table 2: Summary of the Phonology of Stress and Tones*

	STRESS	TONE
SYLLABLE	Stress bearing unit.	Tone bearing unit.
FOOT	Iambic foot assigned from the left edge of words to the right edge.	Tones are assigned to the first stressed syllable in a word (which is the same to say it is assigned to the first foot head of a word) and spread at most one foot to the right.

UNDERLYING FORM OF MORPHEMES	Some lexical morphemes have irregular, lexically marked stress in their first syllable from the left edge. (Otherwise, stress is assigned by rule and is not part of the underlying representation of morphemes)	<ul style="list-style-type: none"> - Lexical morphemes can be marked by either of two existent tones, HL and H.¹ - A few lexical morphemes lack tone, i.e. bear Ø-toned. - Functional morphemes lack tone in general.
WORD	<ul style="list-style-type: none"> - Every word has a primary stressed syllable no more than two syllables from its left edge. - Secondary stress can occur to the right of the primary stressed syllable. 	<ul style="list-style-type: none"> - The word is the maximum domain for tone spreading, though tones cannot spread more than two feet in a word. - Every word has a pitch melody, but this melody does not follow directly from underlying tones necessarily: it can be the result of intonation rules, default tones, the phonetics of stress or tone spreading from another word.
DERIVATIONAL LEVELS	- Stress rules can be divided in distinct levels throughout the derivation of words.	- The assignment of underlying tones and tone spreading take place only once, after most metrical rules are complete.

In addition, in the derivation of tones and stress one can ask which one of the two has priority over the other. This is like a chicken and egg question, though. What seems to be the case in my analysis is that metrical structure (syllable, foot, and word edges) is pervasive in Kubeo phonology, so stress and tones make use of it concomitantly, just as both also make use of pitch (i.e. pitch serves as a phonetic realization for stress and tones, cf. section 4.3). Thus, stress and tones are virtually

¹ The asterisks is a relative notation intended to show that tones are free underlying properties of lexical roots and are associated to the primary stressed syllable of a word. The tone H and L following the asterisk represent the tones levels that spread within a word.

independent, while both depend on metrical structure derivationally. This can also be seen in the way one system can affect the other in phonetic terms, such as tone rules affecting the relative perception of prominence in stressed syllables (cf. section 4.3).²

4.1 Stress

This section describes stress in detail. The reason for describing stress before tones is because the metrical structure that serves both system can be more directly described by observing stress rules.

This section starts in 4.1.1 by describing the general properties of stress in the language. In 4.1.2 issues on the metrical nature of stress are considered.

4.1.1 General Properties of Stress. The general properties of stress in Kubeo are summarized below:

- Every word must be stressed
- Stress must fall at most two syllables from the left edge of words
- Stress is lexically contrastive
- Stress generate a rhythmic alternation between relatively more or less prominent syllables
- Stress is not sensitive to syllable weight
- Stress can affect segmental phonology

All words in Kubeo, including monosyllabic ones, are stressed. Examples of monosyllabic stems are seen in (4.3):³

(4.3)	a.	'u	['ú]
		'sloth'	
	b.	'bã	['mã́]
		'path'	
	c.	'o	['ó]

² Previous analyses on Kubeo (cf. Salser 1971, Morse & Maxwell 1999) described a system where stress predictably falls on the first high-pitched vowel of words. Words can have sequences of high pitch, but only the first pitch would be stressed. Such an analysis lacks several details and important data such as the presence of stress in words without tone. The analysis I propose separates stress and tone while seeking explanation for why they correlate with one another.

³ Surface tones are marked in this section for all words: acute accent ´ represents a relative high tone and the grave accent ` , a relative low tone. Underlying tones are only marked in sections 4.2.

	'plant sp. (<i>Heliocona sp.</i>)'	
d.	<i>'kũ</i>	['kú]
	'earthworm'	
e.	<i>'bĩ</i>	['mĩ]
	'bird'	
f.	<i>'hu</i>	['hú]
	'larva'	
e.	<i>'jĩ</i>	['ɕĩ]
	'I'	
f.	<i>ɸ</i>	['ĩ]
	'he'	
g.	<i>'bĩ</i>	[mĩ]
	'you'	
h.	<i>'bi</i>	['bí]
	'no'	
e.	<i>'jo</i>	['ɕó]
	'this one'	
f.	<i>'jo-kĩ</i>	['ɕókĩ]
	younger.sibling-MS	
	'younger brother'	

The same holds for monosyllabic roots with vowel clusters:

(4.4)	a.	<i>hia</i>	['hĩá]
		'river'	
	b.	<i>pie</i>	['pĩé]
		'basket'	

- c. *bui* [ˈbùí]
 'agouti'

The words from (4.3) and (4.4) have a fixed stress location, meaning their stress pattern will not change when bound-morphemes are attached to the right of them (as represented in (4.5a, 4.5b)) or to their left (as in (4.5c, 4.5d, 4.5e)).

- (4.5) a. *'ji-de = bã* [ˈʤíémǎ]
 I-OBL = LOC.FC
 'on me'
- b. *'kũ-wa* [ˈkúwà]
 earthworm-AN.P
 'earthworms'
- c. *i = 'bã* [iˈmǎ]
 this = path
 'this path, way'
- d. *di = 'pie* [diˈpié]
 'ANAPH = basket'
 'that basket (we've been talking about)'
- e. *hi = 'jo-ki* [hiˈjókĩ]
 MY = younger.sibling-MS
 'my younger brother'

This pattern differs from monosyllabic verb roots, which, however, can never appear as free-standing morphemes in discourse, since verbs always require some additional element, such as an affix or another stem in a compound. Monosyllabic verb roots can either have a fixed stress located on the root morpheme, as in (4.6), or stress can fall on the affix to its right, as in (4.7):

- (4.6) a. *'ẽ-debu* [ˈéñᵉᵐbù]
 burn-INFR.N.3.AN
 'it has burnt'
- b. *'hi-ha-ki* [ˈhíhàkĩ]

- give-IMP-MSC
'give it!'
- (4.7) a. *ki-be-bi* [kì'bébi]
exist-NEG-3MSC
'he is not (here)'
- b. *ða-biko* [ðà'bíkò]
make-3FEM
'she's made (it)'

In polysyllabic nouns the stress pattern is more similar to the one found with verbs above, since stress can fall either on the first or second syllable from the left edge of the stem, as illustrated in examples (4.8) and (4.9) below:

- (4.8) a. *ãðã* [ã'ðã]
'snake'
- b. *biko* [bì'kó]
'smoke, fog, vapor'
- c. *etfidi* [è'tfídi]
'Inajá palm'
- d. *hãrãwi* [hã'ɾáwí]
'day'
- (4.9) a. *'ijeí* ['íçjëì]
'Cucura (*Puoruma* sp.)'
- b. *'kaju* ['káçjù]
'rooster'
- c. *'kowi* ['kówí]
'flower'
- d. *'dãbẽ* ['námbẽ]
'rainbow'

Thus, it seems that monosyllabic nouns are special in that they have a fixed stress, while polysyllabic nouns and verbs can have stress on the first or second syllables of the stem. The behavior of monosyllabic nouns requires an explanation, which I think relates to the following two facts. First, roots in Kubeo are isomorphic

with stems (cf. section 6.3.1, chapter 6). Second, every noun root can surface as a monomorphemic, bare stem in discourse; this implies that monomorphemic noun roots are lexically (underlyingly) stressed so they can surface in discourse as stressed words, even though they are monosyllabic. This is a case of CONSPIRACY between phonology and morphology, where a phonological requirement on surface forms of words implies an underlying property of roots (see similar examples in chapter 6, section 6.7.1.1). This is not a problem for monosyllabic verb roots, which, except in compounds, never occur in isolation in their bare stem form.

The examples above also show that in every word stress falls either on the first or second syllable from the left edge of the word, but never on the third syllable. This is demonstrated in the examples in (4.10) and (4.11), where a noun in isolation has stress falling in the second syllable to the left edge of the stem, but when it is procliticized, stress shifts one syllable to the left.

- (4.10) a. *tika = dɨ* [ɨ'káɾɨ̃]
 piece = CL.RND
 'a round piece of something'
- b. *i = tika = dɨ* [ɨ'tíkàɾɨ̃]
 THIS = piece = CL.RND
 'this round piece of something'
- (4.11) a. *hãrãwɨ* [hã'ɾãwɨ̃]
 'day'
- b. *dɨ = hãrãwɨ* [dɨ'hãrã,wɨ̃]
 ANPH = day/time
 'in that time'
- (4.12) a. *pa-ki* [pa'ki]
 parent-MS
 'father'
- b. *hi = pa-ki* [hɨ'pákɨ̃]
 my = parent-MS
 'my father'

Similar examples can be observed with verbal prefixes. For instance, the prefix *ha-* 'perform action with a goal' (which substantially changes the lexical aspect of the verb) always causes a stress shift in the original stem:

- (4.13) a. *pu-dĩ* [pù'ĩ]

blow-CNV

'to blow'
- b. *ha-pu-dĩ* [hà'púĩ]

PAG-blow.trumpet-CNV

'to play a trumpet'
- (4.14) a. *pipo-dĩ* [pì'póĩ]

squeeze-CNV

'to squeeze something'
- b. *ha-pipo-dĩ* [hà'pípòĩ]

P.A.G-squeeze-CNV

'to masturbate oneself'

The stress shift demonstrated in examples (4.10) through (4.14) shows that stress will always change to a default location whenever necessary. The default location is the second syllable of a word. This contrasts with the facts exemplified in (4.3) through (4.6), which show that in some words stress has a fixed location on the first syllable of root morphemes, and does not shift even if a morpheme is concatenated to the left or to the right of that root.

In words formed from clitics only, stress also falls on the second syllable:

- (4.15) a. *dĩ = dī* [dĩ'dĩ]

ANPH = CL.RND

'that round thing (previously referred)'
- b. *i = bo* [i'bó]

THIS = CL.OVAL

'this oval thing'

The distinction between default stress and irregular stress is also important to mark meaningful contrasts as exemplified in (4.16) through (4.20):

- (4.16) a. *'oko* ['ókò]

'a heron'
- b. *oko* [ò'kó]

'water'
- (4.17) a. *'bako* ['bákò]

- 'mommy (vocative)'
- b. *bako* [bà'kó]
'daughter (vocative)'
- (4.18) a. *bāka* ['mǎ́ká]
'tarantula'
- b. *bākā-dō* [mǎ́kǎ́dō̃]
jungle-CNT
'jungle'
- (4.19) a. *'hi-i = dō* ['hínō̃]
give-ST = CNT
'something one gives, to give'
- b. *hi-dō* [hĩnō̃]
my-CNT
'my thing, land'
- (4.20) a. *'kuya-bi* ['kúyàbì]
run-3MSC
'He ran'
- b. *kuya-bi* [kù'yábì]
bathe-3MSC
'He bathed'

The idea that stress falling on the first syllable of root morphemes is irregular also has support in quantitative terms, since roots whose first syllable is stressed make up only about one fourth of my whole lexicon (approximately 3000 words).

Thus I analyze the irregular stress as a case of an UNDERLYINGLY SPECIFIED FEATURE of lexical roots, while the rest of the roots are not underlyingly specified for stress. In the latter case, stress will predictably fall by default on the second syllable of words, irrespective of their morphological composition. This follows from the default foot template of Kubeo, the iambic foot, which is discussed next.

In words formed by a stem and any bound-morpheme (except clitics which are more problematic and will be discussed later), it is possible to perceive a general rhythm of stronger (i.e. more prominent) and weaker (less prominent) syllables, in a way that if stress falls on the second or the first syllable of a word, every other syllable

will be relatively more prominent than the adjacent, weaker syllables. This is schematized in the chart below:

(4.21) *Table 3: Ideal Rhythmic Alternation of Stress*

DEFAULT CASE	IRREGULAR ROOTS
σ'σσ ₁ σσ ₁ σ	'σσ ₁ σσ ₁ σσ

The rhythmic pattern of stress is illustrated in the words in (4.22) for the regular case and in (4.23) for roots with irregular stress below:

- (4.22) a. *dākōwa-kebã-di = ka* [nã^hkõwã^hkè^hmã^hĩkã^h]
 stop/lift-PST.ASM-INTR = DOUBT
 '(how could they) have lifted (the long-house's roof)?'
- b. *kojobobo-ji* [kò^hðóbò^hbò^hɕĩ^h]
 shout-NMZ.MSC
 'the one who shouts, is shouting'
- c. *hapopo-ha-ki* [hà^hpópò^hhà^hkĩ^h]
 hang.clother-IMP-MS
 'hang the clothes!'
- d. *hĩbẽ-ki-be* [hĩ^hmẽ^hkĩ^hbè^h]
 green/blue-MS = COP.3AN.SG
 'he is green'
- (4.23) a. *'haro-be-biko* ['hárò^hbè^hbì^hkò^h]
 be.seen-NEG-3FEM
 'she cannot be/is not seen'
- b. *'pipidi* ['pípí^hdí^h]
 'Dusky-chested flycatcher (*Myiozetetes luteiventris*)'
- c. *'jawa-ha-ko* ['ɕáwà^hhà^hkò^h]
 speak-IMP.FEM
 'speak up, woman!'

- d. *ěhĩa* #*dođe* ['ěhĩãⁿdò₁ďě]
hawk.headed.parrot #wolf.fish
'Wolf fish sp. (*Hoplias* sp.)'
- e. *kĩ* #*te-bi* ['kíté₁bí]⁵
exist #do-3MSC
'he was/lived/existed'

Clitics (cf. section 6.3, chapter 6) have a more special situation than compounds. First, proclitics such as the determiners from examples (4.10) through (4.14) are fully integrated into a phonological word and thus cause a stress shift. Enclitics, on the other hand, do not cause stress shift in their host, but project their own foot.⁶ This can create different situations, such as:

- (i) An expected rhythmic alternation (4.25a);
- (ii) A stress clash (4.25b);
- (iii) Incorporation of an extrametrical syllable when it is left astray from the clitic host (4.25c);
- (iv) Or the creation of a degenerate foot in (4.25d), when two affixes from the stem follow the primary stressed syllable and precede a clitic. The closest affix to the clitic is incorporated to the foot headed the syllable from a clitic:

(4.25)	MORPHEME GLOSS	METRICAL STRUCTURE	PHONETIC FORM
a.	<i>bãhi-di = wĩ</i> know-NMZ = CL.AN.COL 'skillful people'	(bã'hi)(di'wĩ)	[mã'hídí ₁ wĩ]
b.	<i>jãbĩ = ka = kĩ</i> night = ORG = MSC 'a male being from the night' (i.e the moon)	(jã'bĩ)(ka)(kĩ)	[jã'míkà ₁ kĩ]
c.	<i>upa-ki = e-bebu</i> dance-FUT.NMZ = MSS-ASM.COP '(the manioc beer) is probably when they will have a dance ceremony'	(u'pa)(ki.'e)(be'bu)	[ù'pákĩ ₁ jèbè ₁ bù]

⁵ If this word were not a compound, one would expect the head of the foot to be within the syllable [te]. For reference on the regular pattern of the verb stem *kĩ* 'to exist', see example (4.7a).

⁶ As it is shown below, to project a foot is distinct to say they are stressed, since due to particular metrical rules they can appear unstressed.

- d. *jaki-be-ki=e=pe* (ja'ki)('be)(ki.'e)('pe) [ɕʒà'kí,bèkì.jépè]
 wɛt-NEG-FUT.NMZ = MSS = AS
 'in order for it to dry'

The word in (4.25b) should have had three feet, but the secondary stress from the middle foot does not exist phonetically, which suggests a destressing rule (see discussion of example (4.37)). Cases (4.25a, 4.25c) are interesting because they show that syllables from a stem can be left stray and then integrated into a foot with another morpheme, showing that the parsing of affixes is not primarily carried by the stem. This points towards different levels of parsing in the metrical derivation (see discussion further below). The creation of a degenerate foot in (4.25d) seems to be a last resort of Kubeo metrical rules, which occurs in order not to leave extrametrical syllables.

The metrical derivation of words containing clitics is definitely the most complex type in the language,⁷ involving issues of stress clash resolution, extrametricality, stray incorporation, persistent footing, degenerate feet, and different derivational levels. These issues are discussed in-depth in section 4.1.2.

Another factor by which the metrical structure of Kubeo deviates from its expected pattern is the PROSODIC REPELLENT AFFIXES, which were introduced in the discussion about nasal harmony (cf. e.g. (3.21) and (3.22), chapter 3) and are analyzed in sections 4.1.2.2 and 4.2 in relation to their behavior with respect to stress and tones.

Another point about Kubeo stress is that it is not sensitive to syllable weight, so technically heavy syllables (C)VV or light syllables (C)V should behave the same regarding stress (also see section 2.1.1.2, chapter 2, e.g. (2.24)). The examples below in (4.26) show stems starting with a vowel cluster that have stress in the second syllable falling the default pattern of stress.

- (4.26) a. *boa-ji-bebu* [bòà'ɕʒìbè.bù]
 kill-NMZ.MSC-ASM.COP
 'he might be killing'
- b. *bui-di=kũ* [bùì'dí.kũ]
 full-NMZ = CL.EMB
 'a full canoe'

⁷ Given that the majority of bound-morphemes in Kubeo are clitics, it follows that the metrical derivation of stress in Kubeo can always be a complex phenomenon in general.

- c. *kuitote* [kùì'tótè]
'cotton'
- d. *koedõ = dî* [kòè'nõrí]
black.wax = CL.RND
'tip of the dog's nose'
- e. *piara* [pïà'rá]
'Tocandira ant'

It is true, though, that there is a tendency for most words starting with a vowel cluster to have stress in their first syllable. This follows from diachronic facts, where the vowel cluster is the reflex of two separate syllables that were merged in a single syllable after the loss of an intermediate consonant (cf. section 2.1.1.2).

SYLLABLE MERGE rules (cf. chapter 5) can also affect the stress pattern in Kubeo. As discussed in sections 2.1.2.3 and 2.1.2.4 (chapter 2), when vowels from distinct morphemes are syllabified in the same syllable derivationally, stress can appear in an unexpected location. See the two examples in (4.27) and (4.28) below, which contrast the regular placement of stress seen in the (a) examples with the irregular placement due to syllable merge processes in the (b) examples:

- (4.27) a. *tî-bi* [tî'bi]
fall-3MSC
'he fell down'
- b. *tî-o-kakî* ['tioka,kî]
fall-CAUS-II.1MSC
'He dropped it'
- (4.28) a. *wĩ-kakî* [wĩ'kakî]
inhale-II.1MSC
'I inhaled (it)'
- b. *wĩ-i-kakî* ['wĩka,kî]
inhale-ST-PST.NMZ.MSC
'the one who was inhaling (it)'

It should be noticed that when there is a stress shift, secondary stress is manifested rhythmically as expected. This also points towards a distinction between two levels in the metrical derivation.

A final general point to be made about stress is its effect on segmental phonology. There are three important points to this correlation, discussed below:

1. Deletion of segments and reduction of unstressed syllables, as in (4.29):

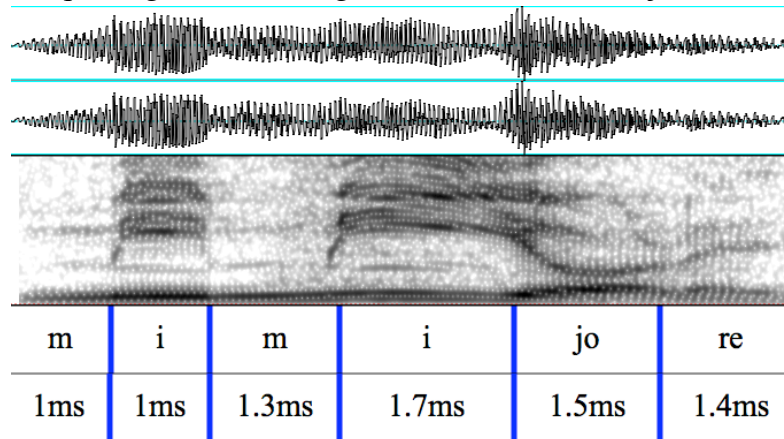
- (4.29) a. *hiaðo = kũ* [ˈhiáðò,kũ] → [ˈhia°kũ]
 tree.sp = CL.EMB
 ‘a canoe’
- b. *hitira* [hĩˈtírá] → [h̥.ˈtírá]
 ‘flour’
- c. *kopa-rĩ* [kòˈpáĩ] → [koˈpáĩ]
 return-CNV
 ‘returning’
- d. *jĩhẽ* [jĩˈhẽ] → [jẽ]
 our
 ‘our’
- e. *bahu* [baˈhu] → [ˈbu]
 ‘body, whole, completely, thoroughly’

2. In examples (2.84) in section 2.2.2.2, chapter 2, several cases were shown where /p/ and /k/ surface as /h/. These stops are after the stress (i.e. to the right of the primary stressed syllable), where there is a tendency for segments to be produced with little effort or even to be deleted. In addition, stops that have lesser degree of obstruction⁸, such as [m] and [ɕ], tend to be pronounced with greater effort and duration in stressed syllables. The example below shows a spectrogram for the word *bĩbĩ = jo* [mĩˈmĩjo] ‘hummingbird’ (hummingbird = CL.LONG), which shows that the [m] from the stressed syllable is considerably longer than the [m] in the unstressed syllable (disregard the last two syllables).⁹

⁸ Differently than [+continuant]. An [m] and [ɕ] are more continuants than [p] or [t] by virtue of voicing, and continuous airflow through the nose, in case of [m], and in the fricative component of the articulation of [ɕ].

⁹ Notice also that because Kubeo has a negative VOT (cf. section 2.2.2.4, chapter 2), one could expect that the word initial [m] could be even longer when its VOT is measured, but even then, it is much shorter than the stressed [m].

(4.30) Figure 1: Spectrogram and Textgrid for the word [mĩ'mĩjo] 'hummingbird'



Actually, as one can see the whole stressed syllable, especially the vowel, is much longer than the unstressed syllable. This is discussed in section 4.3 below.

3. A final point about the relationship between stress and segments involves the special cases of syllable deletion. Syllable deletion is a very common process in word-final and sentence-final position in Kubeo, a fact that relates to a fading contour in Kubeo prosodic domains. The examples below show that when a stressed syllable is deleted, its stress moves one syllable to left, which conforms to the expected pattern of languages with iambic feet (cf. Hayes 1995):

- (4.31) a. *kuitote #kahe* [kũi'tótè kà,hé] → [kũi'tótè,ká]
 cotton #skin
 'clothes'
- b. *'hapura #te-wi* ['hápu,rà tèt,wí] → ['hápu,rà,té]
 be.heard #do-N.3AN
 'it was heard'

4.1.2 Metrical issues of stress. In this section I discuss issues concerning metrical structure in Kubeo. I start by discussing the iambic foot and cases of when a degenerate foot is allowed. Then I discuss how words are parsed into feet, the issue of extrametrical syllables, syllables left stray and adjunction of unparsed syllables to existing feet (also known as STRAY ADJUNCTION, cf. Hayes 1995). This leads to the discussion of situations of stress clash, which can cause destressing and stress shift. Finally I discuss how prominence rules operate, which create different perceptions of primary stressed and secondary stressed syllables and serve as the basis for the derivation of tones (cf. section 4.2).

In this section, I do not present the phonetic representation of the examples cited and rather use the metrical grid and the bracketed metrical grid (cf. Liberman and Prince 1977, Halle and Vergnaud 1987, Hayes 1995) to represent more faithfully the phonetic and phonology of stress in Kubeo. Tones are still marked following the International Phonetic Association (IPA).

4.1.2.1 The foot in Kubeo and the direction of parsing. In the previous section, when discussing examples (4.22) and (4.23) and others, I defined the iambic foot as the foot type in Kubeo, further assuming that words with irregular, underlyingly assigned stress have a degenerate foot on their left edge. I also assumed that words were parsed from left to right.

Given iambic feet, it follows naturally that the direction of parsing is from left to right, otherwise every word with an unstressed final syllable would be wrongly derived (cf. e.g. (4.22a, 4.22b, 4.22c), (4.23c), and (4.26c)). In addition, parsing from left to right follows the general direction of Kubeo prosodic systems, where nasal harmony and tone spreading also operates from left to right (see section 4.2 for tones).

One could argue, however, that Kubeo has trochaic feet, instead of iambic feet.¹⁰ This proposal encounters a problem though at the beginning: it has to assume that the majority of the Kubeo words have an underlyingly extrametrical syllable assigned to the left edge of words, since the great majority of Kubeo words are stressed on the second syllable from the left edge. On the other hand, the analysis with iambic feet captures the fact that the default stress pattern follows from the pattern of the great majority of words in the language.¹¹ Not only that, but a trochee-based analysis would have to assume that such an underlyingly extrametrical syllable (always in the left edge of roots) could be revoked when combined with a proclitic in order to explain examples such as in (4.10) through (4.14). An iambic analysis not only explains this more naturally, but it can also explain why stress shift never takes place in cases of underlyingly stressed syllables when combined with morphemes to the right or left of the root (cf. e.g. (4.5)). Moreover, the iambic foot is crucial for predicting the derivation of tones in Kubeo, as thoroughly demonstrated in section 4.2.

In addition, Hayes (1995) suggests that for iambic systems duration is one of the main phonetic correlates of stress, while intensity – that tends to be an important

¹⁰ A trochaic foot is based on the alternation of a strong and a weak syllable, the opposite of the iambic which is based in the alternation of a weak followed by a strong syllable.

¹¹ Gomez-Imbert (2004, 2001) and Gomez-Imbert and Kenstowicz (2000) analyze tone in Barasana by postulating an extrametrical (or extra-tonal) syllable for the majority of lexical roots. Extrametrical syllables in the left edge of words is a controversial issue in metrical phonology (cf. Hayes 1995).

correlate of stress in trochaic systems – is ranked below duration as a phonetic correlate of stress. This makes sense for the phonetics of stress and tone in Kubeo as discussed in section 4.3.

However, the fact that Kubeo has an iambic system, insensitive to syllable weight (cf. section e.g. (4.29)), is not without theoretical problems. As mentioned by van der Hulst (2000), this type of foot is typologically uncommon, although there are some attested cases, especially in languages of the Americas. For Hayes (1995), even iambs (i.e. weight-insensitive iambs) constitute exceptional foot templates, while uneven iambs (i.e. weight-sensitive iambs) -- that is, cases where the foot parses one light and one heavy syllable, and the heavy syllable is the head -- are said to be canonical. In order to handle even iambs, Hayes (1995) proposed that some even iambs are actually uneven, since there is considerable lengthening of heads of feet and segmental deletion, which create the short-long canonical effect of iambic feet.

For Kubeo, syllable weight does not seem to be important to its prosody at all, despite the fact that stressed syllables are considerably longer than unstressed syllables, which tend to be reduced or deleted. Whether this makes Kubeo fit into Hayes (1995) theory of uneven iambs is a question open to different interpretations (see section 4.3).

4.1.2.2 Parsing of words and metrical rules. The simplest cases to demonstrate how words are parsed into iambic feet in Kubeo are presented in examples (4.22) and (4.23), where stems, affixes, phrasal-affixes and the bound-stem are all within a single phonological word (cf. section 6.7, chapter 2). The two examples below represent one word from each of those set of examples in a metrical grid:

(4.32)

a.

x			
x		x	
(x	x)	(x	x)
hĩ	'bě	kĩ	,bé

hibẽ-ki-be

green-MS-COP.3AN.SG

'He is green'

- b.
- | | | | | |
|-----------------------------|----|-----|----|-----|
| x | | | | |
| x | | x | | x |
| (x) | (x | x) | (x | x) |
| 'há | rò | ̀bè | bĩ | ̀kó |
| <i>haro-be-biko</i> | | | | |
| be.seen-NEG-3FEM | | | | |
| 'she cannot be/is not seen' | | | | |

In both examples, all syllables were exhaustively parsed into iambic feet. The word in (4.32b) represents the most common case of a degenerate foot: those at the left edge of a phonological word in the location of an underlyingly stressed syllable.

Degenerate feet can also be created at the right edge of a phonological word, such as in the word in (4.33a). The example in (4.33b) shows that when an additional syllable is available, an iambic foot can be formed regularly:

- (4.33) a.
- | | | | | |
|----------------|-----|-----|---|--|
| x | | | | |
| | x | | x | |
| (x | x) | (x) | | |
| bã | 'ká | dó | | |
| <i>bãkã-dõ</i> | | | | |
| jungle-INT.CNT | | | | |
| 'a jungle' | | | | |
- b.
- | | | | | |
|-------------------|-----|----|-----|--|
| x | | | | |
| | x | | x | |
| (x | x) | (x | x) | |
| bã | 'ká | dó | ̀dé | |
| <i>bãkã-dõ-de</i> | | | | |
| jungle-INT.CNT | | | | |
| 'a jungle' | | | | |

Thus, degenerate feet are common at the edges of phonological words: at the left edge, if there is an underlyingly stressed root, or at the right edge as a result of parsing rules.

The examples below show a degenerate foot formed in the right edge of the first stem in a compound, where each stem is a separate phonological word (cf. section 6.7, chapter 6). Example (4.34c) is especially interesting because the monosyllabic stem *kí* 'to exist' is not underlyingly stressed, but since it is the sole morpheme of a stem, it is stressed exceptionally.

- (4.34) a. x
 x x
 x x x x
 (x x) (x) (x x) (x)
 à 'bú |₁hú / bĩ |₁bĩ jò
 abuhu #bĩbĩ =jo
 devil #humingbird = CL.LONG
 'Long-tailed Hermit (*Phaethornis superciliosis*)'
- b. x
 x x x
 (x) (x) (x x)
 'hǎ bè / tè |₁wĩ
 'hã-be #te-wi
 see-NEG #do-N.3AN
 'I did not see'
- c. x
 x x
 (x) (x x)
 'kĩ / té |₁bĩ
 ki #te-bi
 exist #do-3MSC
 'He was/lived/existed'

A degenerate foot can only be "revoked", i.e. extended to a binary foot, if there is an unparsed syllable to the left. I refer to the integration of an unparsed syllable into a binary foot as STRAY ADJUNCTION (cf. Hayes 1995). STRAY ADJUNCTION typically occurs when a root with an underlying stressed syllable is adjoined to a prefix or proclitic, as illustrated in examples (4.5c, 4.5d, 4.5e) above.

Another typical case of STRAY ADJUNCTION occurs with clitics. Clitics in Kubeo project their own feet.¹² If the clitic is preceded by an unparsed syllable, a regular,

¹² This might sound controversial, since the misleading view that clitics are unstressed morphemes is very common, though this has been amply refuted in the linguistic literature (see Klavans 1982). In addition, Kubeo has a set of bound morphemes which are unstressed and never project their own feet: affixes, phrasal-affixes and the bound stem. See section 6.3, chapter 6 for more details.

iambic foot is created, as in (4.35) below.

- (4.35) a. x
- x x
- (x x) (x x) (x)
- hã 'rǎ wĩ |ká |kĩ
- hãrãwi = ka = ki*
- day = ORG = CL.MSC
- 'the male being from the day' (i.e the sun)
- b. x
- x x
- (x) (x x) (x)
- 'dǎ bẽ |hĩ kĩ
- dãbẽ = hĩ-ki*
- rainbow = DIM-MS
- 'a rainbow'
- c. x
- x x
- (x x) (x x)
- kĩ 'bé bí |já
- ki-be-bi = ja*
- exist-NEG-3MS = REP
- 'it is said he is not (here)'

Notice that examples in (4.15) can now be explained as cases of stray adjunction of the proclitics' syllables, similarly to (4.5c, 4.5d, 4.5e).

If there are no unparsed syllables to the left of a clitic, a degenerate foot is created and a stress clash occurs between the clitic head of a foot and a previous head of a foot. In a stress clash, if there is an unparsed syllable following the clitic, the clitic foot is extended to an iambic foot, with the previously unparsed syllable as the head of the foot.

jãbĩ = ka = kĩ

night = ORGN = MSC

'a male being from the night' (i.e. the moon)

b.

<p>x</p> <p>x x x</p> <p>(x x) (x) (x) x</p>	→	<p>x</p> <p>x x</p> <p>(x x) (x x) x</p>
<p>a 'pe wĩ 'ta bu</p>		<p>à 'pé wĩ tá bù</p>

ape = wĩ = ta-bu

other-CL.AN.COL = E.FC-COP.N.3AN.SG

'(they) are people from another group'

c.

<p>x</p> <p>x x x</p> <p>(x x) (x) (x)</p>	→	<p>x</p> <p>x x</p> <p>(x x) (x x)</p>
<p>kĩ dõ ka kĩ</p>		<p>kĩ 'dõ ká kĩ</p>

kĩ-dõ = ka = kĩ

exist-NMZ.CNT = ORG = MSC

'the leader of the longhouse' (lit. the man from the living place)

The integration of the two clitics in a single foot can be independently diagnosed based on the same tonal criteria mentioned for the words in (4.36). It is also very important to highlight that this is evidence for the different levels in the derivation where metrical and tone rules operate, showing that metrical rules apply earlier than tonal rules.

Examples in (4.38) show that if a degenerate foot from a clitic in a stress-clash situation cannot be extended to an iambic foot, destressing takes place:

(4.38)

<p>x</p> <p>x x x</p> <p>(x x) (x x) (x)</p>	→	<p>x</p> <p>x x</p> <p>(x x) (x x) (x)</p>
<p>bã kã dõ ka kĩ</p>		<p>bã 'ká dõ ká kĩ</p>

bãkã-dõ = ka = kĩ

jungle-CNT = ORG = MSC

'a male being from the jungle' (such as any animal)

Since the clitic foot is between an iambic foot and a word edge, there is really no place for it to be expanded into an iambic foot.

Another important issue to be discussed is EXTRAMETRICALITY, which does not

have much importance in Kubeo metrical derivation, though it is a problematic issue. For many reasons, Kubeo parsing seems to be persistent, i.e. not allowing extrametricality. First, to account for tonal spreading rules, in many words a degenerate foot needs to be created (cf. e.g. (4.33a) and (4.34b) above). Second, the word below shows that any syllable left stray will be parsed in a foot, even if that requires a degenerate foot that is not derived from a clitic or an underlying stressed root. See the representation of this process in (4.39):

(4.39)

x						x					
x			x			x	x		x	x	
(x x)	x		(x x)	(x)	→	(x x)	(x)	(x x)	(x)		
ja	kĩ	be	ki	e	pe	jà	'kĩ	,bè	kĩ	'é	,pè

jaki-be-ki=e=pe
 wet-NEG-FUT.NMZ = MSS = AS
 'in order for it to dry'

Thus, the only point where one could have extrametricality is at the right edge of words. But, unfortunately, it has been so far empirically impossible to test whether one has extrametricality or simply syllables with very low prosodic saliency, given the effects of tone and sentence intonation (cf. section 4.3 on the phonetics of stress and tones). I leave this as a theoretical question beyond the scope of this present work.

A last but very important issue to be discussed in this section is the evidence for different levels in metrical rules, separating the projection of a foot by lexical roots and clitics from the rule of PERSISTENT FOOTING. Thus, in order to make clear they are distinct rules, I call the rule that creates a foot triggered only by clitics and lexical roots ACCENT PROJECTION, which is motivated by the fact that every phonological word must be stressed (= bear an accent).¹³

A good example illustrating that they are distinct rules can be seen in their relation to the behavior of PROSODICALLY REPELLENT affixes, which cannot be in a foot created by the ACCENT PROJECTION rule, but can be parsed by a foot triggered by the PERSISTENT FOOTING rule (prosodically repellent affixes also repel tone spreading cf. section 4.2.3, and nasal harmony cf. section 3.2.1.1, chapter 3). The examples below show in (4.40a) a regular metrical derivation of the verb *dĩ* 'to go'. The example in (4.40b) shows how the presence of the prosodic repellent morpheme *-wa* 'habitual'

¹³ As mentioned in this chapter, in chapter 3 and demonstrated in chapter 6, clitics and lexical roots project a phonological word.

forces the creation of a degenerate foot on the left edge of the word. (4.40c) shows how the prosodic repellent morpheme *-wa* 'habitual' can be the head of a foot created by the PERSISTENT FOOTING rule.

- (4.40) a. x
 x x
 (x x) (x)
 dĩ 'bí kò
 dĩ-biko
 go-3FEM
 'she went'
- b. x
 x x x
 (x) (x x) (x)
 dĩ wa bi ko
 dĩ-wa-biko
 go-HAB-3FEM
 'she usually goes'
- c. x
 x x x
 (x x) (x x) (x)
 bĩà 'bá wà wá wĩ
 bĩabĩ-wa-wa-wĩ
 hiccup-CAUS-HAB-N.3AN
 'it makes one to hiccough'

Since being prosodically repellent cannot be derived from other independent or more general principles, one has to assume that this is specified in the underlyingly representation of this type of morphemes.¹⁴ Hence, it is clear that no type of metrical rules can override underlyingly specified features.

Another way to look at distinct levels between accent projection and persistent footing is observed in the stress patterns of words such as in examples (4.27) and (4.28).

¹⁴ The morpheme *-wa* 'past passive' is homophonous with *-wa* 'habitual' and also prosodically repellent. The morpheme *-wa* 'causative', on the other hand, is not prosodically repellent, but can occur in the same words with the repellent morphemes, which made Morse and Maxwell (1999) wonder whether such an underlying specification in prosodically repellent morphemes could be related to an effort to differentiate them from the causative. I tend to agree with them.

In these words, it is clear that ACCENT PROJECTION takes place by parsing two syllables when they are projected in the underlying forms of words. Later syllabification rules merge the two syllables, collapsing the iambic foot into a degenerate foot. It is only after this that PERSISTENT FOOTING applies.

It should also be said that the fact that clitics and lexical roots trigger the ACCENT PROJECTION rule is not accidental nor is it an *ad hoc* solution. This actually follows from the fact that both clitics and roots are primary domains for the creation of phonological words (cf. section 6.7). Hence, ACCENT PROJECTION is not ultimately a rule triggered by clitics or roots, but a rule of phonological words, which require a foot at its left edge. The "stress shift" pattern observed in words from examples (4.10) through (4.14) follows from these rules.

4.1.2.3 Primary and Secondary stress. Primary stress in Kubeo is always the left-most stressed syllable in a simplex word or compound. All remaining heads of feet to the right receive secondary stress. The relative prominence of secondary stressed syllables decreases incrementally towards the end of a phonological domain (especially the phonological word, the phonological phrase, and the sentence).

To compute primary and secondary stress, Kubeo can be analyzed in two ways:

(i) As a case exemplifying "top-down" derivation, i.e. first one locates primary stress, and then, from the location of primary stress, one computes the rhythmic alternation of secondary stress (Hulst 2000, 2010). This analysis matches the distinction between ACCENT PROJECTION and PERSISTENT FOOTING, as discussed above.

(ii) Nevertheless, because primary stress is not a unique property of words but of every phonological domain, I prefer the analysis that primary stress is assigned by a relative-prominence rule that applies on the last level of the prosodic derivation, after the application of ACCENT PROJECT and PERSISTENT FOOTING. In this analysis, ACCENT PROJECTION is a requirement of phonological words, which is applied before any other prosodic rule in the derivation. This follows from a general constraint on wordhood in Kubeo where every word must be stressed (cf. chapter 6).

4.2 Tones

4.2.1 Preliminaries. Kubeo tones are best seen as word-level tone contours, since they impose a particular pitch contour on a large section of an entire word, not only on individual syllables. In this language (as in other Tukanooan languages, cf. Ramirez

1997, Gomez-Imbert 2001, Stenzel 2004), tones are underlying properties of whole morphemes and not of individual syllables.


Kubeo contrasts two tones: H, and HL. H tones are characterized by spreading high tones within a word from the location of the primary stressed syllable. Such spreading is accompanied by an up-step effect, which makes high tones higher than other high tones to the left within the word. HL tones spread low tones within a word from the location of the primary stressed syllable, which bears a high tone.

For some time, I have thought that Kubeo only contrasted two types of underlying tones. However, after my last fieldwork (August 2011), I came to think that Kubeo might have a third underlying tone, which I analyze as Ø 'unmarked'.¹⁵

A full characterization of roots unmarked for tones is still premature. In what follows I discuss the phonology of H and HL tones. Then in 4.2.4 I discuss the issue of the roots unmarked for tones.



4.2.2 Surface tones. Surface tones in Kubeo include low tones, mid tones, high tones, and "transitional" (or syllabic contour) tones that occur when there is a rise or the drop of surface tones. The first surface high tone in a word usually coincides with the primary stressed syllable (which is the same as the first stressed syllable in a word).

Mid surface tones have no concrete phonological reality. They are a relative notation, used to show that a given low tone is higher than other low tones, or that a high tone is lower than other high tones. The two examples in (4.41) represent the two cases, respectively:

(4.41) UNDERLYING AND METRICAL REPRESENTATION	PHONETIC REPRESENTATION
(x)	
(x x) (x) ¹⁶	
<i>ja 'ko dɨ</i>	
a. <i>jako = dɨ</i>	
eye = cl.round	[ɕà.'kó.rɨ]
'an eye/a pair of eyes'	M.H.L



¹⁵ The "discovery" of this kind of "tone" in Kubeo was the result of an impressive wordlist that Gilberto Martins wrote, a Kubeo young man, who was trained in language documentation (project SG00038 from the Endangered Languages Development Project), where he made a list of about 100 pair of words that contrasted in term of tones and/or stress. Many of these words present contrasts that do not follow the typical H vs. HL tone contrast, or irregular and regular stress, so we were forced to postulate a third category of lexical roots, those unmarked for tones.

¹⁶ Destressing takes place in the right-most foot, following the pattern of words such as in (4.38).

- b. x
 (x) (x)
 'dǎ bě
 'dǎbē
 'rainbow'

 ['nāmē]
 M.H
- b. x
 x x x
 (x) (x x) (x x)
 'já wà bé bǐ kò
 'jawa-be-biko
 speak-NEG-3FEM
 'she does not speak'

 ['jawa₁bebi₁ko]
 HLMLL

Mid tones exemplified in (4.41) above are the result of constraints on surface tones in Kubeo. In words such as (4.41a), which have an underlying HL tone, a DOWNDRIFT effect lowers a low tone to be phonetically lower than a previous low tone on its left. In a word such as (4.41b), which is unmarked for underlying tones, DOWNDRIFT affects a high tone following a previous high tone on their left: the first high tone has a surface H tone, the second an M tone and the third surfaces as a low tone. Mid tones in words such as (4.41c), which have an underlying H tone, are the result of a constraint where two H tones cannot be immediately following each other, so the right-most high tone is always higher than a high tone on its left, creating a rising pitch melody in the entire word. This can be related to the OBLIGATORY CONTOUR PRINCIPLE (OCP), which is a constraint on surface forms of words in Kubeo (see also section 2.1.2.2 for another instance of OCP).

Transitional tones (i.e. surface contour tones) usually occur when there is a drop in tone from high to low tone, as in (4.42a) below, or a rise from low to high, as in (4.42b) below. A rise is represented by "R" and a fall by "F":

- (4.42) a. 'juku = kǐ
 tree.sp = CL.TREE
 'a tree species'

 ['ɕu.ku.kǐ]
 H.F.L
- b. bāwǐja
 'blue-black Manakin
 (*Chiroxiphia pareola regina*)

 [mā.'wi.ɕa]
 L.R.H

Transitional tones are manifestations of OCP effect on surface tones. A falling contour can be analyzed as an L tone, and a rising contour can be analyzed as an H tone.

Transitional tones are typical in vowel clusters. In stressed syllables, vowel clusters always have rising melodies, while in unstressed syllables they have falling melodies as represented respectively in the examples in (4.43):

- (4.43) a. *kõrĩa = d̥i*
 grass = CL.ROUND
 'centipede'
- [kõrĩãr̥i]
 L.R.L
- b. *ĩjei*
 'Cucura (*Pourouma sp.*)'
- [ĩɕjei]
 H.F

A last point to be mentioned about surface tones is related to DEFAULT TONES. Syllables that are not associated with any underlying tone surface with default tone. Default tone occurs whenever a syllable falls outside the H and HL tone-spreading window, either because it is pre-tonic or because it is located at a distance of more than one foot from the location of primary stress. The default tone is low for all pre-tonic syllables. The default tone is high for all primary stressed syllables and for secondary stressed syllables falling outside the tone-spreading window (although down-drift applies, turning it a middle tone, cf. e.g. (4.53) below).

4.2.3 The phonology of tones. With mid and transitional tones analyzed as instances of low and high tones in particular contexts, the example below summarizes the existing patterns of surface tones and their correlation with stress (which is marked by "*") and iambic feet (represented by "(") according to the principles outlines in 4.1.2.

(4.44) SYLLABLE LEVEL TONES	UNDERLYING TONES
a. (L *H) (L L)	HL
b. (L *H) (H H)	H
c. (*H) (L L) L	HL
d. (*H) (H H) L	H

Examples (4.44a) and (4.44b) represent words with regular stress, whereas (4.44c) and (4.44d) represent words with exceptional, underlying stress. The surface tones are represented in a window of four syllables, since tone spreading can take place up to only one iambic foot to the right of the primary stressed syllable (see demonstration

below). Thus in examples (4.44c, 4.44d), the last surface tones are outside of the tone-spreading window. Whether in those cases a tone will be low or high is determined by independent factors that determine the previous surface tones, except that downdrift can make a high tone lower than previous high tones.

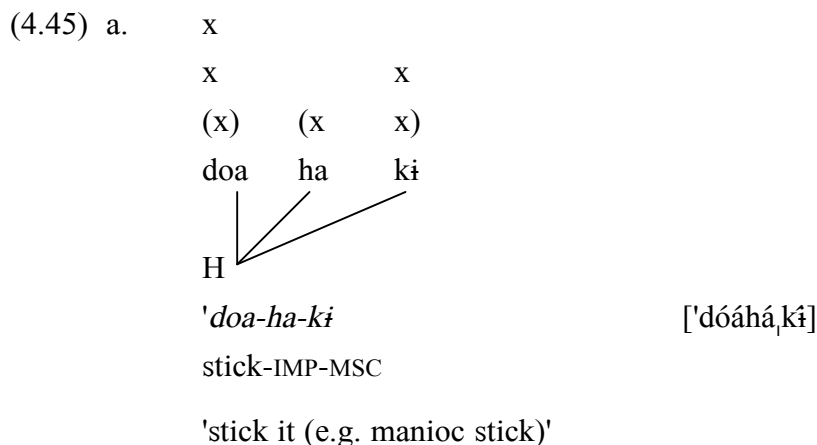
Thus, within a window of two iambic feet, Kubeo allows only one tone rise from surface L to surface H and only one tone drop from surface H to surface L, as represented in (4.44) above. The rise and the drop must coincide with the location of primary stress, which corresponds to the location of the head of the first foot in a phonological word.

The pre-tonic L tones from (4.44a, 4.44b) are predictable, since there is no contrast with H tones in pre-tonic position. Hence, one can eliminate pre-tonic L tones from Kubeo phonemic tones. H tones on the stressed syllable are also predictable, since the first H tone of a word always correlates with stress.¹⁷

The tones that follow a syllable bearing the first H tone of the word are not predictable. One can never tell *a priori* whether H or L tone will follow the primary stressed syllable. In addition, regardless of whether L or H follows the first H tone in the word, the next syllables within the two feet window exhibit the same surface tones (i.e. all L or all H)

I propose to analyze the tone pattern where H tones follow the primary stressed syllable with underlying H tone. The pattern where L tones follow the primary stressed syllable is analyzed with underlying HL tone.

The following examples show the derivation of tones, their correlation with metrical structure and the way they display minimal lexical contrasts:



¹⁷ The sole exception to the behavior of H tones and stress is seen with the exceptional roots that are “toneless” (cf. section 4.2.4).

b.

x		x
(x)	(x)	(x)
doa	ha	ki
	/	/
H	L	

doa-ha-ki ['dóáhà,kĩ]

paddle-IMP-MSC
'paddle it (e.g. manioc stick)'

(4.46) a.

x		
(x)	(x)	
'hi	wi	
	/	
H		

'hiwi ['híwî]

'inside'

b.

x		
(x)	(x)	
'hi	wi	
	/	
HL		

'hi = wi ['híwĩ]

my = CL.AN.COL
'my folks, relatives'

(4.47) a.

	x		
(x)	(x)	(x)	
du	'i	wi	
	/	/	
H			

du-i-wi ['dúiwî]

scape-ST-N.3AN
'it is escaping (or getting loose)'

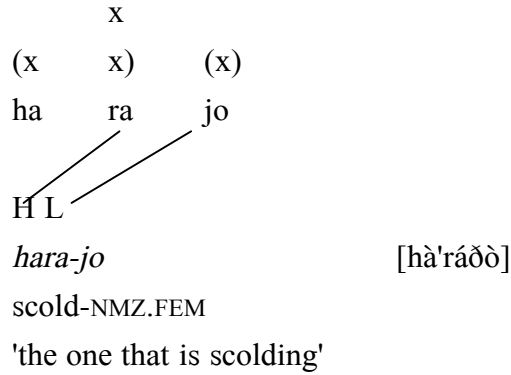
b. x
 (x) (x)
 dui wi
 | /
 H L
dui-wi ['dúiwĩ]
 get.back-N.3AN
 'I got it back (something borrowed)'

(4.48) a. x
 x x
 (x x) (x x)
 kã jĩ ta bu
 H / / /
kã-jĩ = ta-bu [kã'jĩtã,mũ]
 sleep-NMZ.MSC = E.FC-COP.N.3AN.SG
 'they are sleeping'

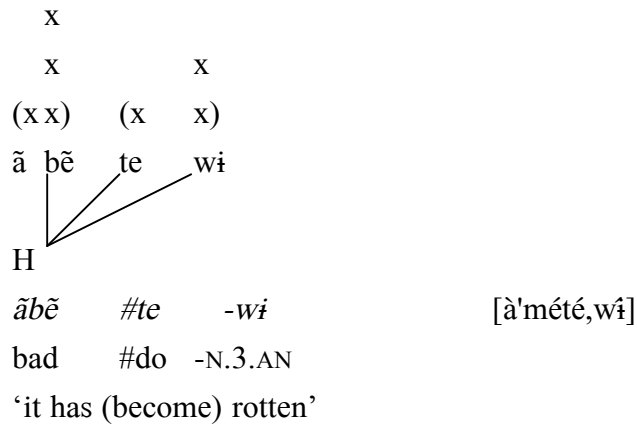
b. x
 x x
 (x x) (x x)
 kã jĩ ta bu
 H L / / /
kã-jĩ = ta-bu [kã'jĩtã,mũ]
 carry.on.hip-NMZ.MSC = E.FC-COP.N.3AN.SG
 'I am carrying it on my hip (e.g. a child)'

(4.49) a. x
 (x x) (x)
 ha ra ðo
 H / /
hara = jo [hã'rãðó]
 whip = CL.LONG
 'a ceremonial whip'

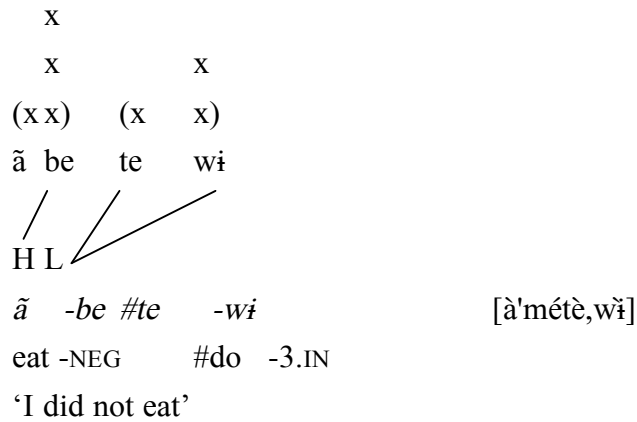
b.



(4.50) a.



b.

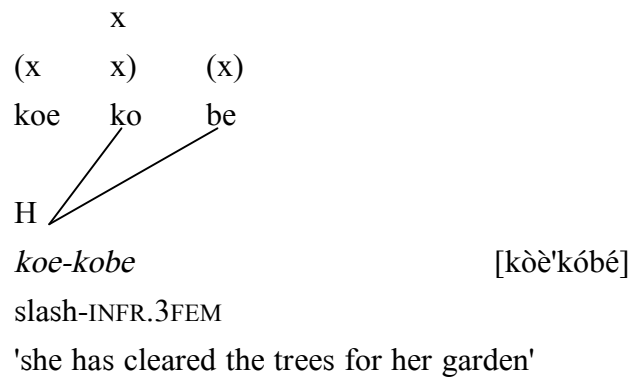


Different from the Tukano language (cf. Ramirez 1997) monosyllabic words in Kubeo do not present compensatory lengthening on vowels where complex tones are docked. Thus, a word such as *u* 'sloth' with an underlying HL tone surfaces just like other monosyllabic, stressed words, such as *bĩ* 'you', which has an underlying H tone. Tone spreading occurs only if there is another syllable/morpheme with which the L or H can be associated. Otherwise the L tone is deleted.

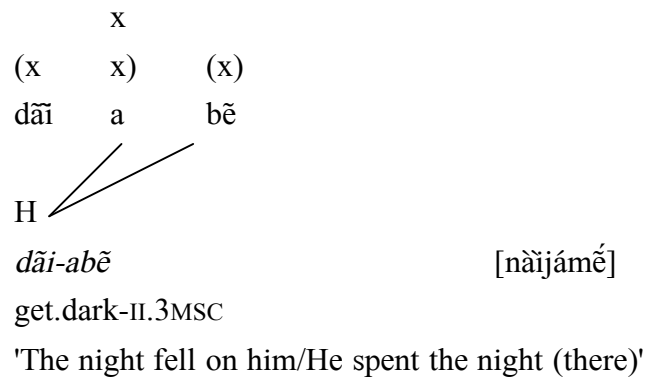
Also, in other Tukanoan languages, the tone bearing unit (TBU) is analyzed as the mora. For Kubeo, I analyze the syllable as the TBU. There are various reasons to support this analysis; the most important ones are listed below:

- (i) Tone is not contrastive on a vowel cluster and behaves predictably (cf. e.g. (4.43) above). This shows that there is a fixed tone melody that encompasses the whole syllable, but not an individual vowel/mora.
- (ii) Some monosyllabic verb roots have a vowel cluster and yet stress falls always on the second syllable of the verb stem. See the examples below:

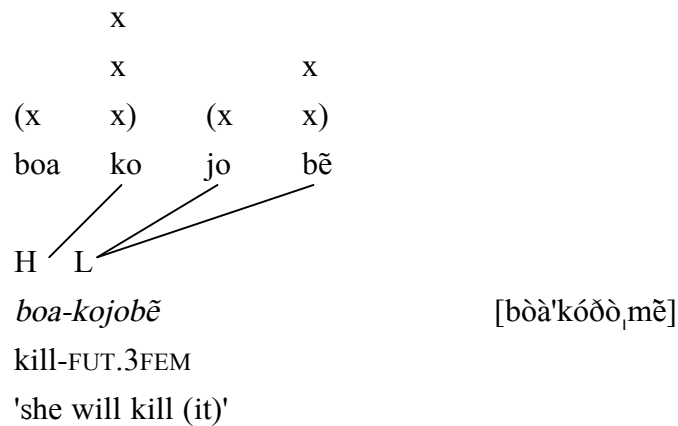
(4.51) a.

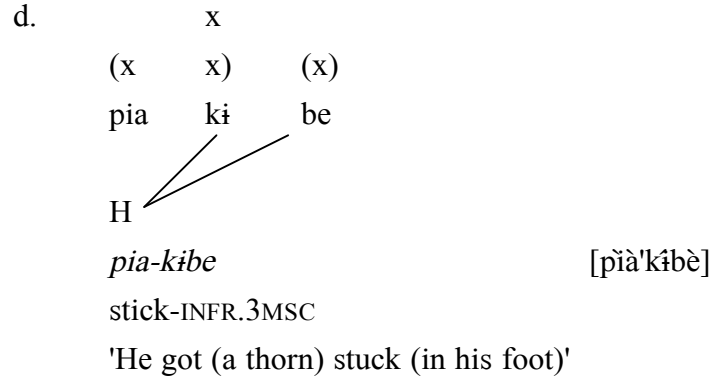


b.



c.





This type of verb behaves just like other verbs in Kubeo with respect to tones and stress, but what is more significant is that in order to account for the tone and stress patterns of these verbs one would have to postulate an underlying tone with two L (low) tones if a moraic analysis were pursued. We note that these examples also discourage an analysis of Kubeo metrical stress in moraic terms, since their stress pattern requires stress to fall on the third mora of words, which would bring undesirable variations in stress assignment, requiring words to be specified whether bearing stress on the first, second or third mora. On the other hand a syllabic and foot-based approach can explain the facts in a simpler way.

- (iii) Contrary to other Tukanoan languages that were analyzed as moraic (cf. Ramirez 1997, Gomez-Imbert 2001, Stenzel 2004), Kubeo does not have the prosodic minimality constraint that requires words to bear at least and ideally two morae. For instance, in Kubeo, monosyllabic words are not lengthened (cf. e.g. (4.3)), there are no underlying long-vowels (in fact long vowels are prohibited, cf. section 2.1.2, chapter 2) and there are many monosyllabic and mono-moraic lexical roots in the lexicon.

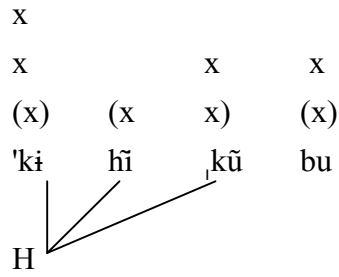
The following examples demonstrate that tone spreading can only target the primary stressed syllable plus a foot on its right. It should be noticed that after H spreading, the tone suddenly falls to a surface low tone:

- (4.52) a.
- | | | | | |
|-----|----|-----|-----|--|
| x | | | | |
| x | | x | x | |
| (x) | (x | x) | (x) | |
| 'pi | pi | ,di | bi | |
| | | | | |
| H | | | | |
- pipidi = bi* ['pípí,díbĩ]
- fly-catcher = CL.CONT
- 'A variety of a manioc tree' (lit. fly-catcher manioc tree)
- b.
- | | | | | | |
|----|----|----|----|-----|---|
| | | x | | | |
| | | x | | x | x |
| (x | x) | (x | x) | (x) | |
| wo | ka | jo | be | bu | |
| | | | | | |
| H | | | | | |
- wo-ka-ðo-bebu* [wò'káðó,bébù]
- search-BEN-NMZ.FEM-ASM.COP
- 'She is looking for (food in their behalf)'

In a word with clitics, tone spreading constitutes important independent evidence to support the analysis that every clitic projects its own foot. Thus, as analyzed in section 4.1.2.2, the words in (4.54) below show how the tone-spreading window can be determined by feet projected by clitics.

Example in (4.54a) is a case of STRAY ADJUNCTION of an unparsed syllable on the left of a clitic (similarly to example (4.36b)). Example (4.54b) is a case of a degenerate foot projected by an unparsed syllable between a clitic and a lexical root (same example as (4.38)). Example (4.54c) is a case of STRAY ADJUNCTION of an unparsed syllable to the right of a clitic after a stress clash situation (same as (4.36a)). Example (4.54d) is a case of stress clash and creation of a single foot between two clitics (same as (4.37b)).

(4.54) a.



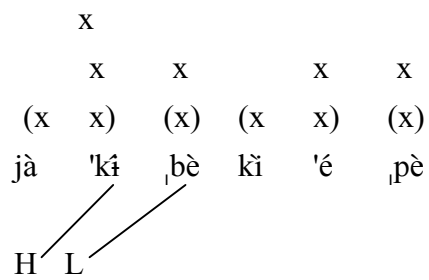
'kíhĩ = kũ-bu

[kíhĩkũmũ]

small = CL.EMB-COP.N.3AN.SG

'it is a small canoe/car/etc.'

b.

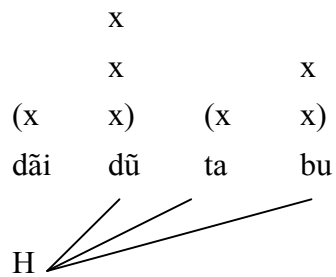


jaki-be-ki = e = pe

wet-NEG-FUT.NMZ = MSS = AS

'in order for it to dry'

c.



dãidũ = ta-bu

[nãĩ'nũtámũ]

evening = E.FC-COP.N.3AN.SG

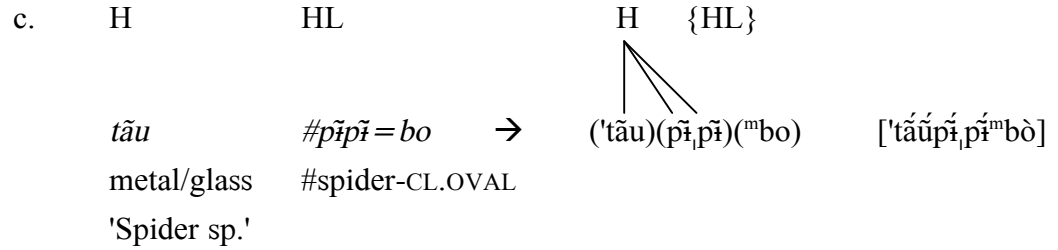
'it is getting dark already'

- c.
- | | | |
|-----------------|----|--------------|
| x | | |
| x | | x |
| (x x) | (x | x) |
| kĩ dõ | ka | kĩ |
| H | | |
| / \ | | |
| kĩ-dõ = ka = kĩ | | |
| | | [kĩ'dõká,kĩ] |
- exist-NMZ.CNT = ORG = MSC
- 'the leader of the longhouse' (lit. the man from the living place)

In compounds, every stem forms a single phonological word and, thus, a separate domain for metrical rules and nasal harmony (cf. section 6.4, chapter 6). Nevertheless, tone spreading can occur across different stems in a compound, provided that both stems are within the window of two iambic feet. In addition, the underlying tone of the left-most stem can override the underlying tone of the right-most stem, if it is within the tone-spreading window.

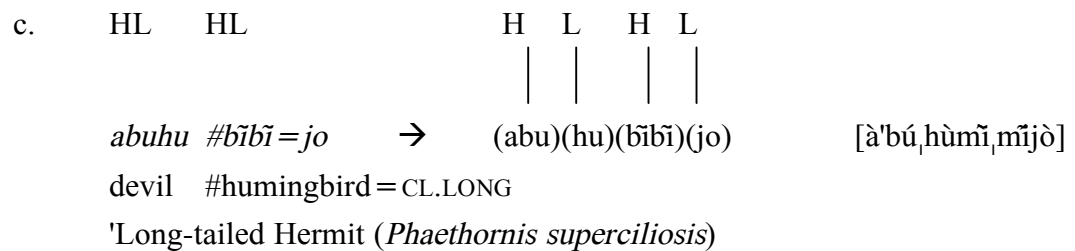
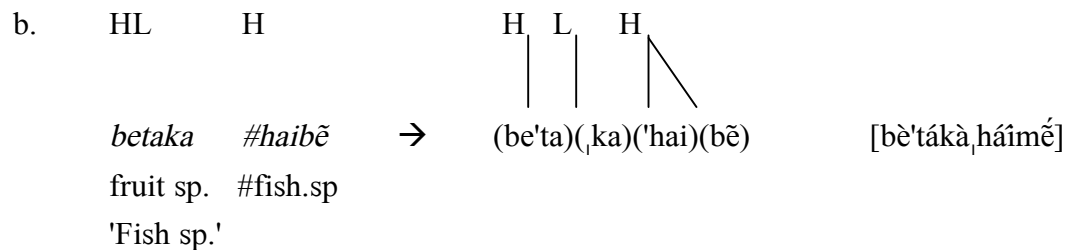
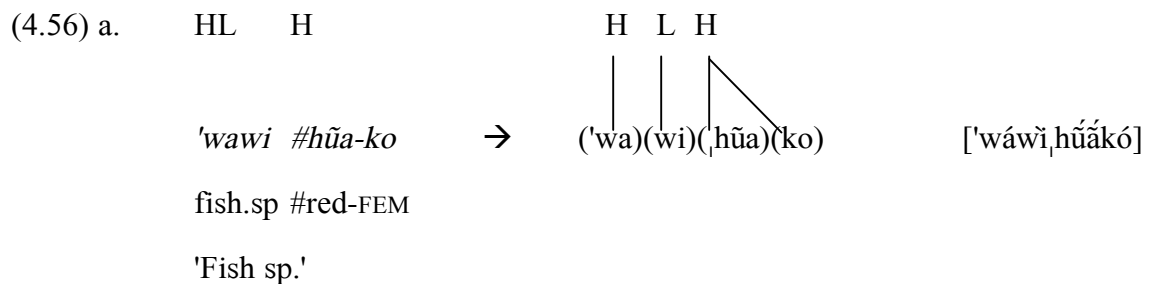
The examples below show how HL and H tone spreading occurs in compounds. Examples (4.55a, 4.55b) show regular cases where tone spreading extends over the right-most stem entirely; example (4.55c) shows a case where the last syllable of the right-most stem falls outside the tone-spreading window (tones that are deleted are represented by "{ }"; I am using a more simplified representation of metrical structure for these examples).

- (4.55) a.
- | | | | | |
|----------------|----|--|---|--------------|
| H | HL | | H | {HL} |
| / \ | | | | |
| (bã'ká)(we,kĩ) | | | | |
| | | | | [mã'káwé,kĩ] |
- bãkã #wekĩ* →
- jungle #tapir
- 'a tapir'
- b.
- | | | | | | |
|--------------|---|--|---|---|------------|
| HL | H | | H | L | {H} |
| \ | | | | | |
| ('bã)(hĩ bẽ) | | | | | |
| | | | | | ['mã,hĩmẽ] |
- bã #hĩbẽ* →
- macaw #green
- 'Green-and-blue Macaw'



The deletion of an underlying tone, but the permanence of stress, clearly shows that stress and tones are separate elements in the phonology of words. It should also be noticed that in (4.55c), even if there is segmental material outside the tone-spreading window of the first underlying tone, the underlying tone of the right-most stem is deleted, since the root (which bars the tones underlyingly) is inside the tone spreading window.

The following examples show cases where the tone-spreading window is contained within the left-most stem. This causes the right-most stem to keep its own underlying tones.



- d. H HL → H HL
 (kirã)(bế)(tè,bá) [kĩ'rármě̀tè,mã]
 spawn-NEG #do-3AN.P
 ‘they did not spawn’
- e. H HL → H HL
 ('bo)(be)(te,dì) ['bóbétè,dì]
 heat.by.sun-NEG#do-INTRR
 ‘Weren’t they feeling hot?’

The data above clearly demonstrate the correlation between tone-spreading and iambic feet. A trochaic foot would predict the wrong derivation in every example.

Similar phenomena to those presented in examples (4.55) and (4.56) above can be seen in compounds with three stems. Below, in example (4.57), the middle stem of the compound falls within the tone-spreading window of the first underlying tone, while the third stem necessarily falls outside of it and, thus, keeps its own underlying tone:

- (4.57) H L {HL} H
 | | |
 ('míú)(pè,wè) ↘ ('bèi)(bó)
bĩu#pewè#bei = bo
 thorn#?#rat = CL.OVAL
 ‘a rat sp.’

It should be emphasized that the third stem of a three-stem compound is always outside the tone-spreading window, since every stem forms at least one foot, so the tone-spreading window ends necessarily in the second stem.

Determiners such as possessives (cf. chapter 9) can often appear in compounds with their head nouns. Possessive as other functional words are underlyingly toneless, so they do not affect the tonal properties of the nouns they modify in compounds. See the examples in (4.58) below:

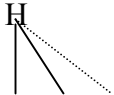
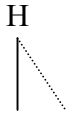
- (4.58) a. Ø H
- hi* #*kibo* = *ba* →
- my foot = CL.TIED.UP
- 'my foot'
- Ø H
- | \
- (hi)(kibo)(ba)
-
- b. Ø H
- bāhě* #*ki-dō-de* →
- our.incl #exist-NMZ.CNT-OBL
- 'my foot'
- Ø H
- | \
- (bāhě)(kidō)(de)

Tones in Kubeo are properties of lexical roots, but they are not assigned *a priori* to individual syllables. Actually, there are different morphophonological processes that show how the assignment of underlying tones is subject to variation. This reinforces the analysis of the link that exists between the location of the first head of a foot in a word and the derivation of tones. There are two sorts of examples that illustrate this point. The first, in (4.59a) shows a monosyllabic verb root with a regular metrical and tonal derivation, and (4.59b) shows the same root as the sole morpheme of a stem in a compound, where stress falls exceptionally on the root morpheme, and an H tone is associated to the next foot on the right.

- (4.59) a. H
- | \
- (kǐ'bi)(ko) [kǐ'bíkó]
- kǐ-biko*
- exist-3FEM
- 'She is (here)'
-
- b. H
- | \ \
- (kǐ)(te-bi)(ko) ['kǐté|bíkò]
- kǐ* #*te-biko*
- exist #do-3FEM
- 'she is (there)/was (here)'

It should be noticed that stress is a requirement of every phonological word. This the reason why the stem in (4.59b) is exceptionally stressed.

The other type of example is related to the effect of PROSODIC REPELLENT MORPHEMES in tonal and metrical derivation. These morphemes not only repel ACCENT PROJECTION (cf. e.g. (4.40)), but also tone spreading (and nasal harmony, see e.g. (3.21) and (3.22), chapter 3). The examples in (4.60) below show how the presence of a prosodic repellent morpheme can block spreading of H tone (represented by a dotted line); example in (4.60b) further shows how a H tone is unexpectedly assigned to one syllable to the left of its usual location (cf. (4.59a) above):

- (4.60) a. 
- (b̥iáb̥ã)(wawai)(wi) [m̥iã'm̥ãwã,wawi]
 b̥iáb̥ã-wa-wa-i-wi
 hiccup-CAUS-HAB-ST-N.3AN.SG
 'it usually causes me to hiccup'
- b. 
- (k̥i)(waibi)(ja) [k̥i'wai,bi,ja]
 k̥i-wa-i-bi=ja
 exist-HAB-ST-3MSC = REP
 'it is said that there is here (a dog...)'

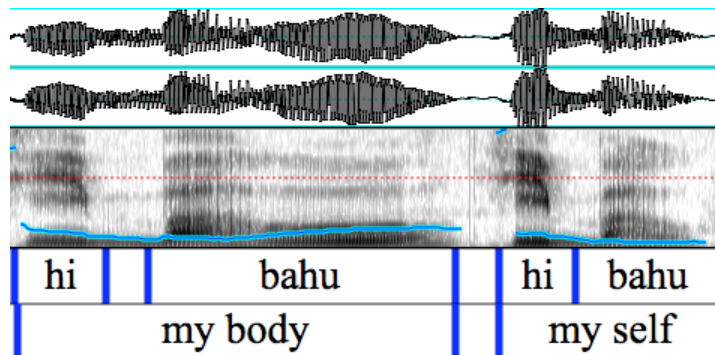
4.2.4 Roots unmarked for tones. This section discusses the issue of some exceptional lexical roots that are unmarked for tones underlyingly, i.e. Ø-tone lexical roots, called “toneless” here. This fact has special consequences for the phonology of tone and stress because it not only increases the number of tonal oppositions in the lexicon in Kubeo, but ultimately it is an additional piece of evidence for the dissociation between stress and tones, since while a few words can be unmarked for tones, they still have stress.

Morphemes underlyingly unmarked for tones are not uncommon in Kubeo. Bound morphemes are toneless and in example (4.58) it was shown that functional words can be marked as Ø tone in the lexicon and thus may surface with a default tone. However, almost all lexical roots in Kubeo are marked for either H or HL tones, and that is an independent criteria for differentiating lexical morphemes from functional morphemes. The set of lexical roots that seems unmarked for tones is, thus, exceptional.

The word *bahu* 'body, self' is a nice example to show how lexical words and functional words contrast with respect to tones. When this word is used in the sense of 'body', such as in (4.61a) 'my body', it is marked with HL tone. When it is used in the sense of 'self' it is toneless, as in (4.61b). See the spectrogram with pitch contour and sound wave of the two words in (4.61c).

- (4.61) a. \emptyset HL
- $\begin{array}{l} \text{hi} \quad \#bahu \\ \text{my} \quad \#body \\ \text{'my body'} \end{array} \rightarrow \begin{array}{l} \text{hi} \quad bahu \\ \text{['h\u026ab\u0251, h\u028c]} \end{array}$
- $\begin{array}{l} \text{hi} \quad \#bahu \\ \text{my} \quad \#self \\ \text{'my self'} \end{array} \rightarrow \begin{array}{l} \text{hi} \quad bahu \\ \text{['h\u026ab\u0251, h\u028c]} \end{array}$

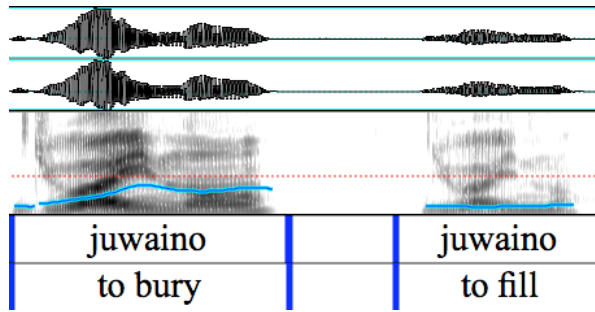
c. *Figure 2: Acoustic representation of (4.61a) and (4.61b)*



As one can see from the pitch contour in (4.61c), the word for 'self' *bahu* lacks the high tone that is present in the word for 'body' *bahu*. In addition the whole utterance with only \emptyset tone morphemes is considerably shorter than the other with an HL morpheme. The morpheme '*hi*' 'my' is stressed and has \emptyset tone in both cases. The surface tones of an utterance with only \emptyset tones follows the pattern of the default tone. The fading contour of the word 'my self' follows from a general pattern in Kubeo prosody.

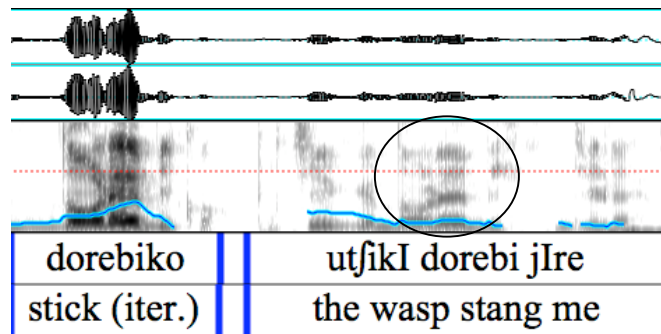
It is understandable that a word, when becomes more functional than lexical, can loose some of its semantic and phonological properties; this is exactly what happened in the grammaticalization of the word *bahu* 'body' to function as the reflexive marker 'self'.

c. *Figure 4: Acoustic representation of (4.63a) and (4.63b)*



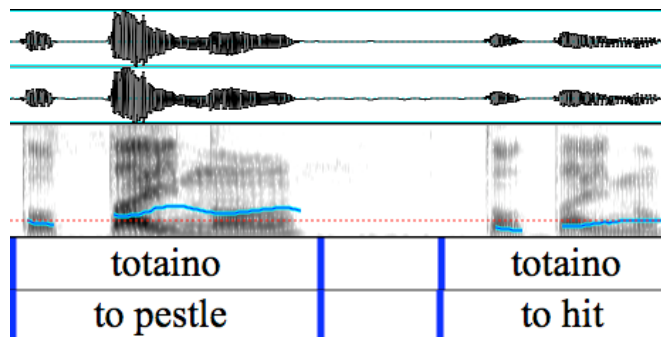
- (4.64) a. HL *dore-biko* stik.iteratively-3FEM 'she stuck it in several times'
- b. Ø *utfi-ki dore-bi yi-de* wasp-MS stung-3SC I-OBL 'the wasp stang me'

c. *Figure 5: Acoustic representation of (4.64a) and (4.64b)* (see footnote below)



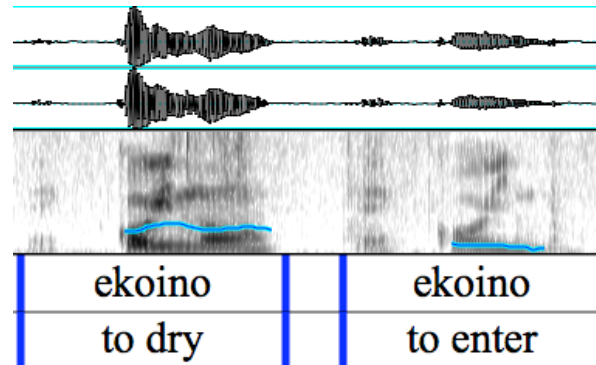
- (4.65) a. HL *tota-i = dõ* pestle-ST = CL.IN.CNT 'to grind with a pestle'
- b. Ø *tota-i = dõ* hit-ST = CL.IN.CNT 'to hit (once)'

c. *Figure 6: Acoustic representation of (4.65a) and (4.65b)*



- (4.66) a. HL
eko-i = dõ
 dry-ST = CL.IN.CNT
 'to get dry (river, well)'
- b. Ø
eko-i = dõ
 enter-ST = CLN.IN.CNT
 'to enter'

c. *Figure 7: Acoustic representation of (4.66a) and (4.66b)*



In all examples above, it is seen that the pitch contour of Ø-tone words is very flat and corresponds to the lowest tone found in the related words with HL or H tone. Despite having low tones, in all these words stress is perceived, which ultimately is an important piece of evidence for the dissociation between stress and tones.

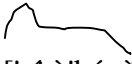

Examples (4.64) and (4.66) are very significant for the characterization of Ø-tone words because they show a difference in vowel quality with the same vowels in words with HL tones. In HL words, one hears /e/ and /o/ as more open and peripheral in the vowel space than in Ø-tone words, where the vowels seem more closed and centered. H tone words also match the effect of HL in vowel quality (see chart in e.g. (2.3) in chapter 2 for how /e/ and /o/ can vary their phonetic realization; for similar correlations of tone and vowel quality see Yip 2002 and Becker and Jurgec *to appear*).

One could question whether instead of Ø-tone would not it better to say that these words have L(ow) tone. This is certainly an interesting possible alternative analysis and would make the whole tone system more natural, since there would be 3 tones: H, L (corresponding to the unmarked) and HL. However, there are two reasons for why I prefer to analyze these words as unmarked for tones (i.e. Ø tone roots):

- (i) In examples (4.58) and (4.61), when a morpheme with Ø tone forms a compound with a stem with an underlying HL or H tone, the Ø tone does not delete the stem's underlying tone, as HL and H tones do (cf. e.g. (4.55) above). Thus analyzing these words with L tone would make sense if they

could spread L tones and delete other underlying tones, just like H and HL do. This does not happen, disfavoring the L-tone analysis.

- (ii) Ø tone words do not always have a flat pitch contour. In particular positions in a sentence, when intonation interact with individual words and syntactic structures, it is possible for a Ø-tone word to exhibit a different pitch contour, such as rising and falling. As an illustration, the two sentences below show the roots *eko* 'to enter' and *eko* 'to dry' as verbs in sentence-final position. Kubeo has an rule of intonation in which declarative sentences have a fading (thus falling) contour. The intonation's contour interacts with the word-level tone, so in a word with HL tone there will be a significant drop from the highest to the lowest tone from the syllable in the end of the sentence, as represented in (4.66a).

- (4.66) a. *ji eko-wi*  Ø tone
 I enter-N.3AN.SG ['yí è'kówǐ]
 'I entered'
- b. *hawe ekowi*  HL tone
 already dry-N.3.AN.SG [há'wé è'kówǐ]
 'it has dried already'

Although the Ø-tone word does not have the characteristic pitch rise in the stressed syllable as the HL word has, both have a pitch drop caused by rules of intonation. Such a pitch drop shows that the Ø-tone word has a mid surface pitch and cannot be analyzed as having an alleged L tone. The idea of representing these words as unmarked for tones allows tones derived from intonation to still create particular pitch contours in these words. Ø tone is, thus, a "blank" or neutral underlying tone.

4.3 Phonetics of Stress and Tones

In this section I investigate the phonetic surface forms of words and how issues of the phonology of stress and tones correlate with one another. The following points are discussed in more detail:

- (i) That which marks prominence of the primary stressed syllable;
- (ii) How secondary stress is phonetically manifested;
- (iii) How tones can affect the phonetic correlates of stress;

There are two tables below: one with tokens of words containing H tone, the other with tokens of words containing HL tone. Words were acoustically analyzed using PRAAT (www.fon.hum.uva.nl/praat). The vowels as nuclei of syllables are analyzed for pitch values (measured in Hertz “HZ”), duration (measured in milliseconds “MS”), and intensity (measured in decibels “DB”). Consonant length is disregarded, since it is irrelevant to tone and stress. In the left column of the tables, words are presented in their foot structure, phonetic form, and morphological form, along with their gloss and translation. The data from the tables were taken from sentences both in naturally occurring texts and in elicitation. They are from different speakers and thus the acoustic values for intensity, pitch, and duration must be taken as relative values in each token.

(4.67) *Table 4: Phonetics of Stress and Tones of HL tone words*

a. (oko) [ò'kó] <i>oko</i> water 'water'	o	'ko		
	097	151		HZ
	76	83		MS
	56	57		DB
b. (o)(ko) ['ókò] <i>'oko</i> heron 'a heron'	'o	ko		
	204	138		HZ
	178	089		MS
	72	65		DB
c. (kōpī)(jo) [kō'pījò] <i>kōpī = jo</i> teeth = CL.LONG.ROUNDED 'a tooth'	kō	'pī	jo	
	137	161	110	HZ
	91	161	87	MS
	51	56	49	DB

d. (pa)(tukɨ) [ˈpátù,kɨ] <i>'patu = ki</i> coca = CL.TREE 'coca tree'	'pa	tu	kɨ			
	124	110	82		HZ	
	168	82	109		MS	
	76	70	64		DB	
e. (eda)(biko) [è'dábì,kò] <i>eda-biko</i> arrive-3FEM 'she has arrived'	e	'da	bi	ko		
	82	102	88	79		HZ
	072	085	051	060		MS
	34	40	35	33		DB
f. (da)(raja)(bã) [ˈdárà,ðãmà] <i>'dara-ja-bã</i> wander-ST-3AN.PL 'They are wandering'	'da	ra	ja	bã		
	129	120	113	106		HZ
	132	64	91	75		MS
	57	57	56	50		DB
g. (koðo)(bobo)(jɨ) [kò'ðóbò,bòɖjɨ] <i>koðobobo-jɨ</i> shout-NMZ.MSC 'the one who shouts'	ko	ðo	bo	bo	jɨ	
	125	165	151	122	106	HZ
	096	100	067	085	55	MS
	54	58	57	53	48	DB
h. (ha)(robe)(biko) [ˈhárò,bèbì,kò] <i>'haro-be-biko</i> be.seen-NEG-3FEM 'she is not being seen'	ha	ro	be	bi	ko	
	170	160	129	116	131	HZ
	114	70	097	084	160	MS
	73	71	74	73	65	DB

(4.68)

Table 5: Phonetics of Stress and Tones of H tone words

a. (bĩhĩ) [mĩ'hĩ] <i>bĩhĩ</i> ayawaska 'ayawaska'	bĩ	'hĩ	
	105	132	HZ
	127	343	MS
	38	37	DB

b. (bã)(ka) [ˈmãˈkà] <i>bãka</i> tarantula 'tarantula'	'bã	ka				
	274	272			HZ	
	175	151			MS	
	72	69			DB	
c. (kíbo)(ba) [kĩˈbóbá] <i>kíbo = ba</i> foot = CL.BRANCHED 'a foot'	kĩ	bo	ba			
	144	162	170		HZ	
	056	069	059		MS	
	48	49	51		DB	
d. (bì)(joko) [ˈbĩɔ́jókó] <i>bìjo-ko</i> lizard-fem 'a lizzard'	'bĩ	jo	,ko			
	202	213	203		HZ	
	90	83	89		MS	
	73	74	72		DB	
e. (kíbe)(biko) [kĩˈbébi,kó] <i>kí-be-biko</i> exist-NEG-3FEM 'she is not (here)'	kĩ	be	bi	ko		
	115	125	127	129		HZ
	37	118	105	072		MS
	53	61	58	55		DB
f. (dã)(bēhĩ)(kĩ) [ˈnãmẽhĩkĩ] <i>dãbẽ = hĩ-kĩ</i> rainbow = DIM-MS 'a little rainbow'	'dã	bẽ	hĩ	kĩ		
	126	129	125	UNDEFINED		HZ
	83	33	52	47		MS
	69	60	58	51		DB
g. (woka)(jobe)(bu) [wòˈkáðóbébù] <i>wo-ka-jo-bebu</i> search-BENF-NMZ.FEM- ASUM.COP 'She is looking for (food on their behalf)'	wo	'ka	jo	,be	bu	
	127	193	198	210	181	HZ
	72	82	58	52	54	MS
	74	79	77	73	65	DB

h. ('hũa)(bedõ)(tabu) [ʰhũaámé,nótà,mù] <i>hũa-be-no = ta-bu</i> red-NEG- incNT = EMPH.FOC N.3AN.COP 'it is not ripen yet'	'hũa	be	dõ	ta	bu	
	138	148	153	123	103	HZ
	167	082	91	80	115	MS
	61	60	61	59	53	DB

The analysis of the data above shows that in words with HL tone, primary stress is a clear combination of pitch and duration. The primary stressed syllable has the highest pitch of the word and the longest syllable. In H-tone words, duration is more representative, since the primary stressed syllable does not necessarily have the highest pitch level in the word, though it is phonologically and acoustically significant that the primary stressed syllable is the one where pitch starts to rise in the word. In many tokens with H tone, a true rising melody in pitch contour in the entire word is noticed.

Intensity also tends to mark the primary stressed syllable as more prominent, but less clearly than duration and pitch, since intensity can have shallow variation throughout the Kubeo word. This point is very important because initially a non-native speaker of Kubeo has difficulty perceiving stress due to the lack of stronger variation in the intensity values, for one who is usually more used to the correlates of stress in European languages, where intensity plays a major role.

Duration seems to be the most consistent means to mark the relative prominence. This seems to follow naturally in functional terms, according to the observation that cross-linguistically duration is the more general means of marking prominence in languages where tonal contrasts exist, while pitch is expectedly the least important means (Wetzel and Meira 2010, Hulst 2010).

Pitch is an important clue for stress not only for its level in individual syllables, but due to its behavior between foot edges. For instance, in many words with HL tone the secondary stressed syllable has lower pitch than a syllable on its right. This is because the pitch drop characteristic of HL tone is gradual (non-categorical) in the syllable just after the primary stressed syllable, whereas it is a categorical drop in the next head of the foot, bearing secondary stress. The same is true for the pitch rise in many tokens with H tone, where the rising melody occurs gradually in syllables to the right of the primary stressed syllable and more categorically in the next head of the foot, bearing secondary stress. However, a constant high pitch throughout the word after the

primary stressed syllable is often attested, which disfavors the analysis of H as a "rising" tone.

The perception of secondary stress is often obliterated by down-step effects as the result of a HL tone and a general trend in Kubeo prosody to have a fading intonational contour. Nevertheless, in most cases duration is a reliable clue to secondary stress. In words with an H tone, both pitch and duration work together, marking more clearly the secondary stressed syllable as more prominent than its neighboring syllables. Secondary stress is also usually perceived best when it is followed by an unstressed syllable. This relates to the fact that secondary stress is the most prominent syllable within a restricted phonological window. In this sense, secondary stress is not necessarily “the second most prominent syllable in a word”, since its prominence effect is not necessarily relative to the whole word, but to a particular section of the word only.

It should be mentioned that, on the one hand, the pitch drop characteristic of HL tone and its down-step effect within a word, and on the other hand, the pitch rise characteristic of H tone and its up-step effect on the next high tones within a word, find correlates in the phonology of intonation in larger prosodic constituents. The sentence in Kubeo has a general fading contour, but particular constituents in the clause, especially topic and focus, have a rising contour and when they are moved around in the sentence they can cause significant changes in the general intonation contour.¹⁹

4.4 Derivation of Stress and Tone

This section summarizes the facts discussed in sections 4.1 and 4.2, presenting a systematization of how stress and tones correlate with one another derivationally.

We have seen that in the underlying representation of morphemes tone and stress are independent properties. For instance, there are underlyingly stressed roots with underlying HL or H tones, as well as roots with regular stress and underlying HL or H tones. Bound-morphemes are all toneless (\emptyset -tone) and unstressed, though clitics project a foot, which follows from the fact that they create their own phonological word (cf. section 6.7, chapter 6). There are two affixes *-wa* 'habitual' and *-wa* 'past passive', though, that are classified as prosodic repellent morphemes, since they block nasal harmony, tone spreading and ACCENT PROJECTION, though they can be parsed by PERSISTENT FOOTING.

It was also shown that metrical derivation has two distinct levels. On the first

¹⁹ Unfortunately for now, the correlation of word-level and sentence-level prosody will have to remain in future studies.

level, every phonological word projects a foot on their left edge, which is called the rule of ACCENT PROJECTION. Stress clash resolution takes place immediately, based on STRAY ADJUNCTION and PERSISTENT FOOTING. On a second level, the rule of PERSISTENT FOOTING applies within phonological words. Tones are docked to particular syllables and TONE SPREADING takes place only on the last level of the derivation of words, since they depend on ACCENT PROJECTION and PERSISTENT FOOTING to be properly derived.

Because an underlyingly stressed syllable can bleed the regular application of ACCENT PROJECTION (which otherwise should create an iambic foot) as prosodic repellent affixes can prevent the application of metrical or tonal rules (except persistent footing) well as, it is fair to say that underlying features are preserved throughout the prosodic derivation. This requires one to analyze the rule of PERSISTENT FOOTING as different from other rules that are blocked by underlying features.

Tones are docked in the primary stressed syllable, but there are reasons to believe that primary stress assignment is a rule that is applied not to a specific level, but at any level, since every prosodic domain has a primary stressed syllable, i.e. every phonological word, every phonological phrase, and every sentence has one and only one most prominent syllable. On the other hand, tones do not need to make reference to primary stress: they simply target the first head of the foot of a phonological phrase (i.e. simplex words and compounds, cf. chapter 6) and spread rightwards up to the second head of the foot of the word.

Hence, the derivation of stress and tones can be summarized as follows:

1. Specify underlyingly features that can feed, bleed or condition the derivation of stress and tone.
2. Apply ACCENT PROJECTION:
 - a. Create an iambic foot if regular;
 - b. Blocked if there is already an underlyingly stressed syllable on the left edge of a word;
 - c. Conditioned if there a prosodic repellent affix, which causes the creation of a degenerate foot in the left edge of the word.
3. Solve stress-clash situation and unparsed syllables:
 - a. STRAY ADJUNCTION;
 - b. PERSISTENT FOOTING;

- c. DESTRESSING.
4. Derive tones (if underlyingly present):
 - a. Locate the left-most head of the foot in the word and dock H or HL;
 - b. Locate the tone-spreading window: the two left-most head of the foots;
 - c. Spread tones to the head of the foot immediately on the right;
 - d. Delete other underlying tones if present within the tone-spreading window.
 5. Assign PRIMARY STRESS and DESTRESSING RULES.

5. The Syllable

This chapter describes the syllable in Kubeo, discussing the following aspects:

- i. Syllable structure;
- ii. The status of syllables in underlying representations;
- iii. Syllabification processes and the levels of grammar;
- iv. The interaction of syllabification and different morphophonological process.

Syllable structure, which is understood as a template, is distinct from syllabification, which is a rule-based process. However, the two are interrelated: syllabification operates based on syllable structure and individual syllables are structured from syllabification process. Both can have distinct properties in distinct levels of the grammar, as it is demonstrated in this chapter.

Section 5.1 begins with the description of syllable structure. Section 5.2 addresses the status of syllables in underlying representations. In section 5.3, I discuss syllabification processes and their relation to other morphophonological processes and levels of the grammar.

5.1 Syllable Structure

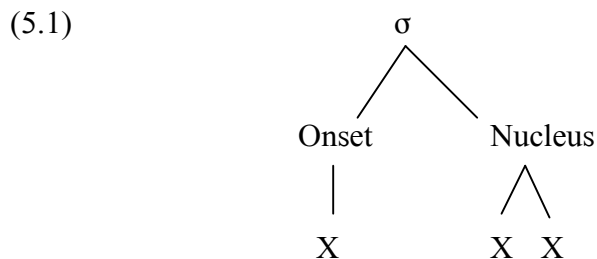
There is a distinction in Kubeo between the syllable structure as present in a single morpheme and as result of morphological processes. Morpheme internally the syllable is (C)V(V), i.e. an optional onset, an obligatory nuclear vowel and an optional second vowel creating a vowel cluster, i.e. a branching nucleus (cf. section 2.1.1.2, chapter 2).

As expected from universal tendencies, the CV shape is the most common type of syllable found in Kubeo morphemes. But there are many morphemes that have a syllable shape of only a single vowel, such as: *'u* 'sloth', *'o* 'wild banana', *ʔ* 'he', *ã* 'to eat', *ẽ* 'to burn', *ʔ* 'to take'. There are also many morphemes that have a VV syllable shape,

such as: *ũe* 'nose', *õarĩ* 'peccary', *'oe* 'to brush', *'ea* 'to arrive', *ãiki* 'anaconda', etc. Additionally, many morphemes have a CVV syllable shape: *'põe* 'person', *'hia* 'river', *'bẽa* 'good', *'hai* 'to lack, need'.

Canonically Kubeo syllables do not allow codas or complex onsets, as is demonstrated in the examples listed above. Borrowings from Spanish and Portuguese are accommodated to this pattern. For instance the word for 'nail' in Portuguese is *prego* ['pɾegu], which was borrowed by Kubeo as *pereku=jo* (nail = CL.LONG), or the personal name 'George' in Spanish is *Jorge* ['xorxe] and was borrowed in Kubeo as *ho'rehe*. In the borrowed word for *prego*, speakers avoided a complex onset, and in the borrowing of *Jorge*, speakers avoided consonants in succession. Codas appear to be avoided in borrowings by either epenthesizing a vowel or by deleting the consonant in coda. The borrowing of the Portuguese word for 'rice' *arroz* [aros], which was borrowed in Kubeo as *arutfu* [a'rutfu], shows coda avoidance by vowel epenthesis. The borrowing of the personal name *Luís*, borrowed as *dui* or *rui* in Kubeo, demonstrates coda avoidance by consonant deletion.¹

Thus, one can analyze the Kubeo syllable as in (5.1), where "X" refers to a timing slot in the syllable. Kubeo allows a maximal of three timing slots, i.e. one timing slot in the onset and two timing slots in the nuclear position:



Since Kubeo does not allow syllable codas in its basic syllable structure (see discussion later in this section), it is unnecessary to assume the rhyme. We can assume more directly that Kubeo has a branching nucleus. It is important to note that the language prohibits two identical segments within the same nucleus, hence banning long vowels and deleting identical vowels that were syllabified within the same syllable

¹ The only Kubeo word found in my lexicon (~ 3000 words) which has a complex onset is the word *bruti* a toponym that appeared just once in a traditional narrative from a Kubeo speaker that is from a sib (*betowa*) that used to speak another language in the past. Thus, this is likely a borrowing.

morphophonemically (cf. section 2.1.24, chapter 2).

The branching nucleus also captures the existing variation of sonority peak between vowel clusters (i.e. which vowel in a vowel cluster sounds more sonorous or more prominent than the other). Sonority can vary depending on a sonority scale that determine whether the sonority increases or decreases within the nucleus (cf. section 2.1.1.2, chapter 2). The onset of a syllable is always occupied by a segment marked as [-vocalic].

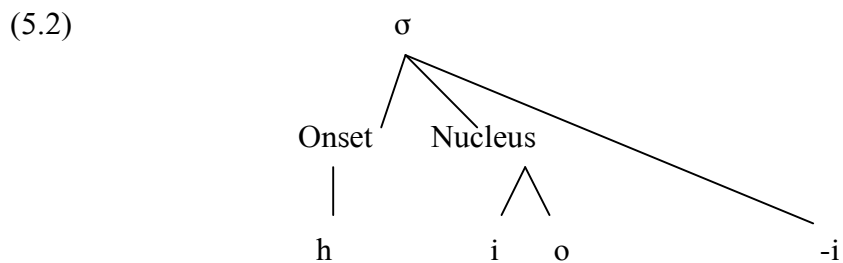
The syllable structure becomes more complex when considering morphophonemic processes and nasality. Regarding nasality, pre-nasalization of stops occurs both as spontaneous process with voiced stops in word initial position, such as *doðe* [ˈdoˈðe] 'wholf fish' (cf. section 3.2.3, chapter 3); and as a predictable process across syllable boundaries where the left most syllable is nasal(ized) and the following syllable has a stop (voiced or voiceless) at its onset, such as *āiki* [ˈāiːki] 'anaconda' or *bějue* 'lie' [mɛ̃ːɟue] (cf. 3.2.3, chapter 3). It is a matter for a future detailed phonetic study how the homorganic nasal stops in these cases relate to timing and syllable structure. My impression is that in pre-nasalized word initial voiced stops, the homorganic nasals correlate with a negative Voice Onset Time. However, in word medial position it is unclear whether they should be analyzed as part of the nasal(ized) syllable or part of the onset from the adjacent syllable on the right (see Itô 1989 and cited references there for supporting the former hypothesis).

Affixation also lends to syllable structure complexity by adjoining a vowel from a different morpheme to a (C)VV syllable. This issue is discussed in chapter 2, section 2.1.2.7 with the title *Three Vowel Sequence Resolution*. As the name implies, three vowels within a syllable create an impossible situation and different resolution strategies are observed: vowel deletion and vowel fusion (cf. 2.1.2.5, chapter 2), re-syllabification in more careful speech, and even allowing an exceptional coda when the vowel to be adjoined is /i/ (cf. 2.1.2.7, chapter 2). The latter case is very significant because it is the only case where codas are allowed, and therefore requires further explanation.

First, it should be mentioned that syllables have distinct structures and constraints depending on different levels of the grammar (cf. Mohannan 1989). Second,

it is significant that the only segment allowed in coda is a vowel, /i/, which is the least sonorous vowel in Kubeo (cf. section 2.1.1.2, chapter 2). Third, the vowel /i/ has an intricate relationship with the palatal glide /j/ in the phonology of Kubeo and cross-linguistically, raising the concern that both might correspond to the same phoneme underlyingly, i.e. there might be only /i/ which can behave as /j/ in different phonological contexts (cf. section 2.1.1.1, chapter 2). Fourth, as it will be discussed in section 5.3, the vowel /i/ tends to be ambisyllabic when in the edge of a syllable, which can result in on-gliding processes (cf. 2.1.2.6, chapter 2).

Having mentioned those facts, I propose an analysis where /i/ in the exceptional coda position in words such as *hio-i* (garden-LOC) ['hioj] 'at the garden' can be represented as located in the syllable appendix, i.e. a position outside the nucleus, as represented in (5.2) below. Under this circumstance, /i/ becomes [+consonantal], and behaves as surface, derived glide.



The structure above is, thus, the most complex syllable skeleton Kubeo has, and it only occurs across morpheme boundaries.

The fact that /i/ is in coda position in the syllabic appendix forces it to surface as [j]. In extra careful speech, however, it is possible to perceive the same word as ['hio.i], where instead of /i/ adjoining to the appendix of a syllable in the left, it is in a separate syllable. Syllabification of /i/ will be further addressed in section 5.3.

The syllable in Kubeo also bears additional phonological elements besides segments. These are: tones, stress and the feature [nasal]. Every syllable has a surface level tone, either as a result of a default or underlying tone (cf. chapter 4, section 4.2.2). A level tone is either L or H. It is assigned to syllable nodes and not to morae (cf. section 4.2.3, chapter 4).

The feature [nasal] is also assigned to syllable nodes and not to individual

vowels or consonants (cf. section 3.1, chapter 3). When assigned to a syllable node, [nasal] is manifested in every [+voiced] segment, which can be either underlyingly [+voiced] segments or [+sonorant] segments, which by a redundancy rule also imply [+voiced] (cf. chapter 2). Voiceless segments do not manifest [nasal] in underlying nasal syllables and block nasal harmony across morpheme boundaries (cf. section 3.2, chapter 3). Given that [nasal] is a property of syllable nodes and that it is a phonological rather than phonetic process, this suggests that syllable nodes must have information about voicing configuration of segments (cf. section 3.5, chapter 3).

Stress is a relational syntagmatic rhythmic property, which is manifested in syllables through the mediation of feet, which in turn cause local alternations between more and less prominent syllables and can consequently affect segments (cf. section 4.1, chapter 4).

5.2 The status of syllables in the underlying representation

Many Kubeo morphemes have phonological features that rely on syllable structure but are not predictable by rules. These features are: underlying stress (cf. section 4.1, chapter 4) and nasality (cf. section 3.1, chapter 3). These features are determined by particular syllables in a polysyllabic morpheme: underlying stress refers to the first syllable of a root, whereas nasality refers unpredictably to any or all syllables of a morpheme.² Nasality is even more special than underlying stress, because it must locate nasal syllables within a string of syllables within a morpheme.

Thus, Kubeo must be analyzed as having syllables in the underlying representation of morphemes. Further support to this analysis comes from the way that the ACCENT PROJECTION rule interacts with syllabification (cf. section 4.1.2.2, chapter 4, and sections 2.1.2.3 and 2.1.2.4, chapter 2). This rule is the first rule in the metrical derivation and applies by creating an iambic foot in the left edge of a phonological word. As seen in the examples below, it applies where roots and affixes have projected their own and separate syllables, which is prior from the application of the first

² These features contrast with underlying tones (cf. section 4.2, chapter 4), which, although have syllables as the tone bearing unit, are not docked to a particular syllable underlyingly, but can be docked to any syllable within the first foot of phonological word that contains the lexical root they belong to.

syllabification rule that collapses distinct underlying syllables. In example (5.3a) a vowel cluster is formed from the syllabification of an affix and the root, so stress falls in the first syllable of the word. In (5.3b) it is shown that with another affix on the same verb root, a regular, iambic foot is projected.

- (5.3) a. *wo* *-abẽ* ['voa.mẽ]
 search -II.3MSC
 'he looked for (it)'
- b. *wo* *-kaki* [vo.'ka.ki]
 search -II.1MSC
 'I looked for (it)'

Thus ACCENT PROJECTION applies at a level where syllables were projected as they came from the underlying representation of individual morphemes. It is only after accent projection that syllabification rules apply, as schematized below (parenthesis "()" indicate a foot).

(5.4)

	(5.3a)	(5.3b)
UNDERLYING REPRESENTATION	$\sigma - \sigma \sigma$	$\sigma - \sigma \sigma$
ACCENT PROJECTION	$(\sigma - \sigma) \sigma$	$(\sigma - \sigma) \sigma$
SYLLABIFICATION	$(\sigma) \sigma$	$(\sigma - \sigma) \sigma$

More on syllabification processes is discussed in the next section.

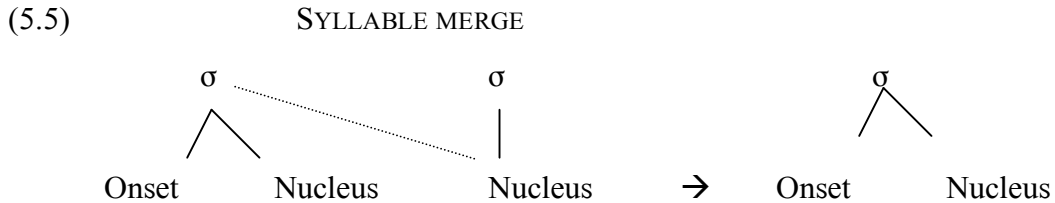
5.3 Syllabification

Syllabification in Kubeo is treated as a process that is pervasive in the derivation of words. It can apply and re-apply virtually at any time at distinct derivation levels, though with somewhat different outcomes at each level.

There are two general syllabification processes in Kubeo: SYLLABLE MERGE and ON-GLIDING (AMBISYLLABICITY). Both processes occur between two syllables when the right-most syllable has no onset. Thus, they can be regarded as morphophonological

processes in order to avoid hiatus, i.e. the sequences of two syllabic vowels (or heterosyllabic vowels) without an interleaving stop. Syllable merge achieves this goal by simply merging two syllables into one, while on-gliding epenthesizes a glide, changing a CV.V configuration to a CV.jV.

SYLLABLE MERGE changes the syllabic configuration as established in the underlying structure by merging two syllable nuclei into a single one, as represented below:



This process must occur after ACCENT PROJECT (see (5.3) and (5.4) above and section 4.1.22, chapter 4), and can reapply whenever necessary. As a result, the syllable nucleus gets more complex. If the two identical vowels are merged into a single nucleus, the process of IDENTICAL VOWEL DELETION takes place by merging the two vowels, while preserving all supra-segmentals (cf. section 2.1.2.4, chapter 2).

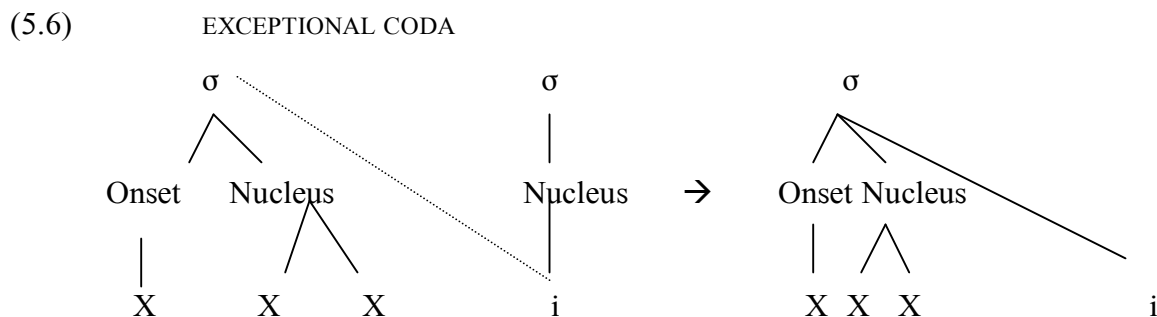
If two vowels are distinct and each nucleus is simplex (i.e. has a single vowel), the outcome creates a complex, branching nucleus (i.e. two vowels), while preserving supra-segmentals. If one of the two nuclei is complex, then the resulting syllable would contain three vowels, which is a violation of the syllabic template and triggers different resolution strategies, such as RE-SYLLABIFICATION (in careful speech only), EXCEPTIONAL CODA, DISTINCT VOWEL DELETION and DISTINCT VOWEL FUSION (cf. section 2.1.2.7, chapter 2).

DISTINCT VOWEL DELETION and DISTINCT VOWEL FUSION are processes that can also apply inside a vowel nucleus with two vowels, though this is subject to speech rate (cf. section 2.1.2.5, chapter 2). The general rule is for V_2 (the vowel in the middle) to be deleted.

The EXCEPTIONAL CODA and ON-GLIDING are processes that relate to the phonological status of /i/, as discussed in section 5.1 above and in 2.1.1.1, chapter 2. /i/ is a special vowel because it can fulfill onset positions (thus behaving as a surface glide

[j]), nuclear positions (as other vowels), and even coda positions in three vowel sequences. Moreover, /i/ can belong to two syllables, i.e. as a nuclear vowel or coda in one syllable and as the onset of another syllable. This phenomenon is generally known as AMBISYLLABILITY (see Blevins 1996).

In EXCEPTIONAL CODA, /i/ is attached to the syllabic appendix of syllables with a branching nucleus, since the nuclear position of the left most syllable is already full:



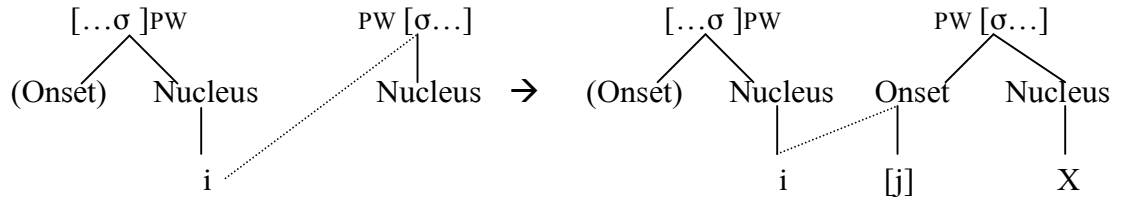
On-gliding involves not only the ambisyllabic status of /i/ and syllable structure, but also distinct levels of the grammar. There are two conditions that trigger on-gliding as presented in section 2.1.2.2, chapter 2.

- i. /i/ belongs to a syllable from a stem or clitic and the following syllable is from another clitic or stem, but never from a suffix.
- ii. /i/ is V_2 or V_3 in a vowel sequence and there is subsequent affixation or cliticization.

The condition in (i) contrasts with cases when /i/ does not create on-gliding, but undergoes SYLLABLE MERGE (as represented in 5.5) above) in the derivational level between stem and affixes (cf. e.g. (2.59), chapter 2). It is only between clitics and stems that on-gliding can occur under condition (i), which suggests that on-gliding, in this situation, is a process applying across phonological words (PW), in order to preserve /i/ as the nuclear vowel of an already existing syllable.³ The representation of on-gliding for condition (i) is indicated in (5.7):

³ See section 6.7, chapter 6, for a discussion of how clitics and stems correspond to phonological words.

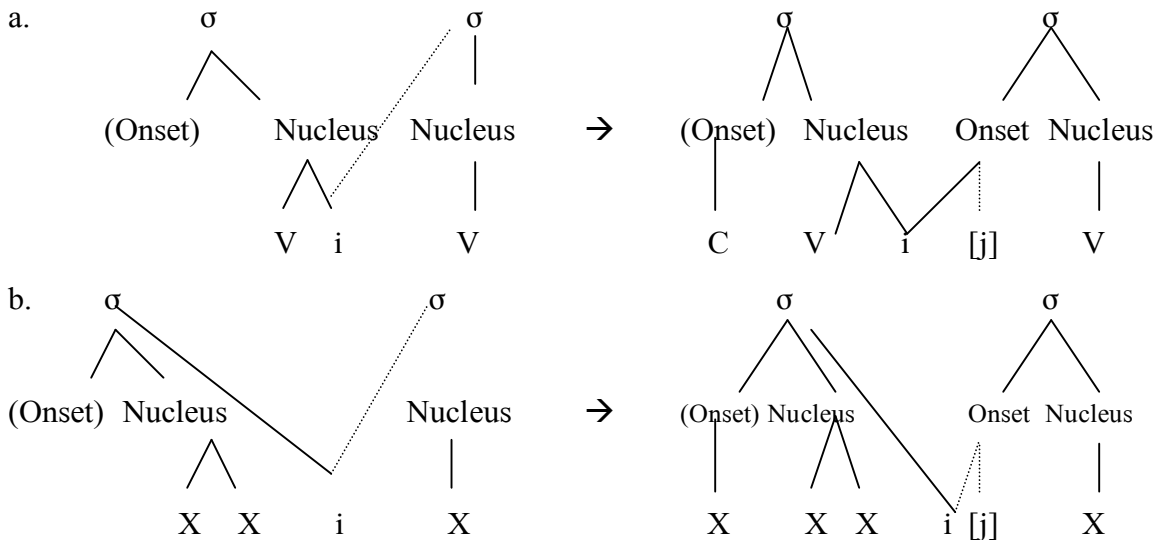
(5.7) ON-GLIDING: CONDITION (I)



The fact that on-gliding does not occur inside a phonological word, but rather across phonological words highlights two different levels of syllabification rules.

The other type of on-gliding as described in condition (ii) is not constrained to derivational levels. It applies across stems and affixes, as well as across phonological words (cf. e.g. (2.60), chapter 2). It is the result of syllable structure and the inherent ambisyllabic nature of /i/. In particular /i/ in the right edge of a syllable with a complex nucleus or exceptional coda (i.e. /i/ as V_2 or V_3) is parsed as the onset of the next syllable that lacks an onset, as represented below:

(5.8) ON-GLIDING CONDITION (II)



The phenomena of on-gliding and exceptional coda are also related to the DIRECTION OF SYLLABIFICATION in Kubeo, which is from the left to the right, the same direction found in nasal harmony, tone spreading, and foot construction. This can be attested by observing that /i/ is always parsed as a nuclear vowel or coda in the left most syllable and creates an on-gliding at the onset of the next syllable on the right. This relates not only to a general preference for CV syllables and a cross-linguistic

tendency for languages to maximize onsets, but it is striking that Kubeo keeps /i/ as an exceptional coda even when it could be theoretically possible for it to be integrated as nuclear vowel in the syllable from the right.

Another syllabification process occurs with respect to segmental deletion. In fast speech, segments and even whole syllables can be deleted. Deletion of segments is a post-lexical process; it can cause re-arrangements in the syllabic configuration of words but it is not followed by the reapplication of certain word-level phonological rules (cf. section 6.7.2.1, chapter 6). This shows that syllabification can occur at any level in the grammar, differently from other phonological processes, which are restricted to particular levels.

6. Morphophonology

This chapter discusses the nature of the word in Kubeo and its relation to different modules of the grammar, especially to morphology, phonology and syntax. This is a central chapter in this dissertation, since it synthesizes the analysis of the phonology (chapter 2 to 5), describes the general structural properties of words in Kubeo, and constitutes a bridge to the Morphosyntactic chapters (chapters 7 to 10).

Morphophonology is understood as the overlap of phonological and morphosyntactic properties in the foundation of words. This chapter focuses more on the structural and phonological aspects of words. Functional aspects are discussed in the morphosyntax part of this dissertation. Because up to this point in this dissertation I have dealt mostly with the phonology of Kubeo, this chapter highlights more of the structural processes in Kubeo morphophonology. The phonological traits are mentioned and the reader is referred to the sections and examples in the Phonology chapters of the dissertation. The functional attributes of word formation and its relation to syntax are discussed in chapters 8, 9 and 10.

This chapter begins with a discussion of what is a word in the language and its structural, semantic and phonological requirements, in section 6.1. A summary of word formation processes, highlighting the phonological, syntactic and structural properties of the derivation of words is given in section 6.2. Morpheme types are discussed in section 6.3 and compounds are treated in section 6.4. Section 6.5 deals with reduplication and 6.6 gives an overview of the complex issues in paradigmatic and syntagmatic morphological processes. Section 6.7 offers an integrated theoretical account of Kubeo morphophonology by defining the prosodic domains in the language and levels of morphophonological derivations, based on principles of Lexical Phonology and Prosodic Phonology.

6.1 The word: what is a word in Kubeo

From observation of Kubeo discourse and native-speakers' intuitions, it has been determined that words in the language have the following characteristics:

(6.1)

- Phonologically, a word is independent from other words, meaning it bears stress and can be followed and/or preceded by a pause; tone spreading usually has scope over an entire word.
- Morphologically, a word can be composed of from one to several morphemes; the basis of most words is a lexical morpheme (roots and stems), except for some words composed of (two or more) functional morphemes only;
- Syntactically, a word can assume major syntactic roles, for instance: argument (subject, direct object, etc.), topic, focus, and head of a predicate.

Such a definition of the word in Kubeo suffices for most purposes, especially in the analysis of discourse and syntax; however it omits internal differences in the composition of words that are important to a deeper understanding of what is a word in this language. A word is necessarily a relational category, where different modules of the grammar (phonology, morphology, and syntax) interact by providing the necessary constituents and imposing especial requirements. The study of these facts is the subject of this chapter.

6.2 Overview of Word Formation and Types of Words

This section describes the structural template of word formation in Kubeo (section 6.2.1). It also makes reference to other aspects of word formation, such as phonological and syntactic properties of word formation (section 6.2.2 and 6.2.3 respectively).

6.2.1 Structural properties of word formation. The basis of word formation in Kubeo is the CONCATENATION of different morphemes in a word. There are six categories of morpheme types in Kubeo: ROOT, STEM, AFFIX, PHRASAL AFFIX, BOUND-STEM and CLITIC. They will be discussed in more detail in section 6.3. The following template illustrates the order of morpheme types in the formation of words in the language:¹

(6.2) PROCLITIC ← PREFIX ← ROOT → SUFFIX → ENCLITIC → PHRASAL-AFFIX/BOUND-STEM

As an OV language, Kubeo has more suffixes, enclitics and bound-morphemes concatenating to the right side of (after) the root or stem than prefixes or proclitics

¹ Cf. chapter 9 for the template of functional morphemes in Nouns and Verbs.

(before). Compounds are mostly headed by the right-most element in the compound, although there are also some problematic cases (cf. section 6.4).

Kubeo has a strong agglutinating tendency. As a result, there are few other types of word-formation processes that do not involve concatenation, such as stem alternation, suppletion, etc. The other two word-formation processes in Kubeo are: (1) COMPOUNDING, which is fairly common and productive not only in creation of new words but also in coding inflection (cf. chapter 8 and 9), defined as the joining in a compound of at least two stems in Kubeo (see 6.4), and (2) REDUPLICATION, a process that forms a new stem composed of repeated parts of a root (see 6.5).

Because of its agglutinating tendency, Kubeo has many kinds of functional morphemes that are bound (affix, phrasal-affix [defined below], clitic, and the bound-stem) with subtle structural and phonological distinctions. The tokens of clitics and phrasal-affixes outnumber the tokens of affixes. Most morphemes in the language have a direct one-to-one relationship between form and meaning/function, which supports the idea that these are the result of recent grammaticalization of bound-morphemes that originated in the syntax, though the verb paradigm is notorious for cases of fusional or flectional morphemes (see chapter 8).

Some words can be rather long by most standards, such as in the following example:

- (6.3) *dī-wa-i-bī-ba-reha-kebā-awī-iki* [nī'wāimī,māṛē,hake,māwīī,ki]
 go-CAUS-ST-PAS.MSC-BE-HST.PST-PST.ASM-II.1/2/3IN-P.V.
 'the one who was taken (long time ago)'

The joining of different morpheme types in word formation processes yields different types of words, which are summarized in table 6.1 below:

(6.4) *Table 1: Word formation processes and types of words*

TYPES OF WORDS	WORD FORMATION PROCESSES
Simplex Word	<ul style="list-style-type: none"> • Stem (+ any bound morpheme) • Proclitic + enclitic
Compound	<ul style="list-style-type: none"> • Stem + Stem
Composite Compounds	<ul style="list-style-type: none"> • Compound + Stem • Stem + Compound

The following examples illustrate the word formation processes and types of words in Kubeo, based on structural properties of morpheme types. In section 6.7 I discuss issues of word formation based on phonological requirements of words.

○ MONOMORPHEMIC STEM WORDS

- (6.5) a. *wekĩ* → *wekĩ* [we'ki]
tapir 'a tapir'
- b. *u* → *u* ['u]
sloth 'a sloth'

○ A STEM PLUS AFFIX(ES)

- (6.6) a. *'põe -wa* → *'põewã* [põẽwã]
person -AN.P 'people'
- b. *da -bi* → *dabi* [da'bi]
come -3MSC 'he came'

○ A STEM (HOST) AND A CLITIC

- (6.7) a. *eda -abẽ* = *ða* → *edabẽða* [e'damẽ,ða]
arrive -II.3MSC = REP 'it is said that he is arriving'
- b. *akã* = *bo* → *akãbo* [a'kã^m,bo]
tinamou = CL.OVAL 'tinamou bird'
- c. *i =* *hãrãwĩ* → *ihãrãwĩ* [i'hãrã,wĩ]
THIS day/time 'these times'

○ TWO STEMS: COMPOUNDING

- (6.8) a. *pabĩ* *butfi* → *pabĩ butfi* [pã'mĩ bu,tʃi]
indigenous tobacco 'native tobacco'
- b. *bãhẽ* *pakĩ* → *bãhẽ pakĩ* [mã'hẽ pa,kĩ]
OUR.INC father 'our father'

○ TWO STEMS AND ADDITIONAL MORPHEMES

- (6.9) a. *abuhu* *hoe* = *kĩ* → *abuhu hoekĩ* [a'buhu ,hoekĩ]
forest.being axe = CL.TREE 'primitive axe (stone axe)'
- b. *bõa* *boa* -*bi* → *bõa boabi* ['mõã boa'bi]
fish kill -3MSC 'he caught a fish'

- c. $'d\ddot{a}bo \ 'b\ddot{i} \ jawi \ \rightarrow \ 'd\ddot{a}bo \ 'b\ddot{i} \ ja,wi \ [{}^1n\ddot{a}^mbo \ ,m\ddot{i} \ ja,wi]$
 eagle bird jaguar 'creasted eagle'
- o A PROCLITIC AND AN ENCLITIC
- (6.10) a. $di = \ = d\ddot{i} \ \rightarrow \ did\ddot{i} \ \ [di'd\ddot{i}]$
 ANAPH = CL.ROUND 'that round one'
- b. $hi = \ = k\ddot{i} \ \rightarrow \ 'ak\ddot{i} \ \ [{}^1ak\ddot{i}]$
 GN.PSS = CL.TREE 'which tree-like/vertical thing?'

Important in word formation processes is the grammatical subcategorization of morphemes, which is manifested in the selectional restrictions between the base (e.g. stem or host)² and bound morphemes (e.g. each grammatical category, such as noun and verb, has a specific set of inflectional and derivational morphemes – while a few subsets of nouns or verbs also have "exceptional" morphemes or allomorphs (cf. section 6.6 and chapter 8)). Selectional restrictions also relates to rules forming different COMPOUND TYPES (cf. section 6.4).

6.2.2 Phonological aspects in word formation. Phonology has special requirements and restrictions in word formation processes. Examples of restrictions can be found in section 2.1.2 (chapter 2) concerning the morphophonemic formation of vowel clusters, especially in relation to the shape of possible affixes lacking a consonantal onset and other rules from table 7 in (2.28), which can be regarded as rules applying to the surface forms of words.

The most basic phonological requirement in word formation is stress-related rules, specifically *obligatory stress*: every word must bear stress (which implies it must be parsed by a foot), and *culminativity*: there is one single most prominently stressed syllable per word)(cf. chapter 4).

As it will be discussed in section 6.7, there is a more general phonological requirement in word formation, which synthesizes a diverse set of phonological properties: the *phonological word*. Every word must contain at least one phonological word, which means that, not only stress, but several other phonological properties are directly or indirectly a common feature of words in Kubeo.

Differing from other Tukanoan languages (cf. Ramirez 1997, Gomez-Imbert 2004), Kubeo does not impose prosodic minimality constraints on words or morphemes

² A base in Kubeo is a generic term for any type of morpheme that can host a clitic or be combined with an affix.

(except that every word must bear stress, hence bear at least one full or degenerate (monosyllabic) foot). Hence, there are many monosyllabic roots in the Kubeo lexicon and many whole words are also monosyllabic (cf. chapter 4).

6.2.3 Syntactic properties of word formation. Words have two syntactic attributes. One is its grammatical category: noun, verb, adjective, adverb, etc., which is determined in the lexicon and morphologically, and is relevant to several syntactic operations (cf. chapter 7). The second element is syntactic function, which is more interesting for the description of Kubeo morphology because it is quite often expressed by PHRASAL AFFIXES, a morpheme type that exclusively codes syntactic functions (cf. section 6.3.2), and can be regarded as an element that is part of the inflection of phrases, rather than of words (cf. Anderson 2005).

6.3 Morpheme Types

A morpheme type is a category composed of a cluster of structural and phonological properties, which are specified in the underlying representation of every morpheme, i.e. every single morpheme belongs to a morpheme type. Kubeo has 6 categories of morpheme type, which are listed in table 2 along with their respective boundary symbols, which are a set of descriptive notations specifying the type of "phonological juncture" that each morpheme has (similarly to Siegel 1979):³

(6.11) *Table 2: Morpheme types and their respective morphophonological boundaries*

MORPHEME-TYPE	BOUNDARY-SYMBOL
ROOT	(no boundary symbol)
STEM	"#"
AFFIX	"_"
PHRASAL AFFIX	"_"
BOUND-STEM	"_"
CLITIC	"="

³ The boundary symbols as a descriptive device do not fully capture the phonological behavior of morpheme types. In section 6.7 I revise the boundary system into a "bracketing" system, following the idea of prosodic domains and different lexical phonological levels in the derivation.

The motivation for each boundary symbol from table 2 is seen in table 6.3, which shows the behavior of each morpheme type in relation to phonological rules:

(6.12) *Table 3: Word-level phonological rules*

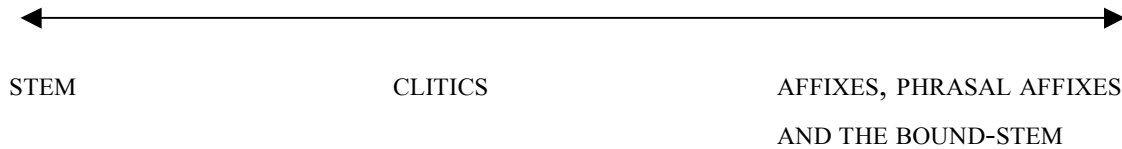
W-Type	SIMPLEX WORD		COMPOUND	COMPOSITE COMPOUNDS
M-structures	STEM/CLITIC -AFFIX -PHRASAL AFFIX/ -BOUND STEM	HOST = CLITIC	STEM#STEM	COMPOUND + ETC.
PRIMARY ACCENT PROMOTION	yes	yes	yes	yes
tone SPREADING	yes	yes	yes	NO
RESYLLABIFICATION: SYLLABLE MERGE / ON-GLIDING	yes	yes	OPTIONAL	OPTIONAL
NEUTRALIZING ALLOPHONIC RULES	yes	yes	OPTIONAL	OPTIONAL
ACCENT PROJECTION	yes	yes	NO	NO
PERSISTENT FOOT CONSTRUCTION	yes	NO	NO	NO
NASAL HARMONY	yes	NO	NO	NO

A caveat to the way table 3 in (6.12) displays the phonological rules and morpheme types is that it is only concerned with surface properties of words types. In section 6.7 a derivational account is offered, which is more detailed.

This table suggests the following cline of phonological "boundedness", where clitics are situated between stems (the phonologically more independent morphemes)

and affixes, phrasal affixes and the bound-stem (the phonologically dependent morphemes):

(6.13)



As further discussed in chapter 8, the intermediate stage of clitics as defined above in phonological terms also correlates with their morphosyntactic status.

6.3.1 Roots and Stem. Roots and stems are different from other bound-morphemes. In functional terms, roots and stems are content morpheme that are made of only lexical roots, not grammatical affixes; affixes are elements that are selected by a given stem and attached to it; clitics, phrasal-affixes, and the bound-stem are functional morphemes only, not lexical roots.

These differences in kinds of morphemes have implications for the overall organization of Kubeo grammar: lexical roots are the basis for all morphological processes, so every bound-morpheme is phonologically dependent on a lexical root or stem; in connection, syntactic processes exist to relate one lexical item to another, and functional words (mostly bound-morphemes in Kubeo) exist in order to code syntactic relationships among lexical items (which are ultimately based in roots).

Roots in Kubeo are regarded as an abstract representation of a lexical morpheme. They store the following types of linguistic information: the lexical item's meaning, segmental features, unpredictable prosodic properties (nasalization, irregular stress and tone) and the lexeme's grammatical category (noun, verb, adjective, adverb, etc.) (cf. chapter 7).

When roots actually become words or part of words, they are analyzed as STEMS, since there is no morphological means or reason to treat roots and stems differently in the language. Roots are only formatives of a monomorphemic stems; there are several cases of isomorphism between roots and stems. Many stems are formed monomorphemically, when the root is the single morpheme of the stem (cf. (6.5)), or pluri-morphemically, when the stem is combined with affixes, clitics, or with another stem in a compound (the result being a new stem). A few stems may lack a root, such as the words formed by an enclitic and a clitic (cf. e.g. (6.10)).

A stem can potentially form a word, although there are stages in the derivation where a stem is still ill-formed. This is commonly the case with derivational affixes, such as in the examples below:

(6.14)	ROOT	DERIVATIONAL AFFIX	STEM
a.	<i>bĩ#</i>	<i>e-</i>	<i>ebĩ#</i>
	go.up	TELIC.MOTION-	'go up and arrive'
b.	<i>juju#</i>	<i>-wa</i>	<i>jujuwa#</i>
	be.hang	-CAUS	'to hang'
c.	<i>đĩ</i>	<i>-i</i>	<i>đĩi#</i>
	go	-ST	'going'

This stage in the derivation of words is called a DEPENDENT STEM in this this dissertation.⁴ Dependent stems are very important in Kubeo verbs. For instance, a stative verb stem requires a more specific construction than dynamic verbs do to code an event in past time. This is usually achieved by compounding with the light-verb *te* 'to do', as in the examples below (also cf. chapter 8):⁵

(6.15) a.	<i>kĩ</i>	<i>#te</i>	<i>-bi</i>	<i>['kĩte bi]</i>
	be.at	#do	-3MSC	
	'he was (there)'			
b.	<i>eda-be</i>	<i>#te</i>	<i>-bi</i>	<i>[e'dabete bi]</i>
	arrive-NEG	#do	-3MSC	
	'he had not arrived'			

Except for structures similar to (6.15a), a verb can never be constituted of a monomorphemic stem in Kubeo.

A dependent stem can also occur in the combination of a stem and a clitic, such in the words in (6.16):

⁴ Some morphologists would rather call it a "bound-stem", but I reserved this terminology for a distinct morpheme type (cf. section 6.3.2).

⁵ One can tell that *[kĩ]* 'be at' is a stem in the compound above because it is exceptionally stressed, albeit being composed of a single syllable (if another bound-morpheme followed it on the right, stress would regularly fall in the second syllable). Stress is a necessarily a property of stems and words, but not necessarily of roots.

- (6.16) a. *ea* = *hĩ* -*dõ* [eahĩnõ]
 fit = DIM -CNT
 'the small place where they all fit'⁶
- b. *ũkũ* -*be* = *wĩ* [ũkũmẽwi]
 drink -NEG = CL.AN.COL
 'those who do not drink (alcohol)'

However, different from dependent stems in compounds, a dependent stem in combination with a clitic is not exceptionally stressed, since the clitics are integrated in the metrical domain of the stems (cf. section 6.3.2 and the definition of the Phonological Word in section 6.7).

There are cases of dependent stems with nouns as well, such as in the examples in (6.17) (the relevant portion of the examples is underlined):

- (6.17) a. *hi = pa* #*biki = hĩ-ki* [hi'pabi,kihĩ,ki]
 MY = parent #old = DIM-MS
 'my old daddy'
- b. *i = hĩ =* #*dõbĩ = hĩ-dã* [i'hĩnõ,mĩhĩ,nã]
 this = DIM woman = DIM = AN.PL
 'these little ladies'

Neither *hipa#* 'my father...', nor *ihĩ =* 'these little...' nor *dõbĩ* 'woman' can occur independently outside of a word or a compound.

So, I use the boundary # to refer to any stem that is a dependent stem. The lack of this boundary means that the stem is well-formed with all the morphological and phonological requirement for it to behave syntactically as a full word.

6.3.2 Bound-Morphemes. Although stems and compounds are clearly distinct from bound-morphemes, the distinction among different bound-morpheme types is very subtle. The following sections bring details about each of the bound-morpheme types.

6.3.2.1 Affixes versus other bound-morphemes. Affixes code most inflectional and derivational processes in Kubeo, as in most languages. Affixes are more numerous and more important in word formation processes involving verbs than those involving

⁶ Referring to the differences in size of non-Indians' houses, which are small, and Kubeo long-houses, which are big.

nouns. Among nouns there are just a few, only 10 or so morphemes from a total of about 80 affixes in the language. They are less important and less numerous than clitics and compounding in word formation processes. The language has only three prefixes, all involving verbal derivation.

In contrast to clitics, affixes are highly restricted with respect to the grammatical subcategory of the bases to which they can be attached. For instance, there are different derivational paradigms for stative and eventive verbs (cf. chapter 8, section 8.2) and different inflectional morphemes for distinct subsets of nouns (cf. chapter 8, section 8.1.1). A clitic, on the other hand, is not subject to such strong co-occurrence restrictions.

For instance, the clitic =*wi* 'classifier animate collective' can be attached to a more heterogeneous set of nominal words, in contrast to the plural suffixes such as *-dã* or *-wa* 'animate plural', restricted to appearing with only a particular subset of animate nouns. Examples in (6.18) show that a specific stem can select only the particular appropriate plural suffix, while =*wi* 'classifier animate collective' can be combined with a larger, diverse set of words behaving as nouns syntactically, as seen in (6.19):

- (6.18) a. *bãbĩ-dã* [mã'mĩnã] (cf. **bãbĩ-wa*)
 older.sibling-AN.P
 'older siblings (than ego)'
- b. *'wa-wa* ['wawa] (cf. **'wa-dã*)
 child.in.law-AN.P
 'children in law'
- (6.19) a. *kai = wi* (cf. **kai-dã, *kai-wa*) DETERMINERS
 every = CL.AN.COL
 'every one (person, animal, etc.)'
- b. *ã-be-e = wi* (cf. **ã-be-dã, *ã-be-wa*) NOMINAL VERB FORMS
 eat-NEG-MSS = CL.AN.COL
 'the ones who do not eat'
- c. *baja = wi* (cf. **bađa-dã, *baja-wa*) INANIMATE NOUNS
 traditional.songs = CL.AN.COL
 'the group of performers of traditional songs'

These examples illustrate how clitics have greater freedom of occurrence and greater productivity and regularity irrespective of the host they get combined with (as

long as it is a possible host), while affixes are more subject to limitations in their distribution, exceptions, and arbitrariness depending on the specific bases to which they are attached.

The structural composition of a word made up of a stem + affixes is very different from a word composed by a host + enclitics. Enclitics occupy a position that is very similar to that of a root or stem in a compound, following from the fact that enclitics also have an inherent grammatical category (cf. chapter 8). That encliticization and compounding are also phonologically similar can be seen in the fact that enclitics create their own phonological word (compounds in Kubeo are made of two phonological words as well), while affixes are within the same phonological word as the stem to which they are attached (cf. chapter 6.7).

On the other hand, affixes and phrasal affixes are distinct because affixes are part of the inflectional or derivational morphology of words, while phrasal affixes are part of the morphology of phrases (cf. Anderson 2005). Thus only affixes, but not phrasal affixes, can code derivational processes and signal inflection of nouns and verbs, while phrasal-affixes code the syntactic function of phrases (cf. section 6.3.2.2).

Also, affixes in Kubeo code agreement, being present in every word that is in an agreement relation to another word (as the morpheme *-ki* 'masculine' in (6.20) below illustrates); but phrasal affixes do not code agreement necessarily (as the lack of the morpheme *-de* 'oblique' in the Adjective Phrase in (6.20) below can illustrate) (relevant portion of the example is underlined):

(6.20) \bar{i} *ira-ki* *weki-de* *boa-kibe* (cf. phrasal structure [[*iraki weki*]-de])
 he big-MSM tapir-OBL kill-INTR.3MSM
 'he killed the big tapir'

As illustrated in the following section, phrasal affixes are morphemes with syntactic properties: they are attached to phrases that have specific grammatical functions, rather than to words. Thus, their meaning or function involves syntactic features, rather than lexical or morphological features, as affixes do.⁷ In addition, affixes observe selection restrictions relative to particular stems, while phrasal affixes are selected by phrases having particular grammatical functions.

These facts show that the relationship between an affix and its base is more fundamental and less predictable than the relationship between a clitic or a phrasal affix

⁷ With the exception of agreement, which is a syntactic operation expressed by affixes in Kubeo. Nevertheless, the semantics of the features coding agreement in Kubeo are all features that are part of the inherent inflectional system in the language.

and its host. Such an analysis also follows from the general structural template of word formation given in (6.2) above, where affixes are structurally closer to the base than non-affixal bound-morphemes are.

6.3.2.2 Phrasal Affixes. In Kubeo, phrasal affixes are defined as morphemes that are structurally combined with whole syntactic phrases (rather than with words) and are distributed according to specific syntactic functions a phrase might have (e.g. direct object, focus, head of a predicate, etc.). Nevertheless, phonologically they are attached to words (i.e. phonological words, cf. section 6.7.1.2), just as affixes are. Thus, a phrasal affix in Kubeo is "phrasal" in the sense of being a syntactically motivated element, and "affixal" in the sense that it behaves phonologically similarly to affixes.

While clitics and phrasal-affixes have been used as synonyms in treatments of some languages, Kubeo clearly distinguishes them: clitics in Kubeo are phonologically weak but not as restricted in distribution as affixes are (cf. simple "clitics" in Zwicky 1994 and Anderson 2005), while phrasal-affixes have a special syntactic distribution in addition to being phonologically dependent, even more dependent than clitics (cf. "phrasal-affixes" in Selkirk 1984, Zwicky 1994 and Anderson 2005).

The morphemes that have been classified as phrasal affixes in Kubeo are: OBLIQUE CASE (cf. 8.2.2.2), 3RD PERSON GENERAL POSSESSIVE (cf. section 9.2, chapter 9), COPULAS (cf. section 8.2.2), 2ND PERSON INTERROGATIVE (not directly discussed in this dissertation), some FOCUS MORPHEMES (not directly discussed in this dissertation), and several discourse markers.

The distribution of phrasal affixes, as illustrated in example (6.20) above, is similar to that of the English possessive morpheme < 's >: they must be attached to only one word of a particular syntactic phrase. Usually this word is the last in the phrase, following the trend in Kubeo where the majority of bound-morphemes are suffixes and enclitics. The following examples further illustrate this point with the phrasal affixes *-i* 'locative'.

- (6.21) a. *hi #bĩ-i = ki-ba-kadõ-i* [ʰi, mĩki, baka, ẽõĩ]
 MY #go.up-ST = CL.TREE-BE-PST.NMZ.CNT-LOC
 'at the tree I had gone up'
 (cf. phrasal structure [[hi [[[bĩ-i] = ki]-ba-kadõ]-i])

- b. *di = ki* #hipo #koro-i [di'kihi,poko,roi]
 ANPH = CL.TREE #head #liquid-LOC
 'in the top of that tree' (lit. in the headwaters of that tree)
 (cf. phrasal structure [[[di = ki] [hipo koro]]-i])

Nevertheless, the phrasal affix is not governed by the word to which it is attached. The rules of attachment of a phrasal-affix follows simply from phonological rules (after syntax has determined their phrasal affixation).

This point is even clearer with the morpheme *-i* '3rd person possessive', which attaches internally to words in a possession phrase. Usually it is combined with the possessor noun (as in (6.22a) below) but it can also lean towards the possessed noun (as in (6.22b) below), depending on the metrical structure of the word:

(6.22)	MORPHEME GLOSS	METRICAL STRUCTURE	PHONETIC FORM
a.	<i>ĩ-i</i> #jěkõ he-POSS #grandmother 'his grandmother'	(ĩi)(jě'kõ)	[ĩjɛkõ]
b.	<i>põe-ki-i</i> #kũa person-MS-C-PSS #bone 'man's bone'	('põe) < ki > (i'kũa)	['põčkii,kũa]

Whether the phrasal-affix attaches to the first or second word in a possessive construction depends on foot structure: *-i* '3rd person possessive' does not project an independent foot and will be incorporated to the foot whose head is the closest to it.

In appositive phrases (e.g. John, *the big one*, came here) it is possible to have the same phrasal affixes in the two phrases, though this is not the case of agreement (the relevant portion of the example is underlined):⁸

(6.23)	<i>ĩ-ba</i> #te-kebã-awĩ	<u><i>i = e-de,</i></u>	<i>bãhě</i>	<u><i>ã-rãhi = e-de,</i></u>
	he-BE#do-PST.ASM	this = MSS-OBL	OUR.INC	eat-FUT.NMZ.AN.P = MSS-OBL
	<i>epe-ji</i>	<u><i>kai = e-de</i></u>		
	left-NMZ.MSC	every = MSS-OBL		
	'he was the one, who left us <u>these things, everything we would eat in the future</u> '			

That the distribution of a phrasal affix depends on the syntactic function of phrases can be observed more clearly in the behavior of copulas. In (6.24) it is shown

⁸ I assume that appositive constructions do not agree, since they have the same syntactic function and one is not structurally dependent on the other, for example, one could simply say *the big one* came (from the sentence *John, the big one, came*).

how the copula is attached to the phrase that is being focused is shown: in (6.24a) it is attached to the predicate, the default focused element in a copulative clause; in (6.24b) it is attached to the subject, which is being exceptionally focused:

- (6.24) a. ĩ *ira-ki-be*
 he big-MSC-COP.3MSC
 'he is the big one'
- b. ĩ-*be* *ira-ki*
 he-cop.3msc big-msc
 'it is him the big one'

6.3.2.3 Bound-Stem. The bound-stem is a category composed of a single morpheme: -*ba* 'to be'. Its syntactic distribution is the same as the copulas (phrasal-affixes): it attaches to the focused element in a copular clause. The example in (6.25) below illustrate this point. In (6.25a) the bound-stem is attached to the predicate phrase (the default focused element), and in (6.25b) it is attached to the subject phrase, which is being focused in an interrogative sentence (relevant portions of the examples are underlined).

- (6.25) a. *pābĩ-wa* *hi-dō-ba#te-kebāwĩ* *dō*
 Kubeo-AN.P PSS-CONT-BE#do-PAST.ASSUM ANPH.IN.CNT
 'that (previously referred) place was owned by the Kubeos'
- b. *paulo ba #te-di* *ãdĩ = kũ* *hiađo = kũ-de*
 Paul be #do-INTR that = CL.EMB tree.sp = CL.??-OBL
 bohe *a-ji*
 sell make-NMZ.MSC
 'is Paul the one selling that canoe?'

The bound-stem, however, is unique in two important ways. Structurally, despite being based on a bound-morpheme, it can receive affixation or can form compounds, as the examples above demonstrate. Phonologically, it is more similar to affixes and phrasal affixes, except that while it can be the target of nasal harmony it (unexpectedly) never nasalizes a following morpheme on its right (cf. e.g. (3.25) in chapter 3). In addition, the following example shows how the bound-stem can encompass a phonological domain for nasal harmony and still be parsed in the same foot with a

morpheme to its right (for now, "{ }" represents the domain for nasal harmony and "()" represents the domain of a foot, but see section 6.7).⁹

(6.26) MORPHEME GLOSS	DOMAINS	PHONETIC FORM
<i>ki-ki = ta-ba-i-bi</i>	(ki'ki)({ta}(bai}'bi)	[kɨ'ki,tamã ^m bi]
exist-NMZ.MSC = EMPH.FOC-BE-ST-3MSC		
'he is living (alone)'		

6.3.2.4 Clitics. Clitics form a heterogeneous category morphosyntactically, where it is possible to recognize subtypes of clitics according to their structural distribution. In that sense, clitics are different from other bound-morpheme types, which form categories with a homogenous set of morphosyntactic and morphophonological properties.

There are 4 classes of clitics: DETERMINERS, which are the sole proclitics in the language (cf. chapter 9) and phonologically behave differently from enclitics; NOUN CLASSIFIERS (cf. section 8.1.3, chapter 8); DIMINUTIVE (not directly treated in this dissertation); ASSOCIATIVE (not directly treated); and a class of three verbal enclitics: REPORTATIVE EVIDENTIAL (cf. section 8.2.3.1), FRUSTRATIVE; and PROBABLE MODAL.

All clitics form a single phonological word with their hosts (cf. section 6.7.1.2). Nevertheless proclitics and enclitics behave differently to the way they are integrated into the phonological word from a lexical item.

Determiners, as the sole proclitics in Kubeo, can have unusual phonological properties. First, as introduced in chapter 3 (section 3.2.2) the 'anaphoric determiner' *di* has cases with regressive nasalization, which, given that regressive nasalization is subject to speakers' variation, suggests that the determiner was reanalyzed as part of the stem it was combined with. The words in (6.27) below gives additional examples of this. See (6.28) for a contrast with other forms where the determiner was not lexicalized:

(6.27) a.	<i>dīdībĩ</i> [nĩ'nĩmĩ]	←	<i>di = dībĩ</i> (also an existing form)
	'in that time'		ANAPH = day/time/epoch
			'in that time'
b.	<i>dīhĩe</i> [nĩ'hĩẽ]	←	<i>di = =hĩ-e</i> (not attestable form)
	'those little things'		ANAPH = DIM-MSS

⁹ The nasal domain is triggered by the clitic =ta 'emphatic focus' which has floating nasality (cf. section 3.3, chapter 3). This morpheme also constructs a degenerate foot, as all clitics do if they have no affix, and is the point where the rule PERSISTING FOOTING departs to parse the portion of the word containing the bound-stem and its affixes (cf. chapter 4).

- (6.28) a. *di = dōbĩ-wa* [di'nōmĩwã]
 ANAPH = woman-AN.PL
 'those women'
- b. *di = = hĩ-dō* [di'hĩnō]
 ANAPH = = DIM-CNT
 'that little place/thing'

In addition to those few exceptional behaviors regarding regressive nasality, determiner proclitics such as *i =* 'this' and *di =* 'anaphoric' also causes a stress shift in a word as exemplified below, where the word in (6.29a) is in isolation and in (6.29b) is combined with a proclitic:

- (6.29) a. *hobo-dō* [ho'boĩō]
 earth-IN.CONT
 'piece of land, territory'
- b. *i = hobo-dō* [i'hoboĩō]
 earth-IN.CONT
 'that land, territory'

This poses a problem for phonological rule ordering, addressed in section 6.7.2.

Enclitics, on the other hand, project their own foot (and their own phonological word, cf. section 6.7). Nevertheless, clitics are integrated into the phonological word of a lexical entry, which implies that syllables left unparsed by a foot in a lexical entry can be adjoined to a clitic foot (cf. chapter 4, and e.g. (6.83) and (6.84) in section 6.7.2). In addition, clitics have no underlying tones, a property only found among lexical entries.

Clitics are never the targets of nasal harmony, which makes them distinct from other bound-morphemes and more similar to stems in a compound word, where nasal harmony also does not target different stems (cf. section 3.2.1, chapter 3).

Morphosyntactically, clitics have different properties. Determiner clitics precede the head noun as other determiners do (cf. chapter 9). Noun classifiers and the Diminutive are very similar to most inanimate count nouns: they are inflected for number and gender (the latter is only valid for the Diminutive), participating in agreement and forming words very similarly to stems in a compounds (cf. section 8.1). The verbal enclitics are usually the last morpheme in the verbal word, while the Frustrative can be inflected, though for a few discourse markers (phrasal-affixes) that can follow them.

Thus, clitics must be understood as a collection of morphemes that only share a single, but important feature: being prosodically dependent on a host. What remains to be said about clitics needs to be stated in more particular terms to the individual morphemes or class of morphemes that form this category. Such a *state of affairs* justifies the heuristic representation of clitics in a cline such as (6.13).

6.4 Compounds

6.4.1 General Properties of Compounds. Compounds in Kubeo can be defined as:

- (6.30) i. Words composed by at least two stems;¹⁰
- ii. Stems with fixed word order;¹¹
- iii. Functioning as a single word for syntactic and inflectional purposes;
- iv. Having two or more separate metrical domains (i.e. two phonological words, cf. section 6.6) and a single primary accented syllable.
- v. In addition, the possibility of the stems in a compound being bound to a single tone melody, despite containing two different phonological words with distinct underlying tonal properties.¹² Cf. chart (6.12) for additional phonological features of compounds.

Given that compounds can be divided in at least two stems, I will use the code S1 to refer to the left-most stem in the compound and S2 to the right-most stem.

The form of stems in compounds can vary from monomorphemic bare stems (i.e. stems isomorphic with their roots), as in (6.31a) below, to multimorphemic stems, as in (6.31b) where S1 is multimorphemic, in (6.31c) where S2 is multimorphemic, and (6.31d) where both stems are multimorphemic:

- (6.31) a. *hipo hia* [hi'po ,hia]
 head flesh
 'brain'

¹⁰ Most compounds are based on bare-stems, which are isomorphic with their roots. Every stem in a compound is a phonological word of its own, which is the main reason not treat them as roots, which are analyzed as abstract lexical representations (cf. section 6.3.1).

¹¹ This point is important because the overall syntax of Kubeo allows a very flexible word order. Hence, compounds, with a fixed word order, are clearly distinct from syntactic structures.

¹² This occurs only when each stem corresponds exactly to one foot, so TONE SPREADING will apply to both feet, crossing over a stem boundary and erasing the underlying tones from the right-most stem (cf. chapter 4).

- b. *jako= dī kahe* [ɕa'koɽi ka,he]
 eye = CL.RND skin
 'eye lid'
- c. *bōa boa-jī* ['mōã boa,ɕi]
 fish kill-NMZ.MSC
 'a fisherman'
- d. *dī-i pōe-wa* ['nĩ pōẽwã]
 go-ST person-AN.P
 'the travelers'

One can tell that compounds are composed by stems, rather than by merely roots, because every stem in a compound is an independent metrical domain and has its own stress, just like each simplex word in Kubeo (cf. chapter 4). Of course, each stem in a compound cannot be a full word, despite the fact that they fulfill the phonological requirements of wordhood. Thus, a stem in a compound can correspond to a full word in the Kubeo lexicon or to a DEPENDENT STEM (i.e. not an actually occurring word, cf. section 6.3.1). Cf. section 6.4.3 for more details of compound and other word formation processes.

Compounds also have their own grammatical category (noun, verb, adjective or adverb). The grammatical category of a compound is usually determined by the stem that is the head of a compound, and this can be diagnosed by the type of affixation it takes and also by the syntactic function it assumes (see section 6.4.2). Most compounds are headed by the right-most stem, though a few compounds can be headed by the left-most stem. The following chart represents the possible categories of compound words and their internal composition, with the head of the compound in bold:

(6.32) *Table 4: Compound Types*

S1	S2	Compound Type	GRAMMATICAL CATEGORY
Noun	Noun	GENITIVAL COMPOUND	NOUN
Determiner	Noun	DETERMINATIVE COMPOUND	
Adjective / Participial	Noun	ATTRIBUTIVE-NOUN COMPOUND	
Noun	Adjective / Participial	NOUN-ATTRIBUTIVE COMPOUND	
Noun	Noun	APPOSITIVE COMPOUND	

Verb	Verb	VERB COMPOUND	VERB
Noun	Verb	NOUN INCORPORATION COMPOUND	

The rationale for the terminology employed for each compound type is the relation that the complement stem has with the head stem. I discuss each of the compound types in the next section.

Compounds in Kubeo are relatively more productive than in other more well known languages. It is the basis for several grammatical processes, including derivation and inflection.

In simple structural terms, Kubeo distinguishes between two types of compound words: compounds composed of two stems only, and *composite compounds*, which are composed by more than two stems, i.e. by a compound plus another stem. This can take the form COMPOUND + STEM as in (6.33a) below (which is by far the most common), or STEM + COMPOUND as in (6.33b) (internal syntax of compounds is represented by curly brackets):

(6.33) a. {{*japi tibĩ*} *kũa = ðo*} [ɕa'pi ti mi | kũãðo]
 belly back bone = CL.LONG
 'Spine' (lit. the bone from the back of the belly)

b. {{*abiho {ãja hipo = bi}*}} ['abi ho ã ðã hi | pobi]
 mantis snake head = CL.CONT
 'A mantis species' (lit. a snake-headed mantis)

In addition, it should be noticed that compounds are clear examples of how phonology and morphology are at the same time independent and integrated modules of the grammar. While most compound heads are the right-most stem, phonologically compounds are governed by the properties of the left-most stem, which can control the tone melody of the entire compound and always receive the primary stress (cf. chapter 4).

6.4.2 Compound Types. This subsection discusses the types of compounds as outlined in table 4 in (6.32). The internal structure of each type, their semantics, and their behavior regarding morphology and syntax are demonstrated.

6.4.2.1 Genitival Compound. Genitival compounds are named as such because a noun in S1 (complement) position is modifying the head noun. It does not code primarily possession, though, which technically is a subtype of what is understood by the genitive

case cross-linguistically. Possession in Kubeo is more generally realized by a specific set of possessive morphemes (cf. section 6.4.2.2 and chapter 9). The genitival compounds could be interpreted to code possession only in cases of "inanimate possession", which however might not be truly a case of possession, but of part-and-whole relationship, as in (6.34) below. In addition, see section 9.2, chapter 9, for a more in-depth discussion of "inanimate possession".

The sorts of semantic relations that a noun can establish with another noun in Kubeo genitival compounds are illustrated in the following examples. I give a heuristic semantic label for each compound in order to compare the semantic relations between the stems with what is traditionally understood under the function of the genitive case:

PART OF WHOLE

- (6.34) a. *ũe* #*kobe*
 nose #hole
 'nostrils'
- b. *hãrãwi* #*korika*
 day #center/half
 'noon'

PLACE

- (6.35) a. *bãkã* #*hita = bi*
 jungle #lake = CL.CONT
 'lake'
- b. *hipo* #*koro*
 head #liquid
 'headwaters' (or figuratively 'the upper most part' of many things)

SUBSTANCE

- (6.36) a. *pãbĩ* #*kãrãbĩ*
 kubeo #house
 'long-house' (or with more recent connotation 'traditional type of house')
- b. *kuitote* #*kahe*
 cotton #skin/bark
 '(western) clothes'

DEFINITION

- (6.37) a. *hãrãwi* #*põe-ki*
 day #person-MS

'mythological ancestor/a person from the primordial times'

- b. *jawi* #*tākũ* = *we*
 jaguar #gap = CL.BLADE.
 'the Iauaretê rapids'¹³

ATTRIBUTIVE

- (6.38) a. *ã-i = e* #*biki-ki*
 eat-ST = MSS #old/great-MS
 'the lord of food' (mythological character)
- b. *bĩ* #*jawi*
 bird #jaguar
 'Harpy eagle' (lit. the jaguar-bird)¹⁴
- c. *jawi* #*bĩ*
 jaguar #bird
 'Fork tailed flycatcher (bird sp.)' (lit. the bird-jaguar or the bird-shaman)¹⁵

The noun stem in these compounds can be a non-derived noun (such as the majority of the stems above) or a derived noun (such as S1 in (6.38a) above). A derived noun must be nominalized before entering in a nominal compound, discussed in section 6.4.3.

Nominal compounds are inflected by nominal morphology. The type of inflectional morphemes a compound takes follows from the subcategory of the head noun, including exceptional inflectional morphemes. In the examples below, (6.39a) represents a compound with a regularly inflected animate head noun, while (6.39b) has an irregularly inflected animate head noun:

- (6.39) a. *bãkã* #*wekĩ-wa*
 jungle #tapir-AN.P
 'tapirs'
- b. *dõbĩ* #*pãrãbẽ-dã*
 woman #grand.child-AN.P
 'the Amazon warriors' (lit. grandchildren of the women)

¹³ A calque: Iauaretê from Lingua Geral means 'jaguar' and a particular settlement in the Vaupes river.

¹⁴ The harpy eagle is notorious for its hunting ability, some saying it can grab monkeys and deer with its powerful claws. Thus the metaphor in calling it a jaguar with the attribute of being yet a bird.

¹⁵ The word *jawi* means both 'jaguar' and 'shaman'. The flycatcher has great importance in shamanism in Eastern Tukanoan cosmology (p.c. Luís Cayón, 2011).

The syntactic function of nominal compounds is the same of nouns. This can be seen in the example below, where the compound is combined with the direct object marker *-de* 'oblique':

- (6.40) *bui #jawi-de hẽ-bi*
 agouti #jaguar-OBL catch-3.MSC

'he caught a Bush-dog ("wild dog")'

6.4.2.2 Determiner Compound. Most determiners establish with their head nouns a compound structure, according to the criteria given in (6.30). A few other determiners are actually proclitics (as mentioned in section 6.3.2.3). The following compounds represent determiner compounds.¹⁶

DEMONSTRATIVE

- (6.41) *ãdĩ #dõbĩ-wa*
 that #woman-AN.P
 'those women'

NUMERAL

- (6.42) a. *pika #bã-a*
 two #path-IN.P
 'two paths'
- b. *kuina #biki = hĩ-ko*
 one #OLD = DIM-FEM
 'one little lady'

QUANTIFIER

- (6.43) a. *kai #hãrãwi-a*
 every #day-IN.PL
 'all the time' (lit. every days)
- b. *obe-di #pãbĩ-wa*
 be.many-NMZ #kubeo-AN.PL
 'many Kubeos'

POSSESSION

- (6.44) a. *bãhẽ #pa-ki*
our.incl #parent-MS
 'our father'

¹⁶ See chapter 9 for a definition of quantifiers, numerals, etc. as determiners in Kubeo.

- b. *'hi #pãrãbẽ-dã*
 my #grandson-AN.PL
 'my grand-children'

ALTERATIVE

- (6.45) *ape #põe-wa*
 other #person-AN.PL
 'other people'

Determiner compounds are a productive grammatical process in the language. They have the same phonological and structural properties of other compounds in the language (cf. (6.30)), showing that compound is a productive device for several grammatical purposes, and not only for the creation of words.

Although most of the determiners above are in their bare-stem form, under special, but common circumstances (discussed in chapter 8 and 10) determiners and their head nouns can agree. When this happens, one can either get a compound with two inflected words (S1 and S2), or the formation of two syntactic phrases, rather than a single compound.

The grammatical class of determiner compounds is nominal, according to their head noun's morphological class, just like for the genitival compounds in section 6.4.2.1. Determiner compounds behave syntactically as NPs, as demonstrated in example (6.46) where a determiner compound is the sole argument (subject) of an intransitive verb:

- (6.46) *ape #biki-ki eda-abẽ*
 other #ancestor-MSC arrive-II.3MSC
 'another one of our fathers (ancestors) arrived'

6.4.2.3 Attributive-Noun Compound. An attributive-noun compound has an adjective or a nominalized verb form of a verb in S1 position, modifying the head noun in S2 position, highlighting an inherent property of its referent. This type of compound is the most common way an adjective (or nominalized verb) can modify a noun. The followings are some examples of this type of compounds with adjectives in (6.47) and nominalized verbs in (6.48):

- (6.47) a. *ira #koro*
 big #liquid
 'heavy rain season'

- b. *bābā* #*oko*
 new/early #water
 'early rainy seasons' (lighter rains than in *ira koro* from above)
- c. *bābā* #*hieđo*
 new/early #kid
 'oldest son, the firstborn'
- d. *biki* #*põe-wa*
 old/great #person-AN.PL
 'sacred trumpets'¹⁷
- e. *ira* #*imarõ*
 big #village
 'town, city, or simply a big village'
- f. *bēa* #*hārāwi*
 good #day
 'a bright, sunny, hot day'
- (6.48) a. *jai-di* #*hihe#kāmũ*
 be.fast-NMZ #lips#mouth
 'a person who speaks too much about himself/herself'
- b. *bāhi-di* #*põe-wa*
 know-nmz #person-an.pl
 'the people who know (traditional knowledge bearers)'
- c. *eko-i* #*kobe*
 enter-ST #hole
 'entrance door'
- d. *pupu-i* #*ābīja*
 heal-ST #name
 'traditional baptismal name'

As can be seen from these examples, there are many compounds that have become lexicalized, referring to a definite referent. In other usages, though, attributive-noun compounds have an indefinite referent. This is because one of the most common

¹⁷ Flutes used in rituals regionally known as "Jurupari". The trumpets are regarded as the embodiment of mythological ancestors.

grammatical functions they fulfill is to code agreement (cross-referencing) with a different head noun in the clause/NP. Such as for instance in the example below:

- (6.49) *okoji-wa #dōbĩ-wa bēa #dōbĩ-wa-bu*
 wanano-AN.PL #woman-AN.PL beautiful #woman-AN.PL-N.3AN.SG.COP
 'The Wanano women are beautiful' (lit. [...] are beautiful women)

Since the noun in attributive-noun compound is in agreement with another noun, it has no definite or specific reference; only the head noun of the entire NP carries more detailed semantic information about its referent (*dōbĩwã* 'women' in (6.49) above). This is another piece of evidence that compounds are important devices for coding general grammatical functions, as well as creating new lexical items.

The syntactic category of a predicative compound is that of an NP, as demonstrated below where a compound is being determined by a possessive and is the subject of the clause:

- (6.50) *hi bābã #hieđo pōe#te-bi*
 my new/early #kid person#do-3msc
 'my first son has born'

6.4.2.4 Noun-Attribute Compound. Noun-attributive compounds have nouns in S1 position and adjectives in S2 position. The adjectives code an inherent property of the nouns in S1 position, but differ from attributive-noun compounds, where the nouns in a noun-attributive compound have a generic referent. Hence, their most common function is to code names of natural species, as in (6.51) below and classes or type of things, as in (6.52).

- (6.51) a. *ãi #jēbĩ-ki*
 anaconda #black-MSc
 'anaconda sp.'
- b. *bũjũ #bo-ki*
 piranha #white-MSc
 'white piranha'
- c. *bã #hĩbẽ*
 macaw #green/blue
 'blue macaw'

- d. *'wawi* #*hũa-ko*
 sardine.sp #red-FEM
 'freshwater sardine sp.'
- (6.52) a. *hoki* #*biki-dõ*
 tree #great-CNT
 'upland forest' (versus inundated forest type)
- b. *oko* #*bo*
 water #white
 'white/transparent water' (versus black or brownish water types)
- c. *hobo* #*hiti-dõ*
 earth #sticky-CNT
 'muddy land' (in contrast with other types of land)
- d. *awiá* #*bãbã-ki*
 sun/moon #new-MS
 'new moon'

A first morphological difference noticed between attributive-noun compounds and noun-attributive compounds is the fact that in the latter type certain kinds of stative verbs (mostly color terms, but also a few others, cf. chapter 8) can participate in a compound with their bare stem form (as in (6.51c) and (6.52b)), while in attributive-noun compounds the same type of words always must be in their nominalized verb form (similarly to (6.48a,b) above).

Even though both types of "attributive" compounds have lexicalized tokens, it seems that the noun-attributive type has proportionally more lexicalized tokens. Differently from attributive-noun type of compounds, the noun-attributive type can only occupy the head of an NP and has never been found in a modifier relation with another noun.

A peculiarity of noun-attributive compounds is that no matter what is the category of the stem in S2 (attributive) position, the whole compound will always take a stative nominalized verb deverbal form. This can be shown by the example below, where the adjective *ira* 'big' is in S2 position and is followed by a nominalized verb suffix. What is awkward about it is that this adjective never takes any kind of inflection nor derivative verbal morphology, which implies that is the whole noun-attributive

compound being combined with the nominalized verb suffix (rather than the adjective *ira* 'big' alone).

- (6.53) *dōbĩ-wa* [*kĩbo = ba* *ira*]-*di = wi*
 woman-AN.P foot = CL.TIED.UP grande-NMZ = CL.AN.COL
 'big footed women'

Nevertheless, the syntactic category of noun-attributive compounds is that of an NP, as the example below can demonstrate by showing a compound as the sole argument (subject) of an intransitive verb.

- (6.54) *piaja* *#jēbĩ-ki* *hioroho-i* *ki-abē*
 jay.bird #black-MS abandoned.garden-LOC exist-PAST.3MSC
 'the Black Jay lives in the abandoned garden areas'

The noun-attributive type of compound is definitely an interesting problem for the definition of what are the head and the complement, given that morphologically it behaves as S2 is the head, though syntactically it takes its category from S1. Since most compounds in Kubeo is headed by S2, this is even a greater theoretical issue.

6.4.2.5 Appositive Compounds. Appositive compounds have head nouns in S1 position and another noun (including derived nouns) in S2 position, specifying a particular feature form the head noun's referent. In semantic terms, it is similar to the noun-attributive type. I give below a few of the existent appositive compounds in Kubeo:

- (6.55) a. *ōari* *#bākã-rō = ka = ki*
 pig #jungle-CNT = ORG = MSC
 'peccary' (lit. pig from the jungle)
- (6.56) a. *awia* *#hãrãwi = ka = ki*
 sun/moon #day = ORG = MSC
 'Sun' (lit. sun/moon from the day)
- b. *awia* *jãbĩ = ka = ki*
 sun/moon #night = ORG = MSC
 'moon' (lit. sun/moon from the day)

In addition, many composite compounds of the type *stem + compound* are based on appositive compound types.

6.4.2.6 Verb Compound. Verb compounds have a verb as the head in S2 and either a verb in bare stem form or in an affixed form in S1 position. Head verbs must be either

inflected or deverbalized. The following examples compare the two types of verb compounds:

- (6.57) a. *doba #te-di*
 sit #do-INTR
 'did he sit?'
- b. *běa #ja-ha-ki*
 good #make-IMP-MS
 'fix it!/make peace with/be cautious'
- c. *hatu #da-ha-dã*
 embark #come-IMP-AN.P
 'come with us embarked in the canoe'
- (6.58) a. *'hi õpõ #boa-i=e-de wi-dĩ dĩ-bi 'bĩ=hĩ-ki*
 my thunder #kill-ST=MSS-OBL fly-CNV go-3MSC bird=DIM-MS
 'When I shot the bird, he flew, going away'
- b. *kaparo ti-de #ja-kibe kawabi-de*
 wooly.monkey fall-INF #make-INFRR.3MSC branch-OBL
 'the wooly monkey made the branch fall'

Verb compounding in Kubeo are very productive, especially for some inflectional and derivational process of stative verbs as in (6.57) above (see also section 8.2, chapter 8). I extend the term "verb compounding" to forms such as (6.58) where S2 verbs are affixed because phonologically and structurally the affixed and the bare stem forms have the same properties (cf. definition of compounds in (6.30)). Although the affixed forms indicate subordination, I interpret that some forms of subordination in Kubeo are coded by compounds, similarly to the treatment of other inflected or derived nominals in S1 position. This particular view of compounds coding more syntactic or grammatical process is pervasive in Kubeo, where compounds are very productive, coding not only lexical but several grammatical process.¹⁸

Some particular grammatical forms require either one or another type of verb compound. Nevertheless it is possible to test their difference on semantic grounds in a few forms, such as in the difference between the forms in (6.59) and (6.60):

- (6.59) a. *hatu #da-ha-dã*

¹⁸ Some particular tokens of converb verb forms are better analyzed as subordination in a syntactic fashion, though this is not the case for the words in example (6.58).

- embark #come-IMP-AN.P
'come embarked with us in the canoe'
- b. *hatu-dī* #*da-ha-dā*
embark-CNV #come-IMP-AN.P
'embark and come with us in the canoe'
- (6.60) a. *dā* *hiejo* *kīwa* #*te-kebā-awĩ*
they kid have #do-PST.ASM-II.1/2/3IN
'they had a child'
- b. *dē* #*bahu* *hiejo* *kīwa-dī* #*te-kemawĩ*
they #self child have-CONV #do-PAST.ASSUM
'having a child among themselves (incest), that is what they did'

The constructions with a converb¹⁹ (see section 8.2.4) in S1 position clearly separate two different but connected events, while the constructions with a bare verb stem in S1 simply fuse the meaning of the two verbs into a single event. Please also notice that the verb *te* 'do', as in the construction (6.60a), has a very high functional load in Kubeo grammar, being the principal way for stative verbs to code a past situation time (see also (6.57a) above and cf. section 8.2.1 and 8.2.1.1, chapter 8).

Still, in both types of verb compounds, one can observe similar semantic bleaching processes in S2 verbs, which are evidence for increasing grammaticalization of some verbs in that position (cf. chapter 8).

The inflectional markers in the verb compounds above demonstrate their morphological category and their syntactic function as heads of a predicate.

6.4.2.7 Noun Incorporation Compounds. In this type of compound the noun in S1 position modifies the verb in S2 position. Nouns can be incorporated both to transitive and to intransitive verbs, as the examples below show:

(6.61) INTRANSITIVE VERBS

- a. *ire* *bōa* #*boa-kibe*
much fish #kill-INFR.3MSC
'he caught many fish'
- b. *bābĩ* #*ti-i = dō*

¹⁹ The converb construction in Kubeo corresponds in functional terms to the serialized verb construction in other Tukanoan languages.

umarí.fruit #fall-ST = CNT
 'umarí fruit season' (lit. umarí falling)

- c. *'hi* *kĩrã* *#te-ki=e*
 my house #do-FUT.NMZ = MSS
 'my construction' (LIT. MY HOUSE TO BECOME)
- d. *ũbẽ* *#da-ki-di*
 breath/soul #come-FUT.NMZ-INTR
 'will he recover?' (lit. will his vitality come (again)?)
- e. *wio* *#'jawa-jĩ*
 cheek #speak-NMZ.MSC
 'the one who is yawning'
- f. *ãtʃi* *#doba-ki*
 ancestral.knowledge #sit-NMZ.MSC
 'the person being prepared for initiation rites in to his ancestral cults'

Examples (6.61e) and (6.61f) are nominalized verb forms. As such they preserve the syntactic subcategorization of the original verbs (cf. section 8.2.4, chapter 8).

(6.62) TRANSITIVE VERBS

- a. *butʃi* *#dũ-ha-ki*
 tobacco #suck-IMP-MSC
 'Smoke tobacco!'
- b. *ãbĩ* *#do-kebã-awĩ*
 name #stick.into-PST.ASM-II.1/2/3IN
 'he named/baptized (them)' (lit. he stuck a name into them)
- c. *kii* *#do-a-i=dõ*
 manioc #stick.into-CAUS-ST = CNT
 'to plant (stick) manioc sticks into ground'
- c. *hio* *#bure-kojome*
 garden #wipe.away-FUT.3FEM
 'she will clean her garden'
 (i.e. clear the trees in the area where a garden will be made)

- d. *ũbẽ* *#ĩ-ki* *eta-bi*
 breath/soul #take-NMZ.MSC leave-3MSC
 'He came out (from the water) in order to get some air'
- e. *pĩri = ka* *#aja-i = e*
 hand = CL.ROUND.SMALL #put.onto-ST = MSS
 'bracelet/wristlet' (lit. things one puts onto the wrist)

Examples (6.62c) and (6.62f) are nominalized verb forms. As such they preserve the syntactic subcategorization of the original verbs (cf. section 8.2.4, chapter 8).

The data above show that noun incorporation in Kubeo is really morphological, and not syntactic, as can be argued for some particular languages. This is evidenced by two facts: first, there is no syntactic motivation, such as argument projection, that could justify the incorporation of nouns in intransitive verbs; second, nouns alter the head verbs not necessarily in purely syntactic terms, but can also add or delimit in certain aspects the head verb's meaning in ways that are different from the types of semantic delimitation between a verb and its direct object.

6.4.2.8 "Exocentric" compounds. A few compounds in Kubeo have been observed to bear semantic and formal properties similar to the compounds known as the "exocentric" type. In these compounds, the semantics and the category of the compound are not directly derived from any of its stems. The following are three examples of this type of compounds in Kubeo.

- (6.63) a. *põe* *#eta = ki*
 person #leave = CL.MSC
 'the one who emerged from the hole of creation'
- b. *kuidã* *#ope-ko*
 one #breast-FEM
 'The madremonte/curupira, a forest mysterious entity'
 (lit. single-breasted)
- b. *jai* *#kawe*
 heron #wing/feather
 'fish sp.' (lit. heron's feather)

In (6.63a) S2 is a verb and it is definitely not a case of verb incorporation. In (6.63b,c) an inanimate noun is in S2 position, though both compounds refer to animate beings.

All compounds behave just like other nominal compounds, though an interesting property that has been observed with regard to the compound in (6.63a) is that it is inflected for plurality not based on any inflectional affix, since it is not headed by any noun stem, but by a classifier, as illustrated in example (6.64):

- (6.64) *põe* #*eta = wi*
 person #leave = CL.AN.COLL
 'the people that emerged from the hole of creation'

The compound does not take its morphological category from the noun *põe* 'person' either, which can be inflected by affixes, e.g. *põe-wa* 'people'.

6.4.3 Interrelations between compounding and stem formation rules. This section summarizes and develops further the relationship between compounds and stem formation processes.

It has been shown that stems in a compound can either be in their bare form or in a morphologically complex form. This is not a trivial issue, though, and has several grammatical implications.

For instance, the generic word for 'hummingbird' is *bĩbĩ = jo* (hummingbird = CL.LONG.). There are species of hummingbirds, such as in (6.65a) below, which take the full word *bĩbĩ = jo* 'a hummingbird' as the head of compounds. Some other bird species (natively classified as hummingbirds) actually take only the stem *bĩbĩ* 'hummingbird' and a gender suffix, as in (6.65b).

- (6.65) a. *tãu* #*bĩbĩ = jo*
 metal/glass #hummingbird = CL.LONG.
 'Blue-throated Starfrontlet'
- b. *horo* #*bĩbĩ - ki*
 clay #hummingbird-MS
 'Purple Honeycreeper'

The surface form **bĩbĩ - ki* does not exist as an actual free-standing word in Kubeo, which implies that the affix *-ki* 'masculine' is attached to the whole compound word. Thus, example (6.65a) can be morphologically segmented as [[*tãu*] [*bĩbĩjo*]], while example (6.65b) is segmented as [[*horo*] [*bĩbĩ*]]*ki*.

Similar cases can be observed in the distinction between noun-attributive and attributive-noun compounds (cf. section 6.4.2.4). In the latter, some stative verbs must be inflected in their nominalized verb form before modifying the head noun in the compound, while in the latter type, those same verbs can stay in their bare-stem form.

In addition to that, it will be recalled that the exceptional nominalized verb affixation in noun-attributive compounds is not motivated by any stem within the compound, but is affixed to the compound as whole, revealing that this type of morphology is a typical feature of noun-attributive compound type (cf. example (6.53) in 6.4.2.4).²⁰

Rule ordering between stem affixation and compound formation can be seen more dramatically in the following case, where a compound formed by an intransitive verb and an incorporated noun is concatenated with a causative suffix, such as exemplified in (6.66) below:

- (6.66) a. *ũbẽ* #*da-wĩ*
 breath come-N.3.AN
 'I recovered from an illness/faint'
- b. *ĩ-de* *ũbẽ* #*da-wa-wĩ*
 he-OBL breath #come-CAUS-N.3.AN
 'I made him recover/get better'

It is clear that the function of the stem *ũbẽ* 'breath, soul' is the same in both sentences with respect to the intransitive verb stem *da* 'come'. The stem *da-wa-* exists in the Kubeo lexicon as the word for 'to bring' (lit. 'make it come'). Nevertheless, it needs to be recognized that the compound *ũbẽ#da* (breath#come) 'recover' is formed before the concatenation with the causative.

The following example shows exactly the opposite, i.e. the causative is combined with a verb stem before forming a noun-incorporation compound with a noun:

- (6.67) *peka* #*da-wa-ha-ki*
 fire.wood #come-CAUS-IMP-MS
 'bring fire-wood!'

One can be certain this structure is a compound due to its phonological (cf. section 6.1) and syntactic properties: if *peka* 'firewood' were not part of the compound, it would be expected to have case marking.

Thus, example in (6.66b) can be segmented as [[*ũbẽ da*]-*wa*] and example in (6.67) can be segmented as [*peka* [*da-wa*]].

What this section has highlighted is that compounds involve a type of word-formation process that is on the same level as stem formation, so it can receive the same

²⁰ The same reasoning applies to the coding of plurality in the "exocentric" compound type (cf. section 6.4.2.8).

type of affixation as stems and can either precede or follow the formation of a stem. Consequently, compounds and stems can behave similarly with respect to inflection and syntax (as all of section 6.4.2 demonstrates).

6.4.4 Compounds and Grammaticalization. As a final remark about compounds, it should be said that stems in S2 position are very susceptible to different linguistic processes, such as phonological reduction, semantic bleaching and reanalysis. Several properties of compounds favor these processes, such as:

- i. Phonologically, stems in S2 position are in post-accented position, and can often be toneless, compromising the distinctiveness of their production and perception;
- ii. Semantically, as stems are recurrently used in different compounds under different syntactic and discourse conditions, they lose more lexical-like meaning and develop more functional-like meaning;
- iii. In addition, as these stems are used more frequently in certain specific discourse and syntactic functions, they can be reanalyzed as lexical items distinct from their original lexical entries, or even the entire lexical entries end up being reanalyzed as functional morphemes.

The phonological similarities between compounds and clitics are strong evidence that (most) clitics were S2 words in compounds in the past. Also many clitics can be inflected, which also shows that they were full lexical entries once. Another type of example of grammaticalization of stems in S2 position can be seen in verbal periphrastic constructions coding modality and aspect (not directly discussed in this dissertation).

6.5 Reduplication

Reduplication is another word-formation process in Kubeo, though with relatively less importance in comparison with compounds, affixation, and cliticization. It seems to be productive only among verbs and mostly codes repetition or extended duration of an event.

There are two types of reduplication in Kubeo: in one, the syllabic type, the onset and one nuclear vowel from the root is reduplicated, and another where a whole stem is reduplicated. Starting with the syllabic type, I show in (6.68) the pattern of reduplication for monosyllabic roots, and in (6.69) the pattern for dissyllabic roots,

where only the last syllable is reduplicated. The semantic change involved in the reduplication processes should be noticed, seen in the comparison of the first and second columns below:

(6.68)	MONOSYLLABIC ROOTS	→	DISSYLLABIC REDUPLICATED STEMS
a.	<i>kũ#</i> 'bite'		<i>kũkũ#</i> 'bite several times'
b.	<i>tã#</i> 'kick'		<i>tãtã#</i> 'kick several times'
c.	<i>tĩ#</i> 'fall'		<i>tĩtĩ#</i> 'keep falling and falling'
d.	<i>po#</i> 'to heat (blaze)'		<i>popo#</i> 'to get dry'
e.	<i>pu#</i> 'fire a blow-gun'		<i>pupu#</i> 'heal blowing tobacco' ²¹
f.	<i>wai#</i> 'pass by'		<i>wawai#</i> 'march, hike'

(6.69)	DYSSYLLABIC STEMS	→	TRISYLLABIC REDUPLICATED STEMS ²²
a.	<i>jatowa#</i> 'to transport crossing a river'		<i>jatotowa#</i> 'to transport crossing a river several times'
b.	<i>pẽwã#</i> 'punch with wrist and hand'		<i>pẽwãwã#</i> 'punch several times'
c.	<i>tota#</i> 'hit'		<i>totata#</i> 'to pinch with a stick several times'

A key feature of reduplication of monosyllabic roots is that stress predictably maintains the iambic template. In addition, the example in (6.68f) shows that reduplication follows a template where the syllable is reduplicated, but only one mora is copied. Reduplication of dissyllabic stems show that Kubeo reduplicates the stressed syllable only.

The following examples illustrate cases of stem reduplication:

(6.70)	a.	<u><i>kũ-i</i></u>	<u><i>#kũ-i</i></u>	<i>#i-bi</i>		
		bite-ST	#bite-ST	#want-3MSC		
		'he intensely wants to bite'				
	b.	<i>kai</i>	<i>#hãrãwi-de</i>	<u><i>bĩ-de</i></u>	<i>bĩ-de</i>	<i>#a-jĩbẽ</i>
		every	#day-OBL	blink-INF	blink-INF	make-ASS.3MSC
		'every day he blinks a great deal'				

In these examples, the whole stem – a base and an affix – is reduplicated. Interestingly both are lexical verbs, followed by an auxiliary, within a compound structure.

²¹ Blowguns are 'fired' by a single strong blow or puff. A ceremony to heal or enchant blowing tobacco involves several blows of smoke from the shaman to the person being healed.

²² All data in (6.69) are from Nancy et. al. (2000).

6.6 Complexity in Paradigmatic and Syntagmatic morphology

Kubeo morphology, as it relates to word formation, syntax, phonology and grammatical categories, offers solutions to system-internal complications or complexity that are of interest for general theories of morphology. The internal causes of these problems are rooted in the interrelation among the following elements:

- a) A STRONG TENDENCY TO AGGLUTINATION and its consequence for causing previous syntactic structures to evolve into word-level (morphological) structures, which ultimately has increased the number of morpheme types, the functional load of morphology, and requires different means to make structures more distinct;
- b) SHORT MORPHEME SHAPES, where bound-morphemes are generally monosyllabic and roots are often disyllabic or monosyllabic, causing the underlying structures of morphemes to bear less contrasting phonological features, which overload the task of morphophonological processes;
- c) SMALL PHONEMIC INVENTORY, which decreases the amount of available segmental materials to make morphemes and words distinct;
- d) A COMPLEX PROSODIC SYSTEM, which, while compensating for the small segmental inventory in its role of making expressions more distinct, also causes internal complications for the whole system, given that each word-level prosodic component (stress, tone and nasality) has its own underlying and morphophonological rules, requiring L1 learners of Kubeo to pay attention to several distinct modules in morphophonology;
- e) FORMAL ASYMMETRIES IN CODING INFLECTIONAL(-LIKE) CATEGORIES, which make paradigms less regular and require the use of more diverse and complex structural means in word-formation.

The interaction of these elements causes overall problems in Kubeo morphology in the way morphemes are paradigmatically and syntagmatically interrelated. Many verbal paradigms have partial homophonous forms, which are segmentally identical, though they can be distinguished solely on the basis of their membership to a morpheme type category.²³ Given that morpheme types categories are cluster of phonological and structural properties, ultimately such a partial homophony can be resolved by

²³ The exact forms and paradigms are too many to be listed here, but can be consulted in chapter 8.

syntagmatic relations in morphophonology. This fact also highlights the great importance of morpheme type distinction in the overall grammar of Kubeo.

Morpheme types, however, are not useful for distinguishing another partial homophonous set of morphemes: *-wa* 'causative', *-wa* 'habitual', and *-wa* 'past-participle'. As introduced in chapters 3 and 4 (see also chapter 8), these morphemes can follow each other in the template of verbal morphology. The distinction between these morphemes is of great importance, of course, and Kubeo seems to manipulate the underlying prosodic features of these morphemes to make them more distinct by marking the habitual and the past-participle as exceptional to stress, tone, and nasal harmony rules, while leaving the causative unmarked (or regular) in this respect.

Periphrasis in inflectional paradigms is also a common phenomenon in Kubeo morphology. I take this to be a result of the recent development of inflectional paradigms in the language, a fact that correlates with the diachronic trend of the language in becoming more agglutinating in recent times and having affixes as the least numerous bound-morpheme type. One can find periphrasis in the way stative verbs are inflected for tense, or – more precisely – in the fact that they often need to form a compound with the verb *te* 'to do' in order to code a past time situation (cf. section 8.2.1 and 8.2.1.1, chapter 8).

Another interesting type of periphrasis and compound formation is the inherited and contextual inflection of nouns and modifiers at the NP level. The category of ANIMATE FEMININE PLURAL is "missing" a cell in the animate paradigm: while other animate categories have inflectional affixal or clitic forms, ANIMATE FEMININE PLURAL requires the formation of a compound between a noun or modifier and the noun *dōbī-wa* (woman-AN.PL) 'women', grammaticalized as an inflectional category (cf. section 8.1.1 and 8.1.2, chapter 8).

6.7 Word Formation at the interface between Phonology and Morphology

This section analyzes in detail the role played by phonology and morphology in the derivations of words in Kubeo. It shows how phonology and morphology have independent status, while the derivation of words is only made possible through the integration of rules from both modules of the grammar. In this sense, this section is based in conceptions from theories of LEXICAL PHONOLOGY (in particular with later developments of this theory as summarized in Booij 2000 and Kaisse and Shaw 1985) and PROSODIC PHONOLOGY (cf. Selkirk 1984, 1995, Nespor and Vogel 1986, Booij

1996), or more precisely of approaches that correlate both theories, such as Booij and Rubach (1984, 1987) and Inkelas (1990).

In section 6.7.1 I discuss the need for and the nature of prosodic domains in Kubeo, which represent the relative independence of phonology from morphology. In 6.7.2, rule ordering between phonological rules and word formation rules is schematized and this concludes this chapter.

6.7.1 Prosodic Domains. This section is devoted to showing the way that phonology has a relatively autonomous organization from morphology.²⁴ Such an autonomous organization is based on hierarchical levels, called PROSODIC DOMAINS. Each domain is the environment for the application of a specific set of phonological rules. Prosodic domains can correlate with word structure, as seen in table 3 in (6.12), where different word and morpheme types are classified based on the scope of several phonological rules. Nevertheless, there are many instances of asymmetries and discontinuities between the way a word is structurally organized and how it is phonologically organized, which ultimately show the relative autonomy between the two modules of the grammar.

6.7.1.1 Evidence for prosodic domains in Kubeo grammar. The following paragraphs list the most fundamental pieces of evidence showing the difference in organization between phonology and morphology:

(a) The first type of evidence of asymmetries and discontinuities between morphology and phonology comes from the most basic categories of word formation in Kubeo: the morpheme types (cf. section 6.3). Morpheme types are defined as a cluster of phonological and structural properties. The structural properties of each morpheme type are essentially distinct from one another. Nevertheless, it is intriguing that affixes – which are morphemes governed by the properties of stems – have the same phonological properties as phrasal-affixes, which are governed by syntactic rules and properties of phrases. This clearly shows a dissociation of phonological and structural properties in the categories of Kubeo grammar.

(b) The bound-stem is also interesting in this regard. First, it is unusual in that it behaves similarly to affixes phonologically, while structurally it behaves similarly to stems in being able to receive affixation. Second, and most importantly, the bound-stem is phonologically more bound to the host it leans on than to the affixes that it is

²⁴ Section 6.7.2 will incorporate elements discussed in this section to show how from an autonomous organization morphology and phonology still must work together.

combined with. This is observed in several examples: (6.26) in section 6.3.2.3, (6.85) in section 6.7.2 and (3.25) in chapter 3, which show that while the bound-stem can be target of nasal harmony triggered by its host, it does not subsequently spread nasalization to the affixes it is combined with. Thus, while in structural terms one would expect a closer relationship between the bound-stem and its affixes, the phonological facts show that the bound-stem is actually closer phonologically speaking to its host.²⁵

(c) The distinction between clitics and phrasal-affixes shows another interesting case of discontinuity. From the surface forms of words, observing the templatic structure of word formation in (6.2) above, clitics were expected to be phonologically more bound to their hosts than phrasal-affixes. However, the facts are the opposite, since phrasal-affixes are phonologically more bound to their hosts.

(d) Kubeo has several cases of bracketing paradoxes between the way phonological and structural material is organized ("F" indicates foot and "PW" signals phonological word):

(6.71)	MORPHOLOGICAL BRACKETS	PHONOLOGICAL BRACKETS
a.	[[[hebẽ] [=bo]] -de] agouti = CL.OVAL -OBL 'to the agouti'	[[hebẽ] _F [bode] _F] _{PW}
b.	[[i= [ihĩ]] -de] this = summer -OBL 'during this summer'	[[ijĩ] _F [hĩde] _F] _{PW}
c.	[[weda] [tataro]] -ki] tree sp. moth -MSC 'a bird sp.'	[[[weda] _F] _{PW} [[tata] _F [roki] _F] _{PW}] _{PH}

(e) A compound behaves as a single word for several morphological and syntactic purposes (cf. section 6.4). Nevertheless, each constituent (stem) of a compound, while in structural terms not necessarily a full word, shares a fundamental phonological feature with any well-formed simplex word in Kubeo: they constitute a single and independent metrical domain. Thus while in structural terms compounds are generally defined as a single word, in phonological terms they show the properties of two words.

²⁵ By "closer" I refer to the phenomenon where a bound-morpheme can assimilate to more phonological features and undergo more phonological rules triggered by their bases.

Based on the facts just discussed, it is clear that phonology has a particular way of organizing structural inputs. Moreover, it is also clear that this organization follows from a hierarchical structure. Two sorts of evidence support this claim: first, from table 3 in (6.12) it is clear that there are some types of phonological rules that are more general than others with respect to their scope in the surface forms of words. This implies that as the word structure gets more complex it can show more exceptions to less general rules.²⁶ Second, based on elements that will be discussed in the next section, more general type of rules can be fed, bled, or conditioned by more particular types of rules.

6.7.1.2 Defining Prosodic Domains in Kubeo. Prosodic domains are a set of hierarchically organized phonological structures, whose main function is to organize the phonology of words and sentences (cf. Nespor and Vogel 1986). They relate to requirements on surface forms, i.e. well-formedness of structural outputs and to the licensing of different phonological rules during the derivation of words (lexically) and sentences (post-lexically).

Prosodic Phonology is based on the idea that phonological domains are hierarchically organized according to two principles: EXHAUSTIVITY, which implies that utterances must be parsed by all existing prosodic domains; and LAYEREDNESS, which implies that lower domain will be fully dominated by a higher domain (see Nespor and Vogel 1986, Selkirk 1995). Moreover there is an isomorphism between morphosyntax and the prosodic domains (similarly to what is shown in section 6.7.1).

The table in (6.72) represents the four prosodic domains in Kubeo and their corresponding set of phonological rules. Table in (6.73) shows how distinct types of word structures correlate with phonological domains:

²⁶ The most general type of rule is INTONATION, which applies to whole utterances (where utterance can be a single word or complex sentences). For rules applying at the word level, see table 3 in (6.12) and section 6.7.2.

(6.72)

Table 5: Phonological Domains

DOMAIN	REQUIREMENT	PHONOLOGICAL FUNCTIONS
SYLLABLE	to be headed by at least one vowel	bears segmental features, nasality, accent, stress and tones, from underlying to surface levels of the grammar.
FOOT (F)	to be headed by at least one syllable (though the canonical form is the iambic foot)	establishes the metrical structure for accent, stress, and tones.
PHONOLOGICAL WORD (PW)	to bear a foot at its left edge (= to be accented)	- Nasal Harmony - Accent Projection - Persistent footing - Neutralizing Allophonic rules. - On-gliding - Syllable Merge
PHONOLOGICAL PHRASE (PH)	to contain up to two Phonological Words	- Primary accent promotion - Tone Spreading

(6.73) Table 6: Correspondence between Morphological Structures and Phonological Domains

Morphological Structure	Corresponding Prosodic Domains
SIMPLEX WORD	- must contain at least a Phonological Word.
COMPOUND	- must contain at least a Phonological Phrase
COMPOSITE COMPOUND	- must contain a Phonological Phrase plus a Phonological Word.

Regarding the rules of table 5 above, as demonstrated in 6.7.2, some rules are restricted to apply only after their particular domains have been created (e.g. TONE SPREADING), while others only apply within their particular domains (e.g. NASAL HARMONY). Yet, other rules can apply whenever necessary (e.g. PRIMARY ACCENT PROMOTION).

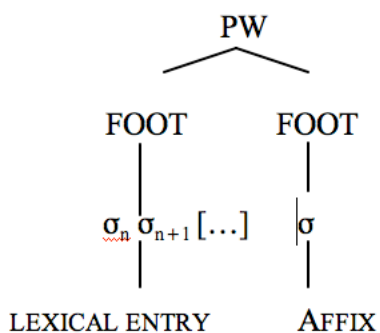
In table 6, surface forms of word types are matched with their minimal phonological requirements. It should be clear, though, that any linguistic utterance is parsed exhaustively by all prosodic domains. Thus, a simplex word minimally requires a PW, but ultimately can be parsed by all prosodic domains if it is the sole word of a sentence.²⁷

The definition of prosodic domains in Kubeo can account well for the differences in scope of phonological rules between compound words and simplex words. Nevertheless, the Phonological Word (PW), as defined in table 5 above, obliterates the fundamental phonological differences between different bound-morpheme types in Kubeo. There are distinct proposals in the literature that could account for the distinct prosodic properties of bound-morphemes, such as Clitic Group (CG) (cf. Nespor and Vogel 1986) or the introduction of recursion in prosodic phonology, plus different parameters and derivational steps for the prosodic integration of clitics (or functional words) in the PW (see Selkirk 1995 and Booij 1996).

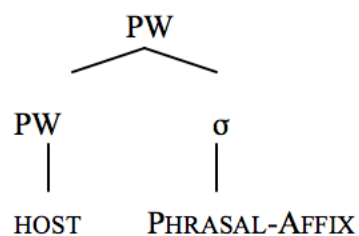
The greatest difficulty in Kubeo, however, is that a different prosodic representation needs to be given to clitics, plus affixes (which derivationally precede clitics), phrasal-affixes (which in the surface form behave phonologically like affixes and derivationally must follow clitics, since they are syntactically motivated morphemes), and the bound-stem (which is also syntactically motivated and has a very unique phonological status).²⁸

The type of structures that I propose for the prosodic representation of bound-morphemes are the following:

(6.74) a. AFFIXES



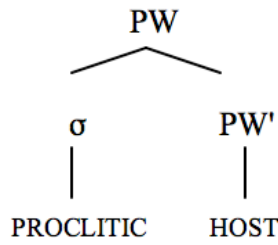
d. PHRASAL-AFFIX



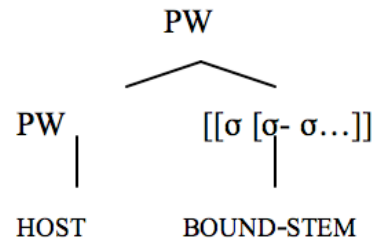
²⁷ Including, of course, sentence prosodic domains, such as Intonational Phrase, not discussed in this work.

²⁸ See section 6.3.2.

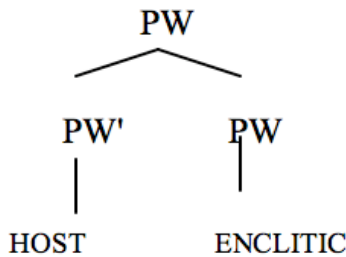
b. PROCLITICS



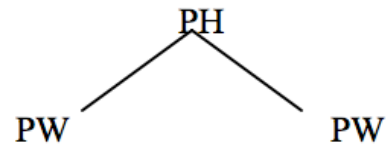
e. BOUND-STEM



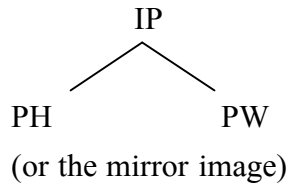
c. ENCLITICS



f. COMPOUND



g. COMPOSITE COMPOUND



Before I explain each structural type and their motivations, it is important to comment on the use of "bars" alongside the PW. Bars introduce the idea of recursion in the phonological representations, but differently from the X-Bar theory where a phrase such as [[[X0]XP']XP] may use the concept of XP' redundantly if there is no projection of an intermediate constituent between XP' and XP (e.g. a specifier), I understand that "bars" represent different levels in the morphophonological derivations. Thus, when an intermediate PW is represented with one "bar" (PW') it represents a PW on the post-cyclic level, while a plain PW represents the word on the cyclic level. Levels in Kubeo morphophonology can be diagnosed by the relationship between phonological rules and word formation processes, as discussed below in 6.7.2.

The structure in (6.74a) is intended to show that stem and affixes are subject to cyclic rules before the formation of PW in the post-cyclic level. Thus, post-cyclic rules

(e.g. SYLLABLE MERGE and ON-GLIDING) must take place after affixation (cf. section 4.1.2.2 in chapter 4, section 5.3 in chapter 5 and sections 2.1.2.6, chapter 2).

The structure in (6.74b) introduces a distinction between proclitics and enclitics. This sort of asymmetry between proclitics and enclitics (and suffixes and prefixes) is well documented in several languages. In Kubeo, proclitics are different from enclitics because the former do not project a foot, which is evident in the type of stress shift they induce in the words they are combined with (cf. section 6.3.2.4). See the examples below, which contrast a stem in isolation in the (a) examples and the stem with a stress shift after procliticization:

- (6.75) a. *joka* [ɕo'ka]
'leaf'
- b. *i=joka* [i'joka]
THIS-leaf
'this leaf'
- (6.76) a. *ẽkãri* [ẽ'kãri]
'riverbank'
- b. *i=ẽkãri* [i'jẽkãri]
this-riverbank
'this riverbank'

Such a stress shift results from the integration of proclitics into the PW; consequently, given that stress is bound to the first or second syllable from the left edge of words (cf. section 4.1, chapter 4), the stress shifts one syllable to the left in order to comply with a constraint of the PW. However, proclitics are not "fully" integrated to the PW, as it can be seen in example (6.76b), where the clitic does not get nasalized and yet creates an on-glide in the next syllable of the stem (whereas on-gliding does not occur between stem and affixes).²⁹ By representing proclitics as stray syllables, one can account for their prosodic integration to the PW. The stress shift is the result of the ACCENT

²⁹ In addition, the degree of the integration of proclitics to the PW can be relatively assessed regarding their behavior with respect to NASAL HARMONY: in some speech varieties proclitics may get regressively nasalized – as result of lexicalization -- while in others they do not (cf. section 6.3.2.4 and example (3.29) from chapter 3); on the other hand, affixes, the bound-stem and phrasal-affixes are target of nasal harmony without exception.

PROJECTION rule being a cyclic rule in the lexicon, which can reapply whenever the PW is ill-formed during the derivation.³⁰

Structure (6.74c) shows that an enclitic forms an independent PW, which is integrated to a lexical entry's PW post-cyclically. As demonstrated in chapter 4 (section 4.1 and 4.1.2.2), enclitics project their own foot. In addition, they can trigger NASAL HARMONY to an adjacent suffix, phrasal-affix or the bound-stem (cf. example (3.14), chapter 3), while they are never target for NASAL HARMONY from their host. All of these are sufficient evidence for saying that enclitics project a PW. In addition, the PW formed post-cyclically by the adjunction of an enclitic PW and a lexical entry's PW is a single domain for STRAY ADJUNCTION rules. This is particular demonstrated in examples (6.83) and (6.84), where a foot is headed by a clitic, but has a weak syllable that morphologically belongs to the stem and forms a separate PW from the clitic. If a single PW were not formed post-cyclically between the lexical entry and the clitic, one would incur in a strong violation of the metrical hierarchy, since the foot would be divided in two different domains.

A Compound (6.74f) is essentially different from a word formed by host + clitic because of morphological rules, since compounds are basically formed by two lexical entries. Phonologically this also reflects in that metrical rules (STRAY ADJUNCTION and PERSISTENT FOOTING) apply separately to each stem in a compound, differently from other PWs, which form a single domain for those rules. In addition SYLLABLE MERGE, ON-GLIDING and NEUTRALIZING ALLOPHONIC rules are optional in compounds, while obligatory within the PW.

Composite compounds (6.74g) are made by a PH and a PW, which are bound by a particular intonation contour, also found in sentences, as briefly described in chapter 4.

Phrasal-affixes (6.74d) project stray syllables, which are cyclically adjoined to a PW, thus becoming available to cyclic phonological rules. This is the same representation for the bound-stem (6.74e), but notice that the bound-stem can have affixes, which, nevertheless are adjoined to the PW only post-cyclically. In the case of words where the bound-stem forms a compound with another stem (in addition to its host, cf. example (6.25a,b), the stem in the compound has its own PW while the bound-stem and its host form another PW. Both PWs are adjoined forming a PH, as represented in (6.74f).

³⁰ If proclitics projected a foot, such a stress shift would never happen, since their integration to the PW would not cause a "tertiary" foot.

6.7.2 Morphophonological Levels. In this section, I present a definition of three levels in Kubeo morphophonology: the cyclic, the post-cyclic, and the post-lexical levels. These levels are related to phonological domains and the way phonological rules can apply. Later, I give specific examples illustrating the derivation of words within phonological domains and across the three morphophonological levels.

There are certain phonological processes that are restricted to occurring in the lexicon (where words are derived), while others are restricted to occurring post-lexically (where words act as a single whole in syntax). As introduced in the last section, even within the lexicon there are different domains where some phonological processes can apply or can never apply. In addition, some phonological rules can apply throughout the derivation of words and even post-lexically (cf. Booij 2000). The following table classifies each phonological rule with respect to the domain and levels of the grammar where they apply in Kubeo:

(6.77) *Table 7: Phonological Rules and Morphophonological Levels*

PHONOLOGICAL RULES	CYCLIC	POST-CYCLIC (LEXICON)	POST-LEXICALLY
Accent Projection	PW	PW	
Labial Dissimilation (cf. section 2.1.2.2, chapter 2)	PW		
Nasal Harmony (cf. section 3.2.1, chapter 3)	PW		
Neutralizing Allophonic Rules (chapter 2)	PW	PW, optionally at PH	
Syllable Merge (cf. chapter 5)		PW	Any domain and across domains
On-gliding (cf. section 2.1.2.6, chapter 2; chapter 5)		PW, optionally at PH	Any domain and across domains
Tone Spreading (cf. section 4.2.3 chapter 4)		PH	
Stray Adjunction (cf. 4.1.2.2, chapter 4)		PW	Any domain and across

			domains
Persistent Footing (cf. 4.1.2.2, chapter 4)		PW	Any domain and across domains
Primary Accent Promotion (End Rule) (cf. 4.1.2.3, chapter 4)		PH	IP ³¹
Vowel Assimilation Processes (cf. section 2.1.2.1, chapter 2)			PW
Distinct Vowel Deletion (cf. section 2.1.2.5, chapter 2)			Any domain and across domains
Distinct Vowel Fusion (cf. section 2.1.2.5, chapter 2)			Any domain and across domains
Three Vowel Sequence Resolution (cf. section 2.1.2.7, chapter 2)			PW
Stop Lenition (cf. section 2.2.2.2, chapter 2)			PW

6.7.2.1 Lexical versus Post-lexical levels. The following examples illustrate a major division between word-level rules and post-lexical rules. First, in (6.78), it is shown that nasal harmony fails to apply after deletion of segments caused by fast speech (a post-lexical phenomenon):

- (6.78) a. *dĩ-i = wi-bu* [ˈnĩiwibu] NORMAL SPEECH
 go-NMZ = CL.AN.COL-COP.N.3AN.SG
 ‘We are going! (or farewell!)’
- b. *dĩ-i(= wi)-bu* [ˈnĩ^mbu] FAST SPEECH
 go-ST(= CL.AN.COL)-N.3SG.COP
 ‘We are going! (or farewell!)’

If nasal harmony could reapply after the post-lexical deletion of the morpheme = *wi*, one would expect the non-existing form *[ˈnĩimũ].

³¹ This is related to sentence stress, briefly discussed in chapter 4.

In the example (6.79) below, it is shown that the neutralization of /d/ and /r/ (a word-level rule), which makes [d] to surface after /e/ and /i/ and [r] elsewhere, does not take place after segmental deletion in fast speech:

- (6.79) a. *a-i-wi = da* [ˈaiwira] NORMAL SPEECH
 say-ST-N.3AN = PRCSLY
 'Precisely as you are saying'
- b. *a-i(-wi) = da* [ˈaira] FAST SPEECH
 say- ST(-N.3AN) = PRCSLY
 'Precisely as you are saying'

If the [d] and [r] alternation rule could reapply after the deletion of the segment post-lexically, one would expect the non-existing form *[ˈaida].

6.7.2.2 Cyclic level versus Post-cyclic levels. Cyclic rules can apply in the lexicon whenever it is necessary, which means they can apply earlier, feeding or conditioning post-cyclic rules. They can also reapply after a post-cyclic rule, provided that there is a clear motivation from morphophonological rules.

ON-GLIDING is a post-cyclic process. In section 2.1.2.6, chapter 2, I presented examples that demonstrated how ON-GLIDING might not occur between a stem and a suffix, while it must always occur between a clitic and its host or another clitic. This is illustrated in the examples below, where (6.80a) has a stem and a suffix and (6.80b) a clitic and its host:

- (6.80) a. *ĩ-abẽ* [ˈĩamẽ]
 take-II.3MSC
 'he took (it)'
- b. *'hi = e* [ˈhije]
 my = MSS
 'my things'

Given that clitics and stems form separate PWs, on-gliding occurs when the two PW are adjoined, which is a post-cyclic process (see also example (2.58), chapter 2, showing that on-gliding can occur with compounds as well).

The reason for this division resides in the way syllabification works: after /i/ is established as the syllabic nucleus in the cyclic level, it cannot undergo syllable merge post-lexically. As consequence, /i/ projects a glide in the following syllable bearing no onset, due to its ambisyllabic nature (cf. chapter 5).

ACCENT PROJECTION is a cyclic rule, which is verified in examples such as (6.75) and (6.76). In these examples, the shift on stress is actually a reapplication of the ACCENT PROJECTION rule within the PW, in order to avoid an ill-formed PW. It should be noticed that in example (6.76), however, there is ON-GLIDING between the proclitic and its host. This reveals two important things: first that the proclitic is adjoined to the PW post-cyclically, differently from affixes (which are cyclic); second, that ACCENT PROJECTION reapplied within the newly formed PW, a fact that follows from its cyclic status. In addition, this also demonstrates that the cyclic rule can apply after a post-cyclic rule.

SYLLABLE MERGE is also a post-cyclic rule. This is demonstrated by the example (6.81) below, where there is a different stress pattern in (6.81a) where syllables were not merged and in (6.81b) where there is SYLLABLE MERGE (more specifically IDENTICAL VOWEL DELETION, section 2.1.2.4, chapter 2), which makes the stress to fall in the first syllable of the word:

- (6.81) a. *wĩ -kaki* [wĩ'kaki]
 inhale -II.1SG
 'I inhaled it'
- b. *wĩ -i -kaki* ['wĩkaki]
 inhale -ST -II.1MASC
 'I am used to inhale it'

This follows from the fact that ACCENT PROJECTION (a cyclic rule) precedes SYLLABLE MERGE, a rule that can also occur with compounds and across different domains post-cyclically (cf. see section 2.1.2, chapter 2).

TONE SPREADING, PERSISTENT FOOTING and STRAY ADJUNCTION are also post-cyclic rules, which in some cases can be shown to be in complementary distribution. In example (6.82) in order to account for TONE SPREADING (a post-cyclic rule, which targets the first two foot heads in a PH, cf. section 4.2.3, chapter 4), it is necessary to analyze that the third syllable in the first PW of the compound projected a degenerate foot:

- | (6.82) MORPHEME GLOSS | METRICAL STRUCTURE | PHONETIC FORM |
|-------------------------------|----------------------|------------------|
| <i>kĩrã-bẽ</i> # <i>te-bã</i> | (kĩ'ra)(,bẽ)#(te,bã) | [kĩ'rã,mẽ tẽ,mã] |
| spawn-NEG #do-3AN.PL | | |
| 'they (fish) did not spawn' | | |

Notice that if the third syllable of the first stem were not counted as a degenerate foot, one would expect the non-existing form *[kĩ'rã,mě té,mã]. This shows that the third syllable created a foot as the result of PERSISTING FOOTING, which only occurs within the PW post-cyclically.

The fact that persisting footing will not apply within the PW cyclically can be seen in example (6.83), where, instead of creating a degenerate foot in the third syllable of the word (as it was the case in (6.82) above), the metrical derivation leaves the third syllable stray, which is integrated to the foot from a clitic (cf. section 4.1.2.2, chapter 4):

(6.83)	MORPHEME GLOSS	METRICAL STRUCTURE	PHONETIC FORM
	<i>bãkã-dõ = ka = wi-de</i>	(bã'kã)(dõ ka)(wi de)	[mãkãĩĩókãwĩrè]
	jungle-CNT = ORG = CL.AN.COL-OBL		
	'to/at/for those from the jungle'		

Notice that if the third syllable from the stem (suffix *-dõ* 'inanimate count') were computed as a degenerate foot, the tone profile would be essentially different, deriving the non-existing form *[mãkãĩĩókãwĩrè]. This shows that PERSISTING FOOTING is the last metrical rule within the PW, just before the formation of a PH, which follows from its post-cyclic nature.

Example (6.84) also shows that STRAY ADJUNCTION follows other post-cyclic rules, such as SYLLABLE MERGE, whereas TONE SPREADING is ordered after PERSISTING FOOTING:

(6.84)	MORPHEME GLOSS	METRICAL STRUCTURE	PHONETIC FORM
	<i>běa-be-e = bu</i>	('běa)(bě bu)	['běãmě bú]
	be.red-NEG-MSS = PROB		
	'it might not be good'		

Examples (6.83) and (6.84) above clearly demonstrate that the clitic and the lexical entry are forming a PW post-cyclically, since a foot is constructed across the suffix from the stem and the clitic, whereas both formed distinct PWs cyclically. If clitic and the lexical entry did not form a PW, there would be a strong violation of the prosodic hierarchy, since a foot would be crossing two different domains.

A last example shows this fact with respect to the bound-stem. Example (6.85) below demonstrates that the bound-stem is adjoined cyclically to the PW from the demonstrative pronoun, hence getting nasalized. The affix of the bound-stem is adjoined post-cyclically, hence not getting nasalized, but yet being parsed by PERSISTING

FOOTING, a result from its post-cyclic integration to the PW (the relevant word is underlined):

(6.85) ãjĩ-ba-bi *kĩwa-kĩ* *di = wa-de* [ã'ɲĩmã,bi]

THAT.MSC-BE-3MSC have-NMZ.MSC ANPH = CL.FLAT-OBL

'that one is the one that owns that cassava toaster'

7. Word classes (Parts of Speech)

Word classes are part of the system of grammatical categories in a language. Grammatical categories are treated in this dissertation as the basic functional components of the grammar, which I discuss according to three different grammatical modules: the lexicon, the morphology, and the syntax.

Word classes form the major grammatical categories. There two types of word classes: open word classes and closed word classes (see section 7.1). Minor grammatical categories are understood as the categories of inflection and derivation, which ultimately relate to word classes (see chapter 8).

The distinction between major and minor categories in Kubeo is cross-sectioned by the distinction of lexical and functional (grammatical) morphemes (cf. Givón 2001:45). Lexical morphemes are all major word class roots: nouns, verbs, adjectives and adverbs. Functional morphemes are formed by the closed word classes¹(cf. chapter 9):pronouns, anaphora, demonstratives, as well as morphemes coding inflectional and derivation processes particularly bound-morphemes(affixes, clitics, phrasal-affixes and the bound-stem (see chapter 6)).

This chapter begins by discussing the distinction between closed and open word classes in section 7.1. Section 7.2 then gives an overview of open word classes and their relation to inflection and derivation. In section 7.2.1 word classes are presented according to the different ways syntax and morphology organize them. While in syntax there is evidence for the existence of four major word classes (nouns, verbs, adjectives and adverbs), in morphology there are only two: nouns and verbs. This contrast is further developed in section 7.2.2, where I analyze the categories of the lexicon, highlighting a system with four major word classes, as well as some roots with no *a priori* word class membership. Issues that surface in the interface between the lexicon and the syntax, and the interface between the lexicon and the morphology, are also discussed. Section 7.3 concludes this chapter by giving a synthesis of open word classes in Kubeo grammar.

¹ Post-positions are also part of Kubeo's closed word classes, though are not discussed in-depth in this work.

7.1 Closed and open word classes

Closed and open word classes are generally distinguished on the following criteria (see Schachter, 1985; Croft 2003):

(7.1) *Table 1: Open versus closed word classes*

CRITERIA	MEMBER SET SIZE	FINITUDE	SEMANTICS
OPEN CLASSES	Large	Infinite <ul style="list-style-type: none"> • new concepts are always being created; • new words are always being derived; • types of words more easily borrowed 	Content <ul style="list-style-type: none"> • concepts of objects, abstract elements, emotions, processes, states, actions, etc.
CLOSED CLASSES	Small	Finite	Functional <ul style="list-style-type: none"> • closely related to grammatical categories and operations (person, questions, deixis, etc.)

Whether a class is open or closed ultimately depends on the specific module of the grammar. In syntax, for example, nouns, adjectives, adverbs, and verbs are all open classes. In the lexicon, however, adjectives and adverbs are considered closed classes.

Though the semantic value and finite nature of these two word classes differ, there are many commonalities between open and closed word classes: word formation processes, inflectional categories, and syntactic functions (subject, object, verbal and noun modifiers, etc.).²

7.2 Open word classes

Language internally, the rationale for the identification of open word classes (i.e.

² Chapter 9 further addresses how closed word classes correlate to open word classes, and chapter 8 discusses the inflection and derivation categories of open classes.

noun, verbs, etc.) follows from the formal properties of these words in morphology and syntax (cf. Schachter 1992). On the other hand, for typological considerations, semantic and syntactic criteria are the basis for defining word classes and comparing them cross-linguistically, since morphology is usually arbitrary, and can vary from language to language (cf. Givón 2001, Croft 2003). It is also acknowledged that membership to a particular class or sub-class of words is never a clear-cut phenomenon: words from different classes can share similar features, and words within the same class can contrast by exhibiting features from two separate word classes.

In researching Kubeo's open word classes, it is apparent that the set of existing word classes in Kubeo is subject to variation according to the different modules of the grammar: the lexicon, the morphology and the syntax. The sections below present an outline of these differences and what characterizes Kubeo word classes more generally.

7.2.1 Morphological and Syntactic categories. Syntactically (looking only at words after inflection and derivation), it is possible to classify words along the four classes of nouns, adjectives, verbs, and adverbs; which are assumed to be universal categories (cf. Schachter 1992, Givón 2001). All four major word classes are open categories in Kubeo syntax according to the criteria in (7.1) above.

Thus, in syntax, nouns and derived nouns are identified as, for instance, being able to function as subjects, as exemplified in (7.2) below; verbs and derived verbs as heads of predicates, as in (7.3); adjectives and derived adjectives as modifiers of nouns, as in (7.4); and adverbs and derived adverbs as modifiers of verbs, as in (7.5):

- (7.2) a. *wekĩ* *joka bābā-e* *ā-i-abē* NON-DERIVED NOUN
 tapir leaf new-MSS eat-ST-3MSC
 'tapirs eat new leaves'
- b. *kari-de* *ā-i-bārā* *ea-kibe* DERIVED NOUN
 now-OBL eat-ST-PAS.AN.P f ind-INFRR.3MSC
 'he found several game animals'
- (7.3) a. *āĩ-wĩ* *bāhĩe* NON-DERIVED VERB
 remember-n.3an more.or.less
 'I remember a little'
- b. *i=jābĩ* *kĩrābĩ* *ĩrō-hĩ-wĩ* DERIVED VERB
 this = cl.house house odor-VBZ-N.3AN
 'this house smells bad'

- (7.4) a. *bía = ka* *íra-ka* NON-DERIVED ADJECTIVE
 chili-CL.3D big = CL.3D
 'a big chili'
- b. *bía = ka* *hũa-di = ka* DERIVED ADJECTIVE
 chili = CL.3D red-nmz = CL.3D
 'A red chili'
- (7.5) a. *bĩhã* *hawe* *ʼíjei* *ã-dĩ* *'hã-karã-di* NON-DERIVED ADVERB
 you.all already cucura eat-CNV see-NMZ.PST.AN.P-INTR
 'have you eaten cucurua (*Pourouma sp.*) yet?'
- b. *aru doba#te-karã* *hoa-e* DERIVED ADVERB
 and sit#do-PST.1.P.EXC long-NMZ.MSS
 'so we were sitting there for a long time'

The following table summarizes the syntactic categories and their respective syntactic functions in Kubeo:

(7.6) *Table 2: Syntactic Categories*

Noun	VERBAL ARGUMENT
	COMPLEMENT OF POST-POSITION
	HEAD OF A NOUN PHRASE
Adjective	NOUN MODIFIER
Adverb	VERB MODIFIER
Verb	HEAD OF A PREDICATE

Morphology, on the other hand, organizes word classes differently. In morphology, there are only two major types of inflectional categories: verbal and nominal. Nominal inflection includes the following (see chapter 8):

- i. inherent inflection of nouns expressing lexical sub-classification (e.g. animate versus inanimate nouns), where inherent inflection is understood as

the expression of categories generally attributed to sub-classes of nouns and not based on syntactic requirements (such as agreement and case, see chapter 10) (cf. Anderson 1985; Booij 1984);

- ii. contextual inflection (cf. Booij 1984) - which is a subset of the categories found in inherent inflection, and expresses agreement at the noun phrase level, as well as is combined with any derived nouns.

Verbal inflection includes the following categories (see chapter 8):

- i. inherent inflection - which expresses categories of TENSE, EVIDENTIALITY, ASPECT, PERSON, MODALITY and MOOD; and is highly sensitive to verb subclasses (dynamic versus stative).
- ii. contextual inflection - which expresses categories of GENDER and NUMBER.

Adjectives and adverbs have no inflectional categories of their own. In general, this is also true cross-linguistically (cf. Anderson 1985), and might follow from their relational nature as modifiers of nouns and verbs, respectively. The categories that adjectives and adverbs inflect are therefore the same ones found with nominal and verbal inflection. Adjectives functioning as the head of predicates can inflect as verbs, or can inflect as nouns when in agreement with head nouns (which can be overt or covert, as discussed in chapter 8). Adverbs are inherently inflected in Kubeo: they can be inflected by the locative suffix *-i*, a nominal suffix, which intensifies the semantic value of the adverbs. Adverbs also can be inflected by *-a* 'past', a verbal suffix (see chapter 8).³

The fact that syntax has four word classes and morphology has only two presents a paradox. Nevertheless this paradox is resolved when one realizes that the lexicon also has roots assigned to the four major word classes and sub-classes (see section 7.2.2 below). Thus, one might observe that the module of morphology is behaving anomalously by collapsing adjectives and adverbs into nouns and verbs.

7.2.2 Categories of the lexicon. The lexicon provides the most detailed classification of words. Most roots are underlyingly assigned to one of the four major word classes, and

³ Sometimes it is wrongly thought that because adverbs and adjectives do not have inflectional categories and/or morphemes of their own they should not be analyzed as distinct word classes. This follows from a misleading generalization of the importance of morphology to the overall structural(ist) analysis of a language. As Dixon (2004) argues, the identification of an adjective class of words in a language must take into consideration a variety of semantic, morphological and syntactic properties. Chapter 9 discusses Kubeo adjectives and adverbs in this regard.

then further defined by the subclassifications of each major word class (cf. chapter 8). Some roots, however, are not assigned to one of the four major word classes. These unique roots can freely function in the syntactic position of more than one word class as well as be morphologically inflected like verbs or nouns.

The underlying word class of a root is determined by the way a root can be combined with inflectional categories of verbs and nouns, and how it assumes syntactic functions of major word classes (see table 2 above).

Therefore, in order for an underlying noun to be inflected by verbal categories and thusly function as the head of a predicate, it needs to be derived, as illustrated in (7.7). Likewise, a verb needs to be derived in order to be inflected as a noun and function as a noun syntactically, as illustrated in (7.8). Examples in (a) show the prototypical function of the noun or verb, and (b) demonstrates their derived function:

- (7.7) a. *põe-ki*
 person-MS
 'a man'
- b. *'hi#bãki* *põe#te-bi* *ẽdõa-de*
 my#son person#do-3MS yesterday-OBL
 'my son was born yesterday'

- (7.8) a. *ã-ha-ki*
 eat-IMP-MS
- b. *ã-i=e* *koapa* *epe-kebã-ãwi*
 eat-ST=MSS each leave-PST.ASM-PST.1/2/3IN
 'he left each kind of food'

Derivation is an important criterion of the word class membership of a lexical root. Thus in cases where a lexical root that are not assigned in the lexicon to any particular word class, they can assume syntactic functions and be inflected according to different word classes. This is illustrated by the following roots (so far I have found about 12 roots with similar behavior, see also section 8.4 to see how some adjectives can be inflected both as verbs and nouns).

- (7.9) a. *kõbia* 'the following' NOUN
kõbã *hãrãwi*
 over.night day
 'the next day, tomorrow'

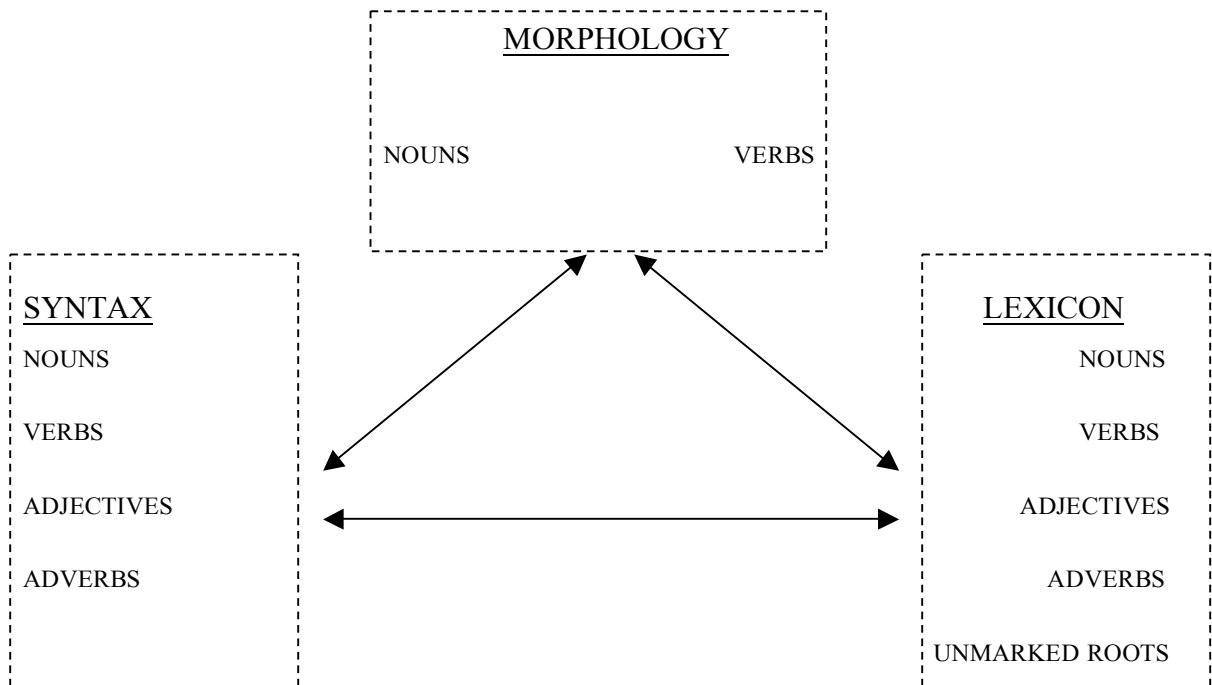
noun 'path' would be permitted to function across word classes without derivation, while the noun 'house' cannot.

This problem is particularly prominent in the class of adjectives. Adjectives are an open class syntactically, as illustrated in (7.4) and (7.5) , but form a closed class in the lexicon, with only six roots corresponding to three out of Dixon's (2004) four core semantic types of adjectives: AGE, DIMENSION, VALUE (COLOR terms are actually stative verbs). Adjectives are structurally a heterogeneous class: VALUE terms can be inflected as nouns or verbs; DIMENSION terms can only be inflected as nouns; whereas AGE terms are formed by roots with even greater class membership variation (see chapter 8).

What these facts reveal about word classes in Kubeo is that the semantic values of a lexical root provides a set of "predispositions" for that root to function syntactically in a particular word class. This is universal, according to Givón (2001) and Croft (2003). However, the interface between the lexicon and morphology is problematic for these pre-set classifications, since morphology is essentially arbitrary, i.e. language specific in nature. Thus the two morphological classes in Kubeo, noun and verb, conflict with the four word classes in the lexicon, which necessarily could shadow analysis of word classes in the Kubeo lexicon.

7.2.3 Word classes: a synthesis. The following chart summarizes the relationships of word classes as they are defined according to different modules of the grammar:

(7.12) *Figure 1: Word classes in Kubeo*



8. Inflection and Derivation

This chapter discusses the categories and the formal expressions of inflection and derivation. It begins by providing the conceptual and analytical definition of how inflection and derivation are analyzed in this work. Section 8.1 focuses specifically on nominal inflection and derivation, section 8.2 on verbal inflection and derivation, section 8.3 on adverbs, and finally 8.4 addresses adjectives.

The distinction of inflection and derivation in Kubeo is based on the following criteria (see Aihkenvald 2007; Bickel and Nichols 2007):

(8.1) *Table 1: Inflection versus Derivation*

INFLECTION	DERIVATION
i. codes typical semantic and grammatical features of each major word class. As such, it does not change a word's class or subclass	i. changes a word's class or subclass, creating a new word
ii. forms a complete word	ii. forms a new stem that still requires inflection
iii. is a relational process in that it relates a word to other words syntactically, or to inherent inflectional categories of a word class	iii. is an internal process to words
iv. structurally follows derivational morphemes	iv. structurally precedes inflectional morphemes

Derivational and inflectional categories in Kubeo are analyzed as abstract categories or processes that exist *a priori* from the specific formatives or constructions that code those categories. Looking at inflection and derivation in such a way brings forth two central analytical aspects of word formation in Kubeo.

First, by disassociating form and function, i.e. formatives (morphemes or constructions) from the inflectional and derivational categories, different processes can be analyzed as coding the same category. This is important in Kubeo because although

paradigms (the list of forms coding a set of functional categories to which stems are inflected or derived) are uniform in terms of functional categories, they are heterogeneous in terms of the formatives they use (cf. section 6.6, chapter 6). As examples of this point, I can list following:

- i. The category of ANIMATE PLURAL FEMININE
- ii. Partially homophonous bound-morphemes that form two sets of inflection and derivation with identically functional categories: one set is based on affixal forms and another set is based on clitics
- iii. Particular inflectional categories of verbs that require a predicate to be dynamic, thus requiring stative verbs to be derived, often achieved by periphrasis with the light verb *te* 'to do'

The second important aspect that emerges from viewing inflection and derivation as a set of abstract categories is in fusional morphemes, i.e. those morphemes that code more than one category. Most of Kubeo morphology is based on concatenation of morphemes, which can be easily segmented morphologically in an almost one-to-one relationship between form and function. There are, however, quite a few fusional morphemes, particularly in the verbal morphology. See, for instance, how derivation changes the verb class in the words below. In this simple example, it is observed that (8.2a) is a stative verb and (8.2b) is a dynamic verb:

- (8.2) a. *doba-ki*
 sit-NMZ.MSC
 'the one who is sitting'
- b. *boa-ji*
 hit-NMZ.MSC
 'the one who is hitting, the hitter'

Verb derivation and inflection in the ANIMATE MASCULINE category is achieved by a single morpheme, as demonstrated in the forms above. This contrasts with the verb derivation and inflection in other categories, such as ANIMATE PLURAL, as seen below:

- (8.3) a. *doba-di = wi*
 sit-NMZ = CL.AN.P
 'the people who are sitting'

- b. *boa-i = wi*
hit-ST = CL.AN.P
'the people who are hitting'

The fact that the forms in (8.3) are clearly segmented between derivational and inflectional morphemes, whereas those in (8.2) are not, does not make the analysis distinct. In both cases, I analyze the coding of two separate categories: inflection according to the appropriate nominal category of the derived verb, and derivation of a verb into a noun form.

8.1 Nominal Inflection and Derivation

This section begins with a discussion of the inherent categories of nominal inflection, which are based in a very transparent semantic classification of nouns, according to features of animacy, gender, count, and mass. In 8.1.2 agreement in the noun phrase is presented, which takes a subset of the features used in inherent inflection. Section 8.1.3 discusses classifiers in more detail, highlighting the ambiguity between lexical and functional morphemes, and inflectional or derivational devices. Section 8.1.4 discusses the diminutive, which also displays similar ambiguities as those found among classifiers. Section 8.1.5 shows how nouns can be derived.

8.1.1 Inherent Inflection: the System of Noun Classification. Kubeo classifies nouns according to a variety of categories and cultural perspectives. The type of classification that is realized by inherent inflection is the subject of this section.

Nouns in Kubeo are hierarchically classified through a system of grammatical categories, which have highly transparent semantic terms. The most general classification is between animate and inanimate nouns. I call this level of classification NOUN CLASSES. This level dominates lower levels that are specific to each noun class. For example, the animate class is further classified into GENDER (MASCULINE and FEMININE) and NUMBER (plural and singular).¹ Inanimate nouns are further classified in COUNT and MASS, with more detailed classifications of count nouns.

¹ Although Corbett's (2007) typology of gender and noun classes system convincingly argues for a unification of these terms, Kubeo requires those terms to be kept apart, since there are two "gender" systems (to use Corbett's term) in the language, animate and inanimate, masculine and feminine. Giving the traditional use of the term gender to categories resembling biological sex, I reserve the term here for this use.

A general picture of how nouns are inherently inflected and classified is given in the table below:

(8.4) *Table 2: Inherent Inflection categories of nouns*

CATEGORIES			EXAMPLES		
ANIMATE	GENDER	MASCULINE	<i>'bã-ki</i> off.spring-MSC 'son'	<i>hiji-ki</i> curassow-MSC 'Curassow (bird. sp.)'	<i>'weda-ki</i> caterpillar-MSC 'a caterpillar'
		FEMININE	<i>'bã-ko</i> off.spring-FEM 'daughter'	<i>jãbã-ko</i> deer-FEM 'a deer'	<i>joro-ko</i> cricket-FEM 'a cricket'
		PLURAL	<i>'bã-dã</i> off.spring-AN.P 'children'	<i>põe-wa</i> person-AN.P 'people'	<i>jãbã-wa</i> deer-AN.P 'deer'
		CLASSIFIER	<i>hêbê = bo</i> paca = CL.OVAL 'A paca' '(Cuniculus paca)'	<i>kaka = we</i> toucan = CL.BLADE 'Araçari' '(Pteroglossus sp.)'	<i>bãa = di</i> fish.sp = CL.RND 'Fish sp.'
		UNMARKED	<i>yawí</i> 'jaguar'	<i>papa</i> 'Antpipits (bird sp.)'	<i>kuridi</i> 'catfish'
INANIMATE	COUNT	COUNT GENERIC	<i>bãkã-dõ</i> jungle-CNT 'a jungle'	<i>ãu-dõ</i> cassava-CNT 'cassava bread'	
		CLASSIFIERS	<i>kii = ka</i> manioc = CL.3D 'manioc tuber'	<i>jedi = we</i> jaw = CL.BLADE 'chin'	<i>ãbũ = jo</i> arm = CL.LONG 'finger'
		UNMARKED	<i>kobe</i> 'a hole'	<i>bã</i> 'a path'	<i>hioroho</i> 'a decayed garden'
		PLURAL	<i>kobe-a</i> hole-IN.P 'holes'	<i>jedi = we-a</i> jaw = CL.BLADE-IN.P 'chins'	
	MASS	<i>aburi</i> 'foam'	<i>hitira</i> 'flour'	<i>oko</i> 'water'	<i>tfuri</i> 'wound'

Animate nouns correspond to humans, animals, spirits, moon, sun, star, rainbow. Inanimate nouns correspond to things, objects, and abstract concepts.

The examples of animate nouns above highlight an interesting secondary classification of nouns that results from the correlation of nouns and the marking of inherent inflectional categories (see Gomez-Imbert 1996, who first noticed some of these correlations and gives details of the cultural and historic motivations of these patterns).

All animate nouns are inflected for number, since all of them are count nouns, except *bōa* 'fish', which is generic (*bōa-ki* fish-MS 'a fish' is the singular form). Animate nouns are obligatorily inflected for gender and number.² Animals can be inflected for gender, so the word *jābā-ko* (deer-FEM) 'deer' even though it is the citation form to refer to deer in general (it controls agreement with the feature FEMININE, as illustrated in 8.1.2), can be reduced to *jābā* when referencing a 'male deer'. The opposite process is seen on forms UNMARKED for gender, where the citation form does not formally mark gender, e.g. *weki* 'tapir' (agreement is realized with the masculine, the default feature, as argued in 8.1.2), however the feminine form does become marked: *weki-ko* 'female tapir'. Interestingly, unmarked forms, though not overtly marked for gender, are always interpreted as a masculine animal. Animals marked with a classifier are also by default masculine. In order to code for feminine, the classifier is replaced by the feminine suffix, e.g. *hēbē = bo* to *hēbē-ko* 'female paca'.

The rule can be stated as follows: if the citation form is marked as feminine, the subtraction of the feminine suffix inflects the word for masculine. If the citation form is masculine, feminine is coded by the addition of the feminine suffix. This reveals a pattern where the category FEMININE is marked with respect to MASCULINE (which I analyze as the default category).

Animate plural nouns by default imply masculine or both masculine and feminine. If the intent is to code only feminine plural referents, a compound construction is used, such as *'bā#dōbī-wā* (off.spring#woman-AN.P) 'daughters'.

Mass nouns form the majority of inanimate nouns in Kubeo. They refer to non-discrete entities, such as substances (sand, water, etc.), all plants, emotions, ideas, and diseases. Some count nouns are also UNMARKED, i.e. they are inherent count nouns referring to discrete entities, and cannot be combined with classifiers. Classifiers can be regarded as bound-morphemes (clitics, see section 6.3, chapter 6) and as a closed class of inherent count nouns. They are always morphologically combined with a mass term,

² The category ANIMATE PLURAL has two different morphemes in nominal inherent inflection: *-wa* and *-dā*. There is also a classifier *=wi* 'animate collective' that functions in agreement (see section 8.1.2).

forming a count noun, where they function as singularizers and contribute to the referentiality of the nouns. Classifiers can be categorized as somewhere in between a derivational device(similarly to word formation in compounds) and their own grammatical category, as it is discussed in sections 8.1.2 and 8.1.3.

The COUNT GENERIC category is another form of singularizing mass terms. It often has the connotation of place, but also of a discrete entity that falls outside the category of classifiers, such as in the word for 'cassava' in (8.4) above. It should be noted, though, that any noun root in Kubeo (except, perhaps, the inherent count nouns) is potentially generic³, including animate nouns. Hence the stem *põe* 'person' or *hěbě* 'paca' ,without a gender/classifier ending, refers to 'people' and 'pacas' as generic, indefinite and non-referential entities. The same can be seen in compounds: *hěbě#hia* (paca meat) 'paca meat', or *põe#deko-ki* (person#image-MS) 'ghost, spirit'.

Inherent inflection's main function is to create words from concepts. By doing this it reveals the Kubeo system of nominal classification. The categories of the nominal classification as outlined in table 2 are not only restricted to the lexicon, but are pervasive in nominal and verbal agreement (see section 8.1.2 and 8.2.2.1 respectively).

8.1.2 Agreement in the NP. Agreement in the noun phrase is established between a head noun, which can be overt or covert, and any kind of modifier, such as an adjective (cf. section 8.4), a nominalized verb (cf. section 8.2.4) and most closed class words (cf. chapter 9)except post-positions.

Following the rationale in Corbett (2007), it is useful to separate the categories of head nouns (as expressed in the inherent inflection, cf. table 2 above) from the categories of modifiers in agreement. The chart below shows the relationship between the two sets of categories and highlights how the categories taken by modifiers collapse a few categories found in the head nouns:

(8.5) *Table 3: Nominal Agreement Categories*

INHERENT INFLECTION			AGREEMENT		
ANIMATE	GENDER	MASCULINE	MASCULINE	GENDER	ANIMATE
		UNMARKED			
		CLASSIFIER			
		FEMININE	FEMININE		

³ Generic terms are initially also indefinite and non-referential.

		PLURAL	PLURAL		
INANIMATE	COUNT	COUNT GENERIC	COUNT GENERIC	COUNT	INANIMATE
		CLASSIFIERS	CLASSIFIERS		
		UNMARKED	UNMARKED (repeaters)		
		PLURAL	→ MASS		
	MASS	→ MASS			

Table 3 shows that agreement categories collapse the animate noun categories of masculine, unmarked, and classifiers into one single category of MASCULINE, which is the default gender/category. Also plural count nouns and mass nouns control agreement by the category MASS.

The general agreement patterns are illustrated in the examples below. Examples in (8.6) show the agreement pattern for the category MASCULINE. Example (8.7) shows the agreement pattern for FEMININE. Examples in (8.8) show agreement for the category ANIMATE PLURAL; (8.8b) shows the special agreement pattern for the category ANIMATE PLURAL FEMININE. Examples in (8.9) show the agreement with the category COUNT GENERIC. Examples in (8.10) show agreement with CLASSIFIERS. Examples in (8.11) show agreement with unmarked count nouns. Examples in (8.12) show agreement with the category MASS.

- (8.6) a. *kūidā-ki* *põe-ki* *dõ-i* *'dara-bi*
 one-MS C person-MS C ANPH.CNT-LOC wander-3MS C
 'one man walked over there'
- b. *kūidā-ki* *bã* *'jawa-bi* *kaða = hĩ*
 one-MS C macaw speak-3ms c near = DIM
 'A macaw just uttered a sound nearby'
- c. *kūidā-ki* *hẽbẽ = bo-de* *pĩke* *ã-i = dõ-ba-awĩ*
 one-MS C paca = CL.OVAL-OBL twice eat-ST = CNT-PST.1/2/3IN
 'A paca is to be eaten twice (i.e. one should not eat the whole paca at once, but in different moments)'

- (8.7) *kūidā-ko pōe-ko-ba#te-ako = ja*
 one-fem person-FEM-BE#DO-PST.3FEM = REP
 'Once up on a time there was a woman'
- (8.8) a. *habo-wa kai = wī hoa-dō = ka = wī eda-i = wī bīhā*
 leader-an.pl all = cl.an.col far-nmz.cnt = orgn = cl.an.col arrive-st = cl.an.col you.all
 'you, all leaders from far away, are arriving'
- b. *dōbī-wa okoji-wa#dōbī-wa bēa#dōbī-wa-bu*
 woman-AN.P wanano-an.p#woman-AN.P good#woman-AN.P-COP.N3.AN.SG
 'the wanano women are beautiful'
- (8.9) a. *hi = paki ki#te-kebā-awī ādō ibārō-i = ta*
 my = father existdo-PST.ASM-PST.1/2/3IN THAT.CNT village-loc = e.fc
 'My father used to live in that village long time ago'
- b. *pie jo = ka = dō-bu*
 basket here = ORGN = CNT-COP.N3AN.SG
 'this is basket is from here'
- (8.10) *i = kū hiađo = kū kopo-i = kū*
 this = CL.HOLLOW tree.sp = CL.HOLLOW break-ST = CL.HOLLOW
 'this broken canoe'
- (8.11) *pie ira#pie*
 basket big#basket
 'a big basket'
- (8.12) a. *ādī = e pie-a hoa-ki = e = ta-bu*
 that = mss basket-IN.P burn-NMZ.FUT = MSS = E.FC-N.3AN.SG
 'those baskets will be burnt'
- b. *i = e oko bē bo-e-bu*
 this = mss water well white-MSS-COP.N.3AN.SG
 'that water is very white (clean)'

The examples above demonstrate the most general agreement patterns in the Kubeo language. There are some variations, however. These variations are found when agreement can be marked in the modifier by more than one feature of the head noun.

For instance, a head noun that is an inanimate count noun can control agreement with the feature COUNT GENERIC, with a classifier, or as an UNMARKED INANIMATE COUNT NOUN. These variations relate to which semantic feature is more salient in specific communication circumstances. One can find examples of these variations in section 8.1.3 (classifiers) and in chapter 9 (closed word classes).

In addition the specific morphemes that code agreement in modifiers are relative to properties of the modifier stems. Hence, for ANIMATE PLURAL, some modifiers display agreement with the morpheme *-dã* 'animate plural' (which is one of the morphemes also found in inherent inflection, cf. section 8.1.1) and others with the classifier *=wĩ* 'animate collective'. Likewise, some may use clitic or affixal forms of MASS and COUNT GENERIC (see section 8.2.4 on verb derivation and chapter 9 on closed word classes).

The agreement pattern of UNMARKED INANIMATE COUNT NOUNS has some variation as well: in some cases it can control agreement with the category COUNT GENERIC as in (8.9b), or can be based on the repetition of the head noun in every modifier, as in (8.11), where a compound is created (see section 6.4, chapter 6). This can be analyzed quite simply as a consequence of the fact that unmarked inanimate count nouns have no specific inherent category (hence the label unmarked); because they have no inherent category, they must be repeated or copied in every modifier word for the sake of cross-referencing. When forming compounds with modifiers, these nouns lose their inherent referentiality properties since they are referring to another noun in the discourse, which is ultimately the one that bears the more specific semantic properties of referentiality and definiteness.

In the literature of languages with classifiers, inanimate nouns with agreement patterns that I analyze as “unmarked” are often called "repeaters". As a descriptive label this is fine, but very often this label is employed following a rationale that these nouns "are classifiers of themselves", and that "repeaters occupy the slot reserved for classifiers" in agreement (cf. Aihkenvald 2000). This is not my analysis for Kubeo, however. There is no reason to call unmarked inanimate count nouns “classifiers”, neither from a morphophonological nor morphosyntactic point of view, since every unmarked inanimate count noun behaves in the same way, so there is no basis for distinguishing "repeaters" from "non-repeaters". In fact, the diachronic facts about classifiers show the reverse, that classifiers evolved from unmarked inanimate count nouns (see section 8.1.3). So instead of saying that "repeaters occupy the slot reserved for classifiers", I interpret the opposite: that classifiers came to occupy the slot of

unmarked inanimate nouns, which correspond to a more general and older pattern in the language.⁴

8.1.3 Classifiers. The table below lists all classifiers in Kubeo, giving examples of words where they occur and states their general semantic characteristics:

(8.13) *Table 4: Classifiers*

CLASSIFIER	EXAMPLES	SEMANTIC DETAILS
= <i>ba</i> 'tied up'	<p><i>k̄i</i> = <i>ba</i> 'manioc stick' manioc = CL.TIED.UP</p> <p><i>k̄i</i>bo = <i>ba</i> 'foot' foot = CL.TIED.UP</p> <p><i>ǰ̄ã</i>ẽ = <i>ba</i> 'chest' chest = CL.TIED.UP</p> <p><i>pe</i>du = <i>ba</i> 'a pan pipe' pan.pipe = CL.TIED.UP</p> <p><i>ha</i>h̄io = <i>ba</i> 'sieve' sift = CL.TIED.UP</p> <p><i>b̄ũ</i>i = <i>ba</i> 'roof' palm.leaf = CL.TIED.UP</p> <p><i>h̄i</i>ri = <i>ba</i> 'tree bark wall' tree.bark = CL.TIED.UP</p> <p><i>ju</i>ja-<i>i</i> = <i>ba</i> 'longhouse door' hang-ST = CL.TIED.UP</p>	<p>Arrangement classifier. Expresses the idea of discrete elements tied up to a core, an edge or to each other. Hence, the long-house door, the roof of palm leaves, the bark wall, are all woven objects tied to a wood as its basis. Body parts such as chest and the foot, whose bone structure resemble distinct threads tied up to a core. The pan pipe is a set of tubes, tied up to each other. The manioc stick, whose connection to the other elements is less clear, is perhaps classified as such because women when go to plant manioc sticks, they carry all sticks in a bundle, tied up to each other.⁵</p>
= <i>b̄ẽ</i> 'thin line'	<p><i>ẽ</i>k̄ã = <i>b̄ẽ</i> 'eyebrow' edge = CL.THIN.LINE</p>	<p>Shape classifier. Denotes any object that is perceived as a thin line.</p>

⁴ Chomsky, in the recent Minimalist program, makes the claim that agreement is "feature copying". This is interesting for the analysis of unmarked inanimate nouns because it could be argued that the lack of a specific agreement feature (or category) in these nouns requires them to be fully copied in the modifiers.

⁵ Manioc is planted by digging a shallow hole to soften the earth and sticking a manioc stick into the ground. The stick is in its plain form, no roots or leaves. When people dig out the manioc tubers they break the manioc plants into short sticks to be planted in the next season. These short sticks are carried around in bundles, which have several manioc stick tied up together. Hence the extension of the 'tied up' category to manioc sticks does not refer to an intrinsic property of manioc sticks as per se.

	<p><i>hōbĩ = bẽ</i> 'umbilical cord' navel = CL.THIN.LINE</p> <p><i>jai = bẽ</i> 'liana species' liana = CL.THIN.LINE</p> <p><i>kuitote = bẽ</i> 'wool thread' wool = CL.THIN.LINE</p>	
= <i>bĩ</i> 'container'	<p><i>butfi = bĩ</i> 'cigar' tobacco = CL.CONT</p> <p><i>hoke = bĩ</i> 'a fish trap'⁶ trap = CL.CONT</p> <p>fish.trap = CL.CONT</p> <p><i>kuru = bĩ</i> 'bag' bag = CL.CONT</p> <p><i>hipo = bĩ</i> 'head' head = CL.CONT</p> <p><i>wio = bĩ</i> 'cheek' cheek = CL.CONT</p> <p><i>kĩra = bĩ</i> 'buttocks' excrement = CL.CONT</p> <p><i>yapi = bĩ</i> 'belly' belly = CL.CONT</p> <p><i>hita = bĩ</i> 'lake' lake = CL.CONT</p> <p><i>tũu = bĩ</i> 'bottle'</p>	<p>Shape classifier. Denotes every object that contains or can potentially contain a substance. Hence, cigar contains tobacco; a fish trap contains fish (or can potentially contain them); a bag contains objects; a head contains the brain; a cheek contains the mouth; buttocks contain the intestine; the stomach contains food; a lake contains water and fish; a bottle contains liquid; a rattle contains seeds and little rocks; a stick on fire contains blaze inside; a room contains people and objects; a wasp hive contains wasps.</p>

⁶ An oblong fish trap, called in Portuguese *matapĩ*.

	<p>metal/glass = CL.CONT</p> <p><i>hãhã = bi</i> 'rattle'</p> <p>rattler = CL.CONT</p> <p><i>tẽbũri = bi</i> 'drum'</p> <p>drum = CL.CONT</p> <p><i>toa = bi</i> 'blazing stick'</p> <p>fire = CL.CONT</p> <p><i>tõ = bi</i> 'room'</p> <p>corner = CL.CONT</p> <p><i>utfi = bi</i> 'wasp hive'</p> <p>wasp = C.CONT</p>	
= <i>bo</i> 'oval' ⁷	<p><i>kĩrã = bo</i> 'a big rock or stone'</p> <p>rock = CL.OVAL</p> <p><i>bede = bo</i> 'duck'</p> <p>duck = CL.OVAL</p> <p><i>hẽbẽ = bo</i> 'paca'</p> <p>paca = CL.OVAL</p> <p><i>bei = bo</i> 'mouse, rat'</p> <p>rat = CL.OVAL</p> <p><i>kũi = bo</i> 'turtle'</p> <p>turtle = CL.OVAL</p> <p><i>ihi = bo</i> 'pineapple'</p>	<p>Shape classifier. It designates any noun with a shape that is not fully rounded, but still resembles a ball. The perceptual of "ovalness" is related to the whole body (such as in the words on the left rock: leaf bundle, knee, shoulder) or to a considerable portion of the body (such as duck, paca, rat, pineapple, etc.)</p>

⁷ There is a homophonous bound-morpheme =*bo* which is not a classifier (according to the Morphosyntactic criteria of agreement), which are better analyzed as a class term, such as the words "berry" and "tree" in English (cf. Grinevald 2000). It means a collection of different elements forming a single, homogenous whole, such as in *toabo* 'fire place' (where fire, wood and blaze form a whole), *warubo* 'fish soup' (where chili, fish parts and water form a whole) and *diibo* 'inundated forest' (where trees, falling trees, floating leaves, fish and land form a whole).

	<p>pineapple = CL.OVAL <i>bũi = bo</i> 'leaf bundle' leaf = CL.OVAL <i>hũa-i = bo</i> 'nest' lie-ST = CL.OVAL <i>hãhã-i = bo</i> 'molar tooth' hard-ST = CL.OVAL <i>ari = bo</i> 'shoulder' upper.limb = CL.OVAL <i>ũa = bo</i> 'knee' knee = CL.OVAL</p>	
<p>= <i>bũ</i> 'thick line'</p>	<p><i>pĩkõ = bũ</i> 'tail' tail = CL.THICK.LINE <i>kĩra = bũ</i> 'intestine' excrement = CL.THICK.LINE <i>jãbẽ = bũ</i> 'neck' neck = CL.THICK.LINE <i>jai = bũ</i> 'liana species' liana = CL.THICK.LINE <i>bĩhĩ = bũ</i> 'aywaska'⁸ aywaska = CL.THICK.LINE <i>kore = bũ</i> 'line of people' wait = CL.THICK.LINE <i>pã boka = bũ</i> 'thick rope' ? rope = CL.THICK.LINE</p>	<p>Shape classifiers. Designate anything perceived as a thick line, thicker than = <i>bẽ</i> 'thin line' (see above)</p>

⁸ Hallucinogenic liana, *Banisteropsis caapi*.

<p>= <i>dĩ</i> 'rounded'</p>	<p><i>jako = dĩ</i> 'eyes' eye = CL.RND</p> <p><i>hia = dĩ</i> 'piece of meat' flesh = CL.RND</p> <p><i>dõe = dĩ</i> 'penis' genitals = CL.RND</p> <p><i>pãbũ = dĩ</i> 'armadillo' armadillo = CL.RND</p> <p><i>ũjũ = dĩ</i> 'avocado fruit' avocado = CL.RND</p> <p><i>kãĩĩ = dĩ</i> 'sling' sling = CL.RND</p> <p><i>pila = dĩ</i> 'batteries' battery = CL.RND</p> <p><i>bũtãu = dĩ</i> 'button' button = CL.RND</p>	<p>Shape classifier. Designates most things perceived as rounded, circular. The object's whole body can be rounded (as in 'eye', 'armadillo' [when curled], 'fruits'), or just the most salient part of its body (as in 'penis' [long and rounded], sling [in a form of a loop], batteries [long and rounded], button [flat and rounded]). See also =<i>bo</i> 'oval' and =<i>ka</i> '3 dimensional'.</p>
<p>= <i>do</i> 'convex'</p>	<p><i>hẽbẽ = do</i> 'tongue' tongue = CL.CNVX</p> <p><i>dõe = do</i> 'vulva' genitals = CL.CNVX</p> <p><i>hõbĩ = do</i> 'navel' navel = CL.CNVX</p> <p><i>kãpĩ = do</i> 'peninsula' peninsula = CL.CNVX</p> <p><i>kĩra-i = do</i> 'shoes' step-ST = CL.CNVX</p>	<p>Shape classifier. Denotes bodies that are convex, usually with a bulgy outward extremity.</p>

	<p><i>kopo</i> = <i>do</i></p> <p>cup = CL.CNVX</p>	
= <i>ja</i> 'river'	<p><i>hiwe</i> = <i>ða</i> 'Querari river'</p> <p>blood = C.RIVER</p> <p><i>ihi</i> = <i>ja</i> 'Vaupes river'</p> <p>pineapple = CL.RIVER</p>	Landscape classifier. Denotes any river.
= <i>jãbĩ</i> 'house'	<p><i>pãbĩ</i> = <i>jãbĩ</i> 'long house'</p> <p>Kubeo = CL.HOUSE</p> <p><i>kĩra</i> = <i>jãbĩ</i> 'cave'</p> <p>rock = CL.HOUSE</p> <p><i>bue-i</i> = <i>jãbĩ</i> 'school'</p> <p>study-ST = CL.HOUSE</p> <p><i>hĩo-i</i> = <i>jãbĩ</i> 'hospital'</p> <p>heal-ST = CL.HOUSE</p>	Function classifier. Designates all sorts of buildings or place where one lives.
= <i>jĩ</i> 'hollow'	<p><i>dẽi</i> = <i>jĩ</i> 'buriti palm'</p> <p>buriti = CL.HOLLOW</p> <p><i>kõhã</i> = <i>jĩ</i> 'bacaba palm'</p> <p>bacaba = CL.HOLLOW</p> <p><i>koa</i> = <i>jĩ</i> 'a pan'</p> <p>pan = CL.HOLLOW</p> <p><i>dori</i> = <i>jĩ</i> 'fish trap'</p> <p>fish.trap = CL.HOLLOW</p> <p><i>hapu-i</i> = <i>jĩ</i> 'flute'</p> <p>blow-ST = CL.HOLLOW</p> <p><i>pĩo</i> = <i>jĩ</i> 'blowgun'</p>	Shape classifier. Designates all things that are perceived as hollow or can become and be used as hollow (such as palm trees) (see contrast with = <i>bĩ</i> 'container').

	blow = CL.HOLLOW	
= <i>jo</i> 'long and sharp or pointed tip'	<i>kōpĩ</i> = <i>jo</i> 'tooth' tooth = CL.LONG <i>ãbũ</i> = <i>jo</i> 'finger' limb = CL.LONG <i>kãpĩ</i> = <i>jo</i> 'beak' beak = CL.LONG <i>dore-i</i> = <i>jo</i> 'sting' sting-ST = CL.LONG <i>hoki</i> = <i>jo</i> 'stick' tree = CL.LONG <i>kipe</i> = <i>jo</i> 'stalk' tree.sp = CL.LONG <i>pidãibã</i> = <i>jo</i> 'war club' war.club = CL.LONG <i>pedu</i> = <i>jo</i> 'trumpet' flue = CL.LONG <i>hahowa-i</i> = <i>jo</i> 'fishing stick' fish-ST = CL.LONG	Shape classifier. Denotes any type of object that are perceived as elongated, with a sharp or pointed tip'
= <i>ka</i> '3 dimensional'	<i>ũe</i> = <i>ka</i> 'nose' nose = CL.3D <i>kãbũ</i> = <i>ka</i> 'ear' ear = CL.3D <i>kii</i> = <i>ka</i> 'manioc tuber' manioc = CL.3D <i>bia</i> = <i>ka</i> 'a chili'	Shape classifier. Designate any tri-dimensional object, whose shape is not covered by = <i>bo</i> 'oval' and = <i>di</i> 'rounded'.

	<p>chili = CL.3D</p> <p><i>j̃a</i> = <i>ka</i> 'stool'</p> <p>hip = CL.3D</p> <p><i>kuru</i> = <i>ka</i> 'triangular bag'</p> <p>bag = CL.3D</p> <p>'<i>papi</i> = <i>ka</i> 'fishnet'</p> <p>fish.net = CL.3D</p>	
= <i>kĩ</i> 'tree'	<p><i>hokĩ</i> = <i>kĩ</i> 'a tree'</p> <p>tree = CL.TREE</p> <p><i>pãu</i> = <i>kĩ</i> 'hammock'</p> <p>hammock = CL.TREE</p> <p>'<i>papi</i> = <i>ka</i> 'fishnet'</p> <p>fish.net = CL.3D</p>	<p>Botany classifier. Designates all kinds of tree species. It is also the classifier for hammock and optionally for fishnet (see also =<i>ka</i> '3 dimensional). Hammock and fishnet are woven objects whose fiber are taken from palms, not trees (see =<i>j̃</i> 'palm' below). Hence their classification by =<i>kĩ</i> 'tree' is exceptional. Otherwise, there are two homophonous classifiers.</p>
= <i>kũ</i> 'embodiment'	<p><i>jedĩ</i> = <i>kũ</i> 'jaw'</p> <p>jaw = CL.EMB</p> <p><i>kawe</i> = <i>kũ</i> 'pair of wings'</p> <p>wing = CL.EMB</p> <p>'<i>jei</i> = <i>kũ</i> 'cucura bunch'</p> <p>cucura = CL.EMB</p> <p><i>kĩrã</i> = <i>kũ</i> 'rocky mountain'</p> <p>rock = CL.EMB</p> <p><i>ẽpã</i> = <i>kũ</i> 'beach'</p> <p>sand = CL.EMB</p>	<p>Shape classifier. Perhaps the most polysemous classifier, =<i>kũ</i> designates a referent that represents the collection of discrete entities (e.g. pair of wings, fruit bunch, feather crown) or the embodiment of a mass term (a rocky mountain, a beach, a field of ashes, a canoe, or with verbs as an embodiment of 'rolling' = car, and embodiment of 'flying' = airplane).</p>

	<p><i>ũa = kũ</i> 'filed of ashes' ash = CL.EMB</p> <p><i>tãrã bã = kũ</i> 'feather crown' ? macaw = CL.EMB</p> <p><i>hiaðo = kũ</i> 'canoe' tree.sp = CL.EMB</p> <p><i>hãtũrũ-i = kũ</i> 'car' roll-ST = CL.EMB</p> <p><i>wi-i = kũ</i> 'airplane' fly-ST = CL.EMB</p> <p><i>pedi = kũ</i> 'manioc grater' manioc.stuff = CL.EMB</p>	
= <i>wa</i> 'flat surface'	<p><i>kĩrã = wa</i> 'slab' rock = CL.FLAT</p> <p><i>kĩra-i = wa</i> 'floor, ground' setp-ST = CL.FLAT</p> <p><i>pãrãbĩ = wa</i> 'cassava plate'⁹ cassava.maker = CL.FLAT</p>	Shape classifier. This classifier has the fewest tokens in my corpus. It designates large flat areas.
= <i>we</i> 'blade'	<p><i>ãbũ = we</i> 'hand' limb = CL.BLADE</p> <p><i>kĩo = we</i> nail = CL.BLADE</p> <p><i>õre = we</i> 'a banana' banana = CL.BLADE</p>	Shape classifier. Designates all things perceived as sort of flat, with a smooth surface, but not really two dimensional.

⁹ A flat surface that is put over the fire to prepare cassava bread.

¹⁰ In a depression on a river, when the water precipitates into the lower part, a smooth surface of the rapid can be seen (smooth as a sheet of water).

	<i>hiaðo</i> = <i>we</i> 'paddle' tree.sp = CL.BLADE <i>karo</i> = <i>we</i> 'machette' machete = CL.BLADE <i>tākũ</i> = <i>we</i> 'rapids' ¹⁰ depression = CL.BLADE	
= <i>wĩ</i> 'animate collective'	<i>bõa</i> = <i>wĩ</i> 'a group of fish' fish = CL.AN.COL <i>upa</i> = <i>wĩ</i> 'performers' ¹¹ dance = CL.AN.COL <i>oko</i> = <i>wĩ</i> 'water spirits' water = CL.AN.COL <i>pohe</i> = <i>wĩ</i> 'rotten animals' rot = CL.AN.COL	Arrangement classifier. Designates any kind of collective groupings of animate beings.

I do not treat the morphemes *-kĩ* 'masculine', *-ko* 'feminine', *-dã* 'animate' plural, *-wa* 'animate' plural, *-e* 'mass' and *-dõ* as classifier morphemes. Even though they can classify nouns according the general scheme of Kubeo system of nominal classification (cf. section 8.1.1 above) they cannot be analyzed as classifier morphemes, which is a category that relates form and function.

These animate morphemes represent grammatical categories that are more general than the categories of classifiers. This can be observed in the consistency of their marking of agreement in the noun phrase and subject-verb levels (see section 8.1.2 and 8.2.2.2). Classifiers are an incipient category of agreement in the noun phrase and are never marked in verb inflection (however, see discussion below about examples (8.17) and (8.18)). In addition, animate nouns are inherently inflected with a classifier controlling agreement by the feature MASCULINE. Furthermore, the pattern of classifiers in nominalizations is different from the pattern of the animate morphemes, which shows a distinction in form and function (see section 8.2.4).

¹¹ The group of people that performs as musicians, dancers and chatters in a drinking or offering festival.

The same rationale is valid for the inanimate morphemes *-e* MASS and *-dõ* COUNT. They also represent categories that are more general than the categories of classifiers, supplanting classifiers in agreement circumstantially (see (8.19) below), and patterning with the animate inflectional morphemes in the paradigm of nominalizations of stative verbs, differently from classifiers (see section 8.2.4).

As was extensively discussed in the phonology and morphophonology sections of this dissertation, classifiers are clitics, which means they are phonologically dependent on a host, although they project their own foot and have a separate domain for nasal harmony (cf. Chapters 3, 4, and 6). In addition, all classifiers are uniformly monosyllabic and toneless (except *=jãbĩ* 'CL.HOUSE', which is disyllabic). These are the sort of formal characteristics that render classifiers a different status from regular nouns, implying that classifiers are an "emic" category in the language (to quote Senft 2000).

Classifiers have an inherent category. This can be seen when classifiers are combined with mass nouns. A word formed by a mass noun and a classifier takes the category of the classifier; therefore if the classifier has the category of an inanimate count noun, the word is also inanimate count. Further evidence that most classifiers are inanimate count nouns is found in that classifiers can inflect for NUMBER as other inanimate nouns do (see table 2 above). On the other hand, if the classifier is animate, as in the case of *=wĩ* 'animate collective', the category of the word is also animate. For example *oko* 'water' + *=wĩ* 'animate collective' becomes *okowĩ* 'water spirits'. However, when classifiers are combined with animate nouns, they do not change the category of the nouns (see further discussion in point (ii) below).

One could incorrectly assume that mass nouns inflect for classifiers by observing formation of words such as those in the examples below:

- (8.14)
- a. *ũe*
'nose' (a mass term)
 - b. *ũe = ka*
nose = CL.3D
'nose (human nose-like shape)'
 - c. *ũe = bo*
nose = CL.OVAL
'nose (pig's nose-like shape)'
 - d. *ũe = jo*
nose = CL.LONG

- 'nose (rat's nose-like shape)'
- e. *uẽ = bũ*
 nose = CL.THICK.LINE
 'nose (dog's nose-like shape)'
- (8.15) a. *kira*
 'excrement' (a mass noun)
- b. *kira = bi*
 excrement = CL.CONT
 'buttocks'
- c. *kira = bũ*
 excrement = CL.THICK.LINE
 'intestines'
- (8.16) a. *etfidi*
 'inajá (*Attalea maripa*)' (a mass noun)
- b. *etfidi = jĩ*
 inaja = CL.HOLLOW
 'Inaja palm'
- c. *etfidi = di*
 inaja = CL.RND
 'inaja palm heart'
- d. *etfidi = kũ*
 inaja = CL.EMB
 'inaja bunch'

The apparent "inflectional" processes that might be misinterpreted by the above examples is semantically similar to what occurs in compounds, as demonstrated in (8.16) (see chapter 6 for differences between compounds and clitics such as classifiers):

- (8.16) a. *ũe* *#kobe*
 nose *#hole*
 'nostrils'
- b. *kira* *#kobe*
 excrement *#hole*
 'anus'

- c. *kira* #*pĩkõ = bũ*
 excrement #tail = CL.THICK.LINE
 'coccyx'
- d. *etfidi* #*bohĩ*
 inaja #leaf
 'inaja's leaf'

As is demonstrated here, classifiers are better analyzed as having word formation processes similar to compounds. This analysis can also more directly explain the (rare) cases of words with two classifiers, such as *kĩi = ba = bĩ* (manioc = CL.TIED.UP = CL.CONT) 'manioc plant'.

Classifiers in Kubeo must be analyzed as morphemes that are fall somewhere between a lexical and a functional category (cf. Grinevald 2000 for the definition of classifiers exactly as morphemes in between the lexical and functional [grammatical] poles of grammar). The lexical nature of classifiers can be more directly observed in the word formation processes of (8.14) through (8.16) as well as in their similarity to compound formation. Their functional nature is observed in two ways:

- I. SEMANTICS. Classifiers are not only simply hypernyms. They are linguistic categories used for the classification of nominal referents, similar to how NUMBER can categorize nominal referents. Their role as categories is ambiguous in the sense that they have a semantic nexus with the nouns with which they are combined, and also with the referential (non-linguistic) world by classifying the diversity of forms into discrete categories. It is precisely by making this link (between the nouns they are combined with and their referents) that classifiers can be regarded as functional categories.
- II. CLASSIFIER AND ANIMATE NOUNS. Classifiers, when combined with animate nouns, do not change the category of the animate nouns to inanimate (hence agreement and plurality of animate nouns with a classifier does not follow the classifier pattern. See section 8.1.1 above). Their function in these cases is to classify the semantics of the inherent nominal referents of the animate nouns, as discussed in point (i) above.¹²

¹² It is interesting that Gomez-Imbert (1996) shows compelling evidence that classifiers in animate nouns is a recent diachronic innovation, a generalization from the class of inanimate nouns -- where the categorization of shapes are more salient to the classification of nouns -- to the class of animate nouns.

Additionally, an important feature of the functional nature of classifiers is their function in agreement. The most general rule is for classifiers to control agreement on modifiers by the repetition of the classifier in the modifier word. This is similar to the agreement pattern of inanimate count nouns, as illustrated in (8.10) and (8.11) above, and per se should not be significant to understanding the functional nature of classifiers.

Nevertheless, classifiers clearly behave distinctly from inanimate count nouns in two important ways, which highlight the functional nature of classifiers. First, classifiers can be used as agreement markers in modifiers whose head nouns do not bear a classifier, but nevertheless are semantically under the scope of the category of a given classifier. The example (8.17a) shows how a classifier in a modifier classifies a borrowing as the head noun, which has not been fully nativized and has no overt classifier;¹³ example (8.17b) shows a case of a native word without an overt classifier, yet controls agreement in a nominalized verb with the classifier =*do* 'convex':¹⁴

- (8.17) a. *hi = pakí* *hawe-de* *'hi#jěkõ* *api-e-de*
 my = father already-OBL my#grandmother alive-MSS-OBL
 i = yãbĩ *cozĩjã-de* *a-abě*
 this = CL.HOUSE kitchen-OBL make-PST.3MSC
 'my father made this kitchen while my grandmother was still alive'
- b. *'hi* *#kãrĩ* *ǎa-wa-di = do*
 my #coca.support make-PST.PAS-NMZ = CL.CNVX
 'the coca plate that I had done before'

This sort of behavior highlights that classifiers are evolving into agreement categories, detached from their noun-like behavior (as plain "repeaters").

Another important difference between classifiers and inanimate count nouns is their behavior in agreement when pluralized. A pluralized inanimate count noun controls agreement by the feature MASS (cf. e.g. (8.12a) above). A pluralized classifier usually controls agreement by the repetition of the classifier in its plural form in the modifier, as illustrated below:

- (8.18) a. *i = kũ-a* *hiaǎo = kũ-a*
 this = CL.EMB-IN.P tree.sp = CL.EMB-IN.P

¹³ Nativized borrowings usually bear a classifier, such as *kopo = do* (cup=CL.CNVX) 'cup', from Portuguese *copo* 'cup'; *pereku = jo* (nail=CL.LONG) 'nail', from Portuguese *prego* 'nail'; *kautũu = do* (rubber=CL.CNVX) 'rubber boots', from Spanish *caucho* 'rubber'.

¹⁴ The word *kãrĩ* 'coca plate support' is a vertical object made of thin sticks tied up to each other and with two open sides, one in the bottom and another in the top. The middle portion of the object is narrower than its edges, what gives the impression of something convex.

kopo-i = e-ba-ke = ta = bũ

break-ST = MSS-BE-NMZ.PST.MSS = E.FC-COP.N.3AN.SG

'these canoes are broken'

b. *bãbã = jĩ-a*

kõa = jĩ-a = ra = ta

new = CL.HOLLOW-IN.A pan = CL.HOLLOW-IN.A = PRCSLY = E.FC

'a brain new pain'

These examples show that classifiers can have their own agreement features in plural forms, and do not necessarily agree with the MASS feature, as do other inanimate nouns.

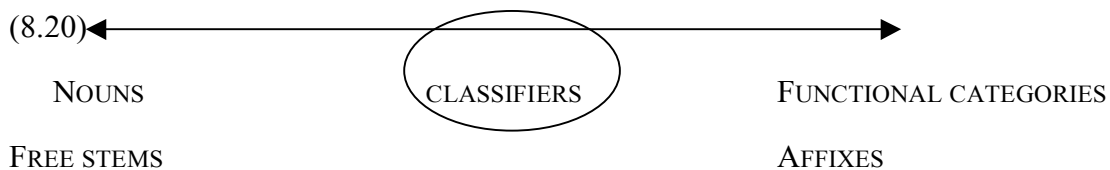
Nevertheless classifiers are also subject to the typical variations of agreement relations in Kubeo. Some modifiers can use more general features such as COUNT GENERIC or MASS instead of the more specific feature of classifiers, as represented below:

(8.19) a. *kĩrãbĩ bẽa-dõ* / *kĩrãbĩ bẽa = jãbĩ*
 house good-CNT house good = CL.HOUSE
 'a good house' 'a good house'

b. *i = e* *bũi = bo-a* *'hi#kĩrãbĩ = ke* *ãbẽ-e = bu*
 this = MSS leaf = CL.OVAL-IN.P my#house = ORG.MSC COP.NEG-MSS = PROB
 'this leaf bundle is not from my house'

c. *kai = e* *hiađo = kũ-a*
 all = MSS tree.sp = CL.EMB-IN.P
 'every canoe'

The ambiguous nature of classifiers as exhibiting qualities of both lexical and functional categories can be explained in a diachronic perspective. Classifiers are clitics, which are in a mid-point between bound-morphemes and free stems; they also represent a mid-point between regular nouns and functional categories. This reveals an incipient or partial grammaticalization process as represented by the cline below, which represents classifiers between two types of poles: a functional pole and a structural pole (see also the cline in section 6.3, chapter 6):



The relative antiquity of classifiers in Kubeo can be assessed by comparison with other Tukanoan languages. About ten classifier morphemes in Kubeo are cognates with classifiers in the Siona language, a Western Tukanoan language (cf. Wheeler 1987). About six also have cognates in Koreguaha (cf. Cook and Criswell 1993), another Western Tukanoan language, and in Tatuyo, an Eastern Tukanoan language (cf. Gomez-Imbert, *to appear*). In all of these languages, as indicated by the sources above, the morphosyntax of classifiers and what I call unmarked inanimate nouns is very similar to what has been here described for Kubeo.

The origin of classifiers is likely from unmarked inanimate nouns, which explains why all of them have the inherent category of COUNT nouns (except =*wi* 'animate collective'). The actual lexical sources of classifiers are difficult to narrow down, but I offer here some hypotheses. First, Some classifiers have a related noun in Kubeo, for example the classifier *-jãbĩ* 'CL.HOUSE' has *kãrãbĩ* 'house' as its lexical source. Similarly =*ja* 'river' is related to *hia* 'river' and =*kĩ* 'CL.TREE' is related to *hoki* 'tree'. Second, other classifiers find a lexical cognate in another language. For example, the classifier =*dĩ* 'rounded' does not have a related noun in Kubeo, but other Eastern Tukanoan languages have the word *dika* 'fruit', as in Tukano, whose cognate in pre-Kubeo is likely its source. The classifier =*kũ* 'embodiment' also has no related word in Kubeo, but in related languages there is a cognate root *kũbũ* which in a language such as Barasano appears in words for objects made of wood, such as 'canoe', 'bench', 'manioc beer container', 'mortar to grind coca leaves' (cf. Barasana literacy committee 2009). Classifier =*jo* 'CL.LONG' resembles the dependent noun *yo'yo* 'with protrusion' in Tukano (cf. Ramirez 1997).

8.1.4 Noun derivation. Nouns can become verbs in Kubeo by combining with the light verbs *te* 'to do', *ða* 'to make' and *kĩ* 'to exist', to create dynamic verbs. The suffix *-hĩ* 'stative verbalizer', creates a stative verb from a noun.

A noun can only function as an adjective in the noun phrase by first being derived into a stative verb and then being nominalized. As for nouns and adverbs, they can either become stative verbs and then nominalized, or a few can also function in their simple noun form (see section 8.3)

Stative verbs derived from nouns by the suffix *-hĩ* 'stative verbalizer' is demonstrated below:

(8.21) a. *kođo* + *-hĩ* → 'to be disgusting'
 diarrea -VBZ

- b. *ji bĩ-de kaða#te-ji-bu*
 I you-OBL support#do-NMZ.MSC-COP.N.3AN.SG
 'I am going to help you'
- (8.27) a. *põe + #te → 'to be born'*
 person do
- b. *hawe gabi bãki põe#te-bi=ja*
 already Gabriel son person#do-3MSC = REP
 'it is said that Gabriel's son has born'
- (8.28) a. *wei + #te → 'to adorn oneself with the ink wei'*
 black.ink do
- b. *biki-ki wei-te-bi* (Morse et. al 1999)
 old-msc black.ink-do-3MSC
 'the old man adorned himself with black ink'

The light verb *te* 'to do' also derives dynamic verbs from stative verbs and some adjectives (see 8.2.1.1 and 8.4 respectively).

The following examples illustrate verbs derived from nouns with the light verb *ða* 'to make':

- (8.29) a. *tawa + #ða → 'to open an area'*
 area make
- b. *jo-de ĩ tawa#ða-dĩ 'bi-ji*
 THIS.CNT he area#make-CNV begin-NMZ.MSC
 'he (was) the first to create this area (village)'
- (8.30) a. *bohe + #ða → 'to buy or to sell'*
 value, payment make
- b. *'je-ke ji bohe#ða-be-ki-bu*
 INDEF-INSTR I payment#make-NEG-MSC-COP.N.3AN.SG
 'I have nothing to pay (for it)'
- (8.31) a. *põe + #ða → 'to deliver a baby, create something'*
 person make
- b. *'juri dõ-i=ta jĩhã-de põe#ða-kebã-awĩ*
 Yuri ANPH.CNT = E.FC we.exc-OBL person#make-PST.ASM-PST.1/2/3/IN
 'over there, Yuri created us'

(8.32) a. *wei* + #*ða* → 'to adorn someone with the ink *wei*'
 black.ink make

b. *biki-ki-de* *wei#ða-bã* (Morse et. al 1999)
 old-MSO-OBL black.ink-do-3rd.person.masculine
 'they adorned the old man adorned with black ink'

The light verb *ða* 'to make' can also be used as causative in complimentary distribution with *-wa* 'causative' (see section 8.2.1.1 for the causative *-wa*).

The light verb *ki* 'exist' also can combine with nouns and form a stative verb with the meaning 'to bear/have X' where X stands for the noun:

(8.33) a. *doki* + #*ki* → 'to be dirty'
 dirt exist

b. '*hi#kibo = ba* *doki#ki-wi*
 my#foot = CL.TIED.UP dirt#exist-N.3AN
 'my foot is dirty'

(8.34) a. *ãbĩ* + #*ki* → 'to have a name, to be called'
 name exist

b. '*haija* *ãbĩ#ki-wi* *di = ja*
 Aiyari name#exist-N.3AN ANPH = CL.RIVER
 'Aiyari that river is called'

(8.35) a. *ĩbĩ* + #*ki* → 'to marry a man'
 man exist

b. '*ĩ-de* *ĩbĩ#ki-be-ha-ko* *a-ako = ja*
 he-OBL man#exist-NEG-IMP-FEM say-PST.3FEM = REP
 "'do not marry him'", she told (her)'

(8.36) a. *põe* + #*ki-be* → 'to exist nobody (be alone)'
 person exist-NEG

b. *põe#ki-be#te-ibã = ja*
 person#exist-NEG#do-PST.3AN.P = REP
 'they were alone'

8.2 Verbs

8.2.1 Verb subclasses. There are two verb subclasses in Kubeo: dynamic and stative verbs (following terminology of Morse and Maxwell 1999). While this distinction is semantically universal across languages (cf. Comrie 1976), in Kubeo it reflects a system of lexical categorization with deep implications to the grammar of verbs and predicates.

In this work I use the term LEXICAL ASPECT to refer to the stative and dynamic distinctions in verb subclasses as well as in verb stems, since verb roots can be derived to dynamic or stative stems (see section 8.2.2). According to the particular circumstances, I am able to provide a more detailed classification of dynamic lexical aspect, following Vendler's (1957) categories: *actions* (e.g. to walk), *accomplishments* (e.g. to write a letter, to build a house) and *achievements* (e.g. to arrive).

The following chart illustrates a few stative and dynamic verbs in Kubeo. The verbs are indicated whether transitive T.V, or intransitive I.V.:

(8.46) *Table 5: Stative and Dynamic verbs*

STATIVE VERBS			DYNAMIC VERBS		
<i>ākĩrĩ</i>	I.V	to be itching	<i>ã</i>	I.V / T.V	to eat
<i>apĩ</i>	I.V	to be alive	<i>a</i>	I.V / T.V	to say
<i>ãrĩ</i>	I.V / T.V	to remember	<i>beha</i>	I.V	to go down river
<i>bãhi</i>	T.V	to know	<i>biho</i>	I.V	to vomit
<i>bãu</i>	I.V	to stay	<i>biaha</i>	T.V	to finish
<i>bo</i>	I.V	to be white	<i>'bo</i>	I.V	to sunshine
<i>bui</i>	I.V	to be full (place)	<i>tʃio</i>	I.V	to get said
<i>diki</i>	I.V	to be heavy	<i>dirĩ</i>	T.V	to carry on arms
<i>doba</i>	I.V	to sit	<i>ẽ</i>	I.V	to burn
<i>dũrĩ</i>	I.V	to be correct, straight, righteous	<i>'dapia</i>	I.V / T.V	to think
<i>ehi</i>	I.V	to be salty	<i>'ea</i>	I.V / T.V	to find, to arrive
<i>emihĩ</i>	I.V	to be sweet	<i>eta</i>	I.V	to leave
<i>hai</i>	I.V / T.V	to lack, to need	<i>jabo</i>	I.V	to flood
<i>'haro</i>	I.V	to be visible	<i>'hã</i>	I.V / T.V	to look at, to see
<i>hidĩ</i>	T.V	to fear	<i>boa</i>	T.V	to hit, to kill
<i>hihi</i>	I.V	to be cold	<i>hakoji</i>	T.V	to greet
<i>hoa</i>	I.V	to be long	<i>hãpã</i>	T.V	to scratch

<i>ĩ</i>	T.V	to want, to love, to like	<i>hewa</i>	T.V	to collect, to gather, to harvest
<i>ĩbĩhi</i>	I.V	to be tall	<i>hoa</i>	T.V	to roast, to burn
<i>ihĩ</i>	I.V	to feel pain, sick	<i>koeda</i>	I.V	to wake up
<i>kĩ</i>	I.V	to live, to exist, to be at	<i>kõhẽ</i>	T.V	to command, to prohibit, to allow
<i>kĩwa</i>	T.V	to have	<i>kõijo</i>	I.V	to get thirsty
<i>kohĩ</i>	T.V	to like	<i>koko</i>	I.V / T.V	to look, to stare, to observe
<i>parĩ</i>	I.V	to be strong	<i>bĩ</i>	I.V	to go up
<i>toahi</i>	I.V	to be hot	<i>dãĩ</i>	I.V	to darken (get into the night)
<i>toi</i>	I.V	to be colorful	<i>o</i>	I.V	to cry
<i>upia</i>	I.V	to be sour	<i>pẽo</i>	T.V	to light
<i>jaĩ</i>	I.V	to be fast	<i>tĩ</i>	I.V	to fall
<i>jakĩ</i>	I.V	to be wet	<i>ũkũ</i>	I.V / T.V	to drink

The stative and dynamic distinction is irrelevant to the valency of each verb, although the distinction does relate to some issue of transitivity, as discussed in section 8.2.1.1 below.

Another important fact regarding the semantic value of these verbs is that some of them are often translated by states of being in other languages, however in Kubeo they are actually dynamic verbs, such as *tĩio* 'to get sad', *hã* 'to watch, to see', *kõijo* 'to get thirsty', *dapia* 'to think', and so on.

The grammatical consequences of the stative and dynamic distinction in Kubeo verbs emerge in two ways: (i) each class selects a different set of morphemes (paradigms) for certain categories; and (ii) each class can impose constraints and conditions to express certain functional categories (inflection and derivation).

The selection of different morphemes by each verb subclass can be observed in (8.38) and (8.39) below, where the same functional categories (nominalizer + gender) have different formal markers depending on the verb subclass:

- (8.38) STATIVE
- a. *doba-kĩ*
 sit-NMZ.MSC
 'the male being (man, animal, spirit, etc.) who sits, is sat'

of verbal inflection; namely tense, aspect, evidentiality, and person (see 8.2.3). There is more to say about this, but the rationale of this phenomenon is based on the fact that perfective aspect of a predicate (as in (8.40a) and (8.41a)) is carried over from the dynamic semantics of verbs; the stative aspect (as in (8.40b) and (8.41b)) is carried over from the semantics of stative verbs.¹⁵

A dynamic concept can be used in a stative aspect, and similarly a stative concept can be used in perfective aspect. This is related to a general scheme of verb subclass changing derivations which is discussed in the following section.

8.2.1.1 Subclass changing derivation. Derivation across verb-subclasses can be analyzed into two types: (i) verb roots are derived for the exact purpose of coding specific tense, aspect, evidentiality, and modality categories; (ii) verb roots are derived as by-products of other grammatical operations in verbs that ultimately affect a stem's transitivity (in the sense of Hopper and Thompson 1980).

The first type of derivation is realized by the light verb *te* 'to do', which by compounding with stative verbs creates dynamic stems. This type is also realized by the suffix *-i* 'stative', which derives stative stems from dynamic verbs.

The examples below show the derivation of stative verbs. Examples in (a) show the verbs inflected in their original subclass, and (b) in the derived subclass:

- (8.42) a. *bẽa-ha-kĩ*
 good-IMP-MS
 'be a good person!'
- b. *bẽa#te-ha-kĩ*
 good#do-IMP-MS
 'straighten up!/behave!'
- (8.43) a. *bãbã-kĩ* *jo = pe* *a-jĩ = ta-bu*
 young-MS THIS.CNT = AS say-NMZ.MS = E.FC-COP.N.3.AN.SG
- toro-hĩ-kĩ = ta-be*
 adornment-VBZ-MS = E.FC-COP.3AN.SG
 'this is what I am saying, my son is happy'

¹⁵ The basic aspectual opposition in Kubeo is between perfective, a default category of dynamic events, and stative, a default category of stative situation. There are other aspectual categories, though (see section 8.2.3.2). The category of the imperfective (as in Comrie 1976 and Dahl 1985) cannot be applied to Kubeo, giving the non-uniformity in grammatical and aspectual terms of the so called 'categories of the imperfective' in Kubeo.

- b. *kari-de* *ji bẽ* *toro-hi#te-wi* *hi = paki*
 now-OBL I well adornment-VBZ#do-N.3AN my = father
kopai-dĩ *eda-i = e-de*
 return-CNV arrive-ST = MSS-OBL
 'today I got happy with my father's arrival'
- (8.44) a. *ãdõ* *hieðo-ko* *hãrãwi* *hoa-dõ* *doba-biko*
 THAT.FEM child-FEM day long-CNT sit-3FEM
 'that girl sat there the whole day'
- b. *ãdõ-i* *doba#te-biko.* *dãkãhã-dĩ* *dĩ-kobe*
 THAT.CNT-LOC sit#do-3FEM stand.up-cnv go-INFRR.3FEM
 'she sat there. then she stood up and left'
- (8.45) a. *paulo pare* *bahu* *pĩpĩ-wa-de* *hidi-bi*
 Paul strongly INTNS spider-AN.P-OBL fear-3MSC
 'Paulo fears spiders very much'
- b. *bãbã#dĩbĩ 'hi* *bĩtu-i* *dĩ-i = e-de*
 new#time my Mitu-LOC go-ST = MSS-OBL
bãkã-dõ = ka = wi-de *hidi#te-kaki*
 jungle-CNT = ORG = CL.AN.COL-OBL fear#do-II.1MSC
 'the first time I went to Mitu I was afraid of the guerrilla'

As demonstrated in the above examples, there are cases where compounding with *te* 'to do' implies a change of state in the lexical semantics of the verb, as seen in (8.42) and (8.43). Other cases, like those in (8.44) and (8.45), show that the semantic value of the predicate simply refer to a perfective event in the past that no longer holds in the present. Sentence (8.43) shows a change of state that happened in the past, but has implications for the present (see also section 8.2.3.2). This shows that *te* 'to do' is not only used to allow stative verbs to code perfective situations, but ultimately can form new words, something in between what is generally understood as inflection and derivation.

The derivation of dynamic verbs by the suffix *-i* 'stative' is illustrated below.¹⁶ The examples in (a) show the verbs inflected in their original subclass, and (b) shows them in the derived subclass:

¹⁶ The stative suffix has an allomorph *-ja* 'stative' for all inflected forms of third person plural.

- (8.46) a. *oko* *koaka-wi*
 water boil-N.3AN
 'the water has boiled'
 (the speaker saw it, left the kitchen and reported to the others)
- b. *oko* *koaka-i-wi*
 water boil-ST-N.3AN
 'the water is at is boiling'
 (the speaker reports while seeing the event)
- (8.47) a. *aru* *bābā = hĩ-ki* *bẽ* *ã-abẽ = ða*
 and you = DIM-MSC well eat-II.3MSC = REP
 'and so, the little boy ate it all'
- b. *kaparo* *ã-i-abẽ* *jai = bũ* *hẽ-i = e-de*
 monkey.sp eat-ST-3MSC liana = CL.THICK.LINE hang-ST = MSS-OBL
 'the monkey (sp.) eats liana fruits'
- (8.48) a. *kihĩ-ki* *obi* *jĩhẽ* *koeda-i = e* *bahu-de*
 small-MSC cry-3MSC our.exc wake.up-ST = MSS INTNS-OBL
kari *hawehĩna-de*
 now early.morning-OBL
 'the little boy cried early in the morning today when we woke up'
- e. *kihĩ-ki* *pare* *bahu* *o-i-bi*
 small-MSC strongly INTNS cry-ST-3MSC
 'the little boy is crying very much'

It should also be noticed that the stative suffix cannot be combined with a stative verb, except the bound-stem copula *-ba*. The light verb *#te* 'to do' also cannot be combined with a dynamic verb. These restrictions suggest that Kubeo confers these formatives with particular semantic/grammatical features that are also respectively present in dynamic or stative verbs. So the co-existence of these features is avoided.

The second type of subclass changing derivation is the by-product of different suffixes, who increase or decrease the transitivity of a verb root. By transitivity I mean the sorts of semantic and grammatical relations pointed out by Hopper and Thompson (1980). These authors proposed a transitivity scale that shows a correlation in grammars where low transitivity elements (e.g. imperfective aspect, present tense, partitive case, negation, irrealis mood, passives and indefinite nouns) tend to occur together in similar

discourse situations; and high transitivity elements (e.g. perfective aspect, past-tense, accusative case, realis mood, causatives and definite nouns) also tend to correlate.

In Kubeo this is found in the way negation, when combined with dynamic verbs, changes the stem lexical aspect to stative. On the other hand, the causative and the benefactive/malefactive change the aspect of a stative stem to dynamic. The irrealis suffix, on the other, do not change the lexical aspect, but requires a stative stem. This is summarized in the table below:¹⁷

(8.49) *Table 6: Correlation of transitivity and lexical aspect*

MORPHEME	DERIVES DYNAMIC STEMS	DERIVES STATIVE STEMS	REQUIRES A STATIVE STEM
<i>-be</i> 'negation'		X	
<i>-hi</i> 'irrealis modality'			X
<i>-wa</i> 'causative'	X		
<i>-ka</i> 'benefactive/malefactive'	X		
<i>-deha</i> 'historical past modality'	X		

The following sentences illustrate the derivation of dynamic verbs by *-be* 'negation':

- (8.50) a. *jawi hau a-be-abẽ* GENERIC PREDICATE
 jaguar bark say-NEG-II.3MSC
 'jaguar do not bark'

¹⁷ Morse and Maxwell (1999:19) give a much longer list of devices that change the lexical aspect of verbal stems (there are many missing examples in their discussion of the particular morphemes). However, according to my analysis, they are misled by the fact that they were not aware that many of forming compounds with the nominalized form of the verbs that they thought were being derived. For instance, this is the case of what they called 'desiderative', which is actually the verb *ĩ* 'to want' combined with the nominalized form of the main verb affixed by *-i* 'stative'; also the so-called 'authoritative' which is formed by the verb *kõhẽ* 'to command' and a main verb derived by the suffix *-i* stative; the 'frustrative' which is actually a verb *du* 'to escape' plus a converb *-dĩ* deriving the main verb, etc. Other morphemes are cases of misanalysis of their particular function, such as *-he* 'hypothetical', which can be used in the past, present or future situations and has no relation to lexical aspect whatsoever. Also, *-wa* 'habitual' does not alter the lexical aspect of stems at all, nor require any particular subclass of stem (cf. section 8.2.3.2).

- b. *ãdĩ = jĩ* *po-be-wi* GENERAL STATE
 that = CL.HOLLOW explode-NEG-N.3AN
 'that shotgun does not work' (lit. does not shoot, explode)

A negated stem can yet be derived back to a dynamic stem by compounding with the light verb *te* 'to do', as in *po-be#te-wi* (explode-NEG#do-N.3AN) 'it did not shoot'.

The following examples show that the irrealis require a stative stem. In (8.51a) the dynamic verb *ko* 'to enter' is derived by *-i* 'stative'. In (8.51b) the irrealis is combined with a stative verb, which does not need to be derived:

- (8.51) a. *di = e-dã* *ko-i-hi-bã* *aru*
 ANPH = MSS-LOC.SPC enter-ST-IRR-3AN.P then
 'they (termites) might have entered right there (in the clothes), then'
- b. *ĩ-ba-hi-bi*
 he-BE-IRR-3MSC
 'it could be him'

The following three examples illustrate the derivation of a stative stem into a dynamic stem by *-wa* 'causative', *-ka* 'benefactive' and *-deha* 'historical past'.¹⁸

- (8.52) a. *dõ-i* *kari* *'dũ-wã-kebã-awĩ*
 THAT.CNT-ST topic stand-CAUS-PST.ASM-II.1/2/3IN
 'There we were stopped'
- b. *bĩ* *asa'i* *eda-i = e-de* *hieðo-wa-de*
 your Açaí.village arrive-ST = MSS-OBL child-AN.P-OBL
 bãhi-ka-he = bu
 know-BEN-HYP = PROB
 'When you arrive in Açaí, you could teach the students'
- c. *dõ-de* *hoe* *ki-deha-kebã-awĩ*
 THAT.CNT-OBL long.time exst-HST.PST-PST.ASM-II.1/2/3IN
 'they lived there for a long time'

¹⁸ It should be noticed that the historical past morpheme, *-deha*, is a frozen form of a compound, where *|de|* is from a nominalizer (sort of infinitive) and *|ha|* is a dynamic light verb, also used in verbs as *'bi#ha-* (not#HA) 'to disappear'. Their compound-like structure can still be observed in the synchronic morphophonology of words formed by this morpheme. Hence, its inclusion in the transitivity phenomenon can be problematic.

The causative (8.52a) changes a stative verbs *dũ* 'to stand' to a dynamic stem *dũ-wa* 'to stop' and the resultant stem is not required to be combined with *te* 'to do' in order to code a situation in the past. The same rationale is valid for the historical past in (8.52c). The diagnose that the benefactive/malefactive changes the lexical aspect of the stem is the change in meaning of the root, from *bāhi* 'to know' for *bāhi-ka* 'to make one knows'.

8.2.2 Verb Inflection. This section presents the paradigms of verb inflection. I will not be able to demonstrate examples for all paradigms in this dissertation. Some comments on verb inflection were offered in sections 8.2.1 and 8.2.2. A more elaborate analysis of the categories of verb inflection is offered in 8.2.2.1; verb agreement is presented in section 8.2.2.2. In section 8.2.3 I discuss tense, evidentiality, aspect and person.

The categories of verb inflection in Kubeo are the following:

- TENSE: remote past, recent past, present and future.
- EVIDENTIALITY: unmarked (first hand experience or no statement about information source), inferred, assumed and reportative.
- PERSON: first, second, third (agrees with subject).
- NUMBER: singular and plural (agrees with subject).
- GENDER: inanimate versus animate (masculine, singular and plural, agreeing with subject).

These categories are in general fused in the same suffix or divided in no more than two suffixes. Aspect is a separate category that relates to lexical aspect of verb roots, tense/evidentiality, while the habitual, iterative and the progressive aspects can be combined with a variety of situations. Reportative evidential is a clitic and can be combined with different verb inflection forms. Modality can be coded by suffixes and periphrastic constructions (not directly treated in this work). Mood is also expressed as verb suffixes, such as declarative (unmarked), interrogative, imperative, hortative and hypothetical (not directly treated in this work).

The first paradigm set presented in (8.53) has forms for UNMARKED EVIDENTIALITY (which can be used when the speaker makes no statement about evidentiality or that the speaker had/has first-hand experience with the situation he is talking about):

(8.53) *Table 7: inflection verb paradigms for unmarked evidential*

CATEGORY	CLASS II	CLASS I
3 RD PERSON MASCULINE SINGULAR	<i>-ãbe</i> II.3MSC	<i>-bi</i> 3MSC
3 RD PERSON FEMININE SINGULAR	<i>-ako</i> II.3FEM	<i>-biko</i> 3FEM
3 RD PERSON ANIMATE PLURAL	<i>-ibã</i> II.3AN.P	<i>-bã</i> 3AN.P
1 ST PERSON MASCULINE SINGULAR	<i>-kaki</i> II.1MSC	<i>-wi</i> N.3AN
1 ST PERSON FEMININE SINGULAR	<i>-kako</i> II.1FEM	
1 ST PERSON PLURAL EXCLUSIVE	<i>-karã</i> II.1P.EXC	
1 ST PERSON PLURAL INCLUSIVE 2 ND PERSON SINGULAR AND PLURAL INANIMATE	<i>-awĩ</i> 1/2/3IN	

Please notice that class I has conflated categories of class II into a single category. The general difference between class I and class II paradigms is the following:

(8.54) *Table 8: General differences between Class I and II forms*

	STATIC STEM	DYNAMIC STEM
CLASS I	- present time reference - stative aspect	- recent past time reference - perfective or perfect aspect

CLASS II	- atemporal time reference - generic predicate	- remote past time reference - perfective aspect
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Some of these issues were introduced in section 8.2.1 and 8.2.2. More details are offered in section 8.2.3, where I also explain how inflected forms unmarked for evidentiality can make no claim about information source.

The next paradigm is for the phrasal-affixal copulas, which also are unmarked for evidentiality. There is one copula that marks ASSUMED EVIDENTIALITY:

(8.55) *Table 9: Phrasal-affixal copulas paradigm*

CATEGORY	COPULAS
3 RD PERSON ANIMATE SINGULAR	<i>-be</i> COP.3SG
NON-3 RD PERSON ANIMATE SINGULAR	<i>-bu</i> COP.N.3.AN.SG
INTERROGATIVE	<i>-ba</i> COP.INTR
PROBABLE MODALITY COPULA (ALL PERSONS AND GENDER)	<i>-bebu</i> COP.ASM

Morse and Maxwell (1999) analyze *-bebu* 'probable modality' under the category of what I call ASSUMED EVIDENTIALITY (actually they call the assumed evidentiality as "probable evidentiality"). Although I do not discuss modality in this work, and the semantics of assumption and probability are very similar, there might reasons to analyze *-bebu* as a probable modality marker, which can be investigate in future work.¹⁹

The next paradigm set is for forms marked for two evidentiality categories: INFERRED and ASSUMED. Both code a recent past time reference, except for the assumed

¹⁹ One reason is its internal morphological composition, clearly formed by a phrasal-affixal copula, *-be*, and the probable clitic *=bu* (see in particular section 3.2.1.1). Another reason is systemic: evidentials different from reportative (a clitic) and first-hand (unmarked) are only coded in the recent past. Hence, I opt to interpret the present and the future not as a matter of evidentiality (i.e. grammatical expression of information source, cf. Aihkenvald 2006), but as a matter of modality (which evaluates facts to be stated linguistically according to "alternative realities", cf. Timberlake 2007).

forms of STATIVE VERBS, which code a present time reference. The inferred has a PERFECT aspect implication. The third form in the right most column is the ASSUMED EVIDENTIAL form used for remote past time reference when the speaker did not have personal experience with the fact or is uncertain about it (hence it contrasts with class II forms from (8.53)). Please notice that this latter form conflates all verb inflection categories by getting combined only with the class II form *-awĩ '1/2/3IN'*:

(8.56) *Table 10: Assumed and Inferred paradigms*

	ASSUMED		INFERRED	ASSUMED REMOTE PAST
	DYNAMIC	STATIVE		
3 RD PERSON MASCULINE SINGULAR	<i>-jibẽ</i> ASM.3MSC	<i>-kibe(bẽ)</i> ASM.3MSC.ST	<i>-kibe</i> INF.3MSC	<i>-kẽbã-awĩ</i> PST.ASM
3 RD PERSON FEMININE SINGULAR	<i>-jobẽ</i> ASM.3MSC	<i>-kobe(bẽ)</i> ASM.3FEM.ST	<i>-kobe</i> INF.3FEM	
3 RD PERSON ANIMATE PLURAL	<i>-jarãbã</i> ASM.3AN.P	<i>-rãbã</i> ASM.3AN.P.ST	<i>-dãbã</i> INF.3AN.P	

1 ST AND 2 ND PERSON MASCULINE SINGULAR	<i>-jībũ</i> ASM.1/2MSC	?	<i>-debu</i> INF.N3.AN
1 ST AND 2 ND PERSON FEMININE SINGULAR	<i>-jobũ</i> ASM.1/2FEM	?	
1 ST AND 2 ND PERSON PLURAL	<i>-jarãbũ</i>		
INANIMATE	<i>-iebu</i> ASM.IN	?	

The forms of the inferred evidential are clearly formed historically by a perfective nominalizer (cf. section 8.2.4) and a phrasal-affixal copula, except for the non-3rd person animate, which seems to have the probable modal =*bu* (cf. section 3.2.1.1, chapter 3). The deviant third person plural is likely the result of analogy with the third person plural forms in class I and II paradigms. As for the assumed forms, in my corpus I do not have the assumed evidential for 1st person, but Morse and Maxwell (1999) has one sentence as the sole example to it. Also they got the assumed inanimate form wrongly as **iebũ*. In addition, they make no reference to the ASSUMED EVIDENTIAL for stative verbs.

The lack of clear cognates between Kubeo evidential forms and other Tukanoan languages but the clear structural resemblance between these forms in a sort of structural calquing, suggest that the evidentiality categories or at least their forms cannot be reconstructed to Proto-Eastern-Tukanoan. This point highlights the importance of contact relations for the development of evidentiality (and other grammatical elements) in the Vaupes area.

In addition, the lack of a non-visual category for first-hand evidential in Kubeo and that the reportative evidential is coded by a clitic, rather than an affixal form, also reinforces the idea that evidentiality evolved through areal influence in this language.

The next paradigms are for future tense. There are two types of future: INTENSIONAL FUTURE and an ASSUMED FUTURE:

(8.57) *Table 11: Future paradgims*

	ASSUMED FUTURE	INTENTIONAL FUTURE	
3 RD PERSON MASCULINE SINGULAR	<i>-kiyibē</i> FUT.3MSC		
3 RD PERSON FEMININE SINGULAR	<i>-kođobē</i> FUT.3FEM		
3 RD PERSON ANIMATE PLURAL	<i>-rāharābā</i> FUT.3AN.P		
1 ST PERSON MASCULINE SINGULAR	<i>-kiyibū</i> FUT.1MSC	<i>-kīhi</i> INT.MSC	+ class I suffixes
1 ST PERSON FEMININE SINGULAR	<i>-kođobū</i> FUT.1FEM	<i>-kōhi</i> INT.FEM	
1 ST PERSON PLURAL	<i>-rāharābū</i> FUT.1AN.P	<i>-dāhi</i> INT.AN.P	
INANIMATE	<i>-kiyebu</i> FUT.IN		

The intentional future still needs more investigation. In my corpus and in Morse and Maxwell (1999) there are no examples where it can occur in third person. It is only in Morse et. al. (1999) that a single sentence illustrates the intentional future in third person.

As for the assumed future, please notice the resemblance of its forms and the assumed evidential forms. In addition the assumed future forms are very similar to the future nominalizers (see section 8.2.4). Since the future nominalizers can be combined with phrasal-affixal copulas, they can contrast with the assumed future. The assumed implies more certainty (if any at all) in future events.

8.2.2.1 Hierarchies of verb inflection. There are interesting patterns emerging from the analysis of the inflectional paradigms of verb inflection. The simplest paradigm, that of

phrasal-affixal copulas in (8.55) for unmarkd evidentiality, contrasts 3rd person animate singular subjects with other categories. Hence, 3rd person animate plural, 1st and 2nd persons and inanimates are not distinguished. This simple agreement pattern follows from an elaborate functional and pragmatic strategy where person, individuation and animacy features are contrasted, as summarized below (">" indicates hierarchically superior, being pragmatically and functionally more salient. An arrow on the right indicates which set of the hierarchy is superior to the rest):

(8.58) Animate	>	Inanimate	↓
3 rd person	>	1 st and 2 nd person	
Individuated (singular)	>	Plural	

The hierarchy reads as the following (from bottom to top): individuation just applies to third person; distinction of person only applies to animate subjects.

Animate versus inanimate is a pervasive dichotomy all over Kubeo grammar, from the system of nominal classification (cf. section 8.1.1), to verbs and case. It is a higher distinction than the other pair of elements because, given that 1st and 2nd person are also in general animates and third person animate plural as well.

The strategy to conflate 1st and 2nd person versus 3rd person is pervasive in verb inflection in Kubeo. It follows from the pragmatic principle notice by Benveniste (1976) that 1st and 2nd person are the "real" persons of discourse, those that are always present in the communicative act. 3rd person is always the topic of discourse, the virtual person, or the "non-person". Opposing 1st and 2nd person can also render the system more economical, since it is usually pragmatically easier to identify that one is talking about the 1st or the 2nd person than the third person.

Individuation is the last level of the hierarchy because it only applies to Animate 3rd person forms.

A paradigm with a more detailed elaboration of these elements is the one for class I morphemes in the unmarked evidential (cf. (8.53) above). There, 1st, 2nd persons and inanimates are conflated into the same inflectional form. Pragmatically and functionally it makes sense to group inanimates and discourse participants with the same marker since inanimates are not normally discourse participants, so ambiguity is less probable to occur. The hierarchy yielded by class I paradigm is summarized below:

(8.59) Animate	>	Inanimate	↓
3 rd person	>	1 st and 2 nd person	
Individuated	>	Plural	
Feminine	>	Masculine	

The hierarchy reads as in the following (from bottom to top): gender distinction just concerns individuated forms; individuation is only valid for third person; distinction of person applies only to animate subjects.

The hierarchy of class I paradigm adds the category of gender to further distinguish between the animate third person singular forms. Feminine is ranked higher since masculine is the default agreement form in Kubeo (cf. sections 8.1.1, 8.1.2 and 8.2.3.2).

The class II paradigm hierarchy is somewhat more different than the previous two. After Animate versus Inanimate, the highest level of contrast is between 2nd person versus 3rd and 1st persons, given that 1st and 3rd persons have a particular set of forms. The fact that 1st person plural inclusive is conflated with 2nd person (singular and plural) and inanimate, is because 1st person plural inclusive implies the second person. Thus, inanimate and 2nd person are lumped together:

(8.60) Animate	>	Inanimate	↓
3 rd person and 1 st person	>	2 nd person	
Individuated	>	Plural	
Feminine	>	Masculine	

The hierarchy reads as in the following (from bottom to top): distinction of gender, only applies to individuated forms; individuation is only applied to 3rd and 1st person; distinction of person only applies to animate subjects.

Languages usually have issues when talking about the second person. It is reasonable that talking about one-self or third persons is based on more factual grounds than talking about the second person, who is present, and "might have" his/her own view about the facts concerning himself/herself.

8.2.2.2 Verb Agreement and principles of alignment. Kubeo is typically a nominative-accusative language. The single argument of an intransitive clause and the typical agent of a transitive clause agree with the subjects. The features of verb agreement are presented in the paradigm sets in section 8.2.2.

The following sentences illustrate verbs agreeing with third person masculine subjects. Example (8.61a) is an intransitive state, (8.61b) is a copulative predicate, (8.61c) is an intransitive dynamic predicate, (8.61d) is a transitive dynamic predicate (please notice the direct object and indirect object marked by the case 'oblique' *-de*):²⁰

- (8.61) a. *apu* *hedewa#kobe-i* *'dũ-bi*
 Alfonso outside#hole-LOC stand-3MSC
 'Alfonso is standing by the door'
- b. *ãĩĩ* *ira-ki-be*
 THAT.MSC big-MSC-COP.3AN.SG
 'that one is a fat man'
- c. *dãi-ki#hipoka* *hi = pakĩ* *eda-bi*
 get.darken-fut#before my = father arrive-3MSC
 'my father arrived before getting dark'
- d. *huan* *ĩ-i* *bũturu-de* *pẽo-jĩ-be*
 John he-PSS engine-OBL light-NMZ.MSC-COP.3AN.SG
 'John is turning on his engine'

There are sentences one can analyze as being subjectless. This is the case for sentences coding natural processes, as in (8.62), and sentences where the sole argument of the verb is interpreted as an experiencer or theme and is marked by the oblique case, such as in (8.63):

- (8.62) a. *oka-i-wĩ*
 rain-ST-N.3AN
 'it is raining'
- b. *kari = hĩ-e* *õpõ#ti-wĩ*
 now = DIM-MSS thunder#fall-N.3AN
 'it has just thundered'
- (8.63) a. *ji-de* *hihi-wĩ*

²⁰ Oblique case is a term taken in part from Romanic linguistics and in part from what linguists in general understood about this term, i.e. a marker of non-core arguments. For instance, Portuguese traditional grammar there are two sets of personal pronouns: one for the *reto* case ('straight') and another for the "oblique" case, which is used for indirect objects, direct objects and complements of prepositions. In Kubeo, the 'oblique' case marks direct and indirect objects, but does mark complement of post-position (the possessive case does that). On the other hand, the oblique is also used in temporal and some locative adverbs.

I-OBL cold-N.3AN

'I am cold'

- b. *ĩ-de* *bãhĩe* *ihĩ#te-i-ebu-iko*
 he-obl quite pain#do-ST-ASM.IN-P.V

'(from what you are saying) I assume he was in severe pain'

- c. *pirabĩri = ka = dõ* *eskuela-de* *bẽa#õa-i = e* *hai#te-wi*
 Piramiri = ORG = CNT school-OBL good#make-ST = MSS need#do-N.3AN

'The school in the Piramiri village needs repairs'

8.2.3 Finiteness: Tense, Aspect, Evidentiality and Person. Finiteness in Kubeo is expressed by person, tense, aspect, evidentiality and person. Tense and person are deictic points. Every speaker is the first person and from his/her point other persons are established. Tense takes the present moment as the deictic point, from which different time references are relative to (cf. Comrie 1985).

Aspect and evidentiality are relative to tense and person. Aspect depends on first locating a situation in the timeline established by tense, and then describe situations from different temporal perspectives. Evidentiality in Kubeo is heavily dependent on the tense timeline. It also depends on person, since a speaker must say whether he/her (1st person) attested the fact, whether it got the information from a third person (the REPORTATIVE evidential), or if he/her takes the risk on his/her own to infer or assume a fact, in addition to more subtle variations (cf. 8.2.3.1).

Tense is the most fundamental category for aspect and evidentiality. If a statement is atemporal (as for generic and other types of states, see 8.2.3.2) then evidentiality is irrelevant. If a statement locates a situation in time, than that situation can be described aspectually (perfective, progressive, stative, habitual, iteratively) and requires an evidential.

I begin the analysis of finiteness by discussing the relation of tense and evidentiality, which also implies an analysis of person. Then I describe the aspectual system in connection to the rest.

8.2.3.1 Tense and Evidentiality. Evidentials are grammatical elements that express the information source that the speaker bases his statement (cf. Aihkenavald 2006). In Kubeo, speakers are required to express their information source according to the following cases:

- (i) whenever the information of a situation was acquired from a third person (the reportative evidential).
- (ii) whenever the situation is factual (i.e. real, supposed to be real, as opposed to alternative realities expressed by modality).

Evidentials are also relative to situation time. While in recent past all types of evidentials can be used, in the remote past only the reportative, the assumed and the first-hand can be used. In the present also only the first-hand, the assumed and the reportative can be used. In the future, only the reportative can be used.

The reportative evidential is used when the speaker acquired the information from a third person. It can be used with any situation time as illustrated below:

- (8.64) a. ĩ *jawi-de* *kije-bi=ja-iki* ĩ
 he jaguar-OBL shy-3MSC = REP-P.V he
 kuitote#kahe *ki-be-bi=ja* ĩ
 cotton#skin exist-NEG-3MSC = REP he

'some say the (Curupira) is timid about showing himself to the jaguar, he has no clothes'²¹

- (8.65) a. *kai=e* *tãrãi=jo-a* *kopo-i=e* *kũi-wi=ja*
 every = mss flute = cl.long-in.p break-ST = MSS end-N.3AN = REP

'It is said that all the flutes were broken'

- b. *aru* *ki-dĩ* *du-dĩ*
 so exist-CNV FRUST-CNV
 ã-i-bã *boa-ki#dĩ-abẽ=ja*
 eat-ST-PAS.AN.P kill-NMZ.PRF.MSC#go-II.3MSC = REP

'so, not having (a woman), he went off hunting'

- c. ĩ *hiađo=kũ-de* *hapiwa-kiji-be=ja*
 he river = CL.EMB-OBL drive-FUT.NMZ.MSC-COP.3AN.SG = REP

'He will be a boat pilot (as for what they say)'

The fact that the reportative can be used in future forms is because the reportative is relative to when the information was acquired, which is in a past situation from the moment of the speech.

²¹ Curupira is the forest entity known as the lord of the game animals. However he is afraid of the jaguar. The speaker explains that this is because he is a woman and wears no clothes. Ironically, the speaker used a masculine pronoun to refer to "she-Curupira".

The reportative evidential is the most common evidential form used in story telling (see further below for an analysis of evidentials in narratives).

The reportative evidential contrasts directly with the FIRST-HAND evidential, which is used whenever the situation was attested by the speaker. It can be used in every tense, except future, as demonstrated below:

- (8.66) a. *bāhi-ki-de* *ĩ* *hawe* *'dapia-i-bi*
 know-MS-C-OBL he already think-ST-3MSC
 'he is already thinking in someone who knows (healing)'
- b. *bāhẽ = wi* *eda-bã*
 our = CL.AN.COL arrive-3AN.P
 'Our relatives have just arrived'
- b. *tuba#te-abẽ-iki* *je* *dĩ-be#te-abẽ* *kari*
 sit#do-II.3MSC-P.V indef go-neg#do-3MSC now
 dõ = bã *tuba#te-abẽ*
 ANPH.CNT-SAME.FC sit#do-II.3MSC
 'he (a bird) landed, and did not go anywhere, right there he was sat'

Different from other Tukanoan languages that distinguish between a first-hand evidential based on visual versus non-visual sources, Kubeo uses the first-hand even if the information was directly acquired by hearing, smelling or tasting.

The basis to use either a particular tense with the INFERRED EVIDENTIAL is the MOMENT and PLACE where one acquired the information. For instance, once I mentioned to a group of Kubeos that my wife was pregnant by using the present tense. They corrected me, saying the sentence in (8.67) below, using a class II inflection form, which surprised me since this tense is usually used for remote past situations:

- (8.67) *'hi#bã-de* *pako* *bĩka#te-ako*
 my#off.spring-OBL mother be.pregnant#do-II.3FEM
 'my wife was pregnant (but she still is)'

The Kubeos added that because she was not there with us, I could not use the present tense. But one can wonder why the recent past is not preferred for this type of situation, since remote past almost always correlate with situations far back in the past.²²

²² It seems that besides using the speech time as temporal deictic center, class II forms also can take the speech place as a spatial deictic center. More investigation on this topic is necessary, though, but it is intriguing that Kaye (1970) mentions something similar to Desano. I tried in the field to elicit similar situations to (8.67), but all attempts failed.

The FIRST-HAND evidential contrasts with the INFERRED evidential, which is used when the speaker has not attested in person a situation. The evidence could be the clearest as possible, but if the speaker is not a witness of the situation he must use the inferred evidential. In addition, since the situation occurred away from the speaker, but he/she is attesting its current results, the INFERRED evidential usually implies a PERFECT aspect. See the examples below:

(8.68) a. ĩ eda-kibe
 he arrive-INFR.3MSC
 'He arrived'

(the arrival moment was not observed, but the speaker sees the person inside the house)

b. hi = bã-de pako hawe oa-kobe ãbẽ-ki-de
 my = off.spring-OBL mother already suced-INFR.3FEM bad-MSC-OBL
 'My wife was able to take care of that bastard!'

(the "taking care off" [killing] was not observed, the speaker saw the corpse of the "bastard")

c. 'õrẽ = we hawe = ta 'hũa-debu
 banana = CL.BLADE already = E.FC red-INFR.N.3AN
 'The banana is ripen already'

The inferred evidential can be used with first and second person. In first person it implies a situation that happened when the speaker had no control or conscious of it, as illustrated below:

(8.69) a. jĩ jai-debu
 I die-INFR.N.3AN
 'I fainted (lost my conscious)'

b. jĩhã kã-dĩ dĩ-debu pai-de 'hapi-ka-di = wĩ
 we.exc sleep-CNV go-INFR.N.3AN priest-OBL listen-SR-NMZ = CL.AN.P
 'we fall asleep when listening to the priest'

c. phi! wea-de ãĩ-be#te-debu
 oh! corn-OBL remember-NEG#do-INFR.N.3AN
 'oh! I forgot the corn!'

With the second person, the inferred evidential implies that the speaker is saying that something happened to the listener but that neither the speaker or the listener

observed it (in case the listener was unconscious); or that the listener did something without his/her control; or that the speaker is accusing the listener of a fact:

- (8.70) a. *tʃiã, kihi-ki-de bĩ eđu-wa-debu*
 man small-MSOBL you wet-CAUS-INFR.N.3AN
 'man!, you threw water on the child!'
- b. *awia-i bãko-de bĩhã hieđo#đo-debu*
 sun-PSS daughter-OBL you.all child#make-INFR.N.3AN
 'You made the Sun's daughter pregnant!'²³
- c. *bĩ ã-be#te-debu*
 you eat-NEG#do-INFRR.N.3AN
 'you haven't eaten!'
- d. *bĩ 'hi#hẽbẽ = bo-de ã-debu*
 you my#paca = CL.OVAL-OBL eat-INFR.N.3AN
 'you ate my paca!'

The ASSUMED evidential codes situation based on general knowledge, intuitions or assumptions with no clear evidence about the facts. The three sentences below illustrate the assumed evidential with respect to general facts:

- (8.71) a. *hawe dãidũ = ta-bu hi = pako hawe*
 already evening = E.FC-COP.N.3AN.SG my = mother already
eda-đobẽ kĩrãbĩ-de = ta
 arrive-ASM.3FEM house-OBL=E.FC
 'it is evening already, my mother is likely to be back home'
- b. *hãrãvi jẽbĩ-dõ đĩ-iebu kohedeka*
 day black-CNT go-ASM.IN again
 'the day is going dark once again'
- c. *dẽ pako ã-i = e wo-ka-đo-bebu dã-de*
 their mother eat-ST = MSS search-BEN-FEM-COP.ASM they-OBL
 'their mother is likely searching for food for them'

Sentence in (8.70a) is a general fact because the evening is the time when women go back home from the work in the garden. (8.70b) is a statement about the general way days turn into night (8.70c) is a statement after one sees that little birds

²³ A huge mistake of a mythological tragedy, where the first humans copulated with a woman without knowing she was the Sun's daughter, humankind greatest enemy.

were alone in the nest, so the speaker presumes that their mother went to get food for them, which is a general behavior of birds.

It is intriguing the differences between this usage of the assumed evidential and the generic states, as described in section 8.2.3.2 below.

The sentence in (8.72a) below shows an example where a group of travelers were trying to buy a pig. They were asked whether they are not bringing food, to which they replied (8.72a). In another sentence, (8.72b), a speaker is hunting a tapir. He fired it and thought it was dead, so he did not shoot twice.

(8.72a) *lui = ta* *di = e-de* *da-wa-jībē*
 Luis = E.FC ANPH = MSS-OBL come-caus-ASM.3MSC
 'Luis is the one bringing it'

(8.72b) *hawe = ta* *jī wekī jai-jībē* *a-wī* *ké baru*
 already = e.fc I tapir die-asm.3msc say-n.3an thus because

jī *ōpō#boa-be#te-wī* *kohedeka*
 I thunder#kill-NEG#do-N.3AN again
 "'the tapir is likely dead", I said, that is why I did not shoot it twice'

Since in (8.72a) the travelers could not attest or had no proofs that Luis was bringing their food, they had to presume it based on arrangements made before they traveled. In (8.72b) the hunter assumed a fact without clear proof of it, a fatal mistake.

To have proof of a negative effect is certainly problematic (but see sentence (8.70c) above). Hence even if there is some evidence that a fact did not occur, the assumed evidential is employed, such in the sentence below:

(8.73) *bī* *kuja-be#te-jībū* *ke baru* *bī* *hāpīapō-jī*
 you bathe-neg#do-ASM.1/2MSC thus because you scratch-NMZ.MSC
 'you have not bathed, that is why you are scratching yourself'

The assumed evidential can also be used in guessing. In a story about hunting a bird, the narrator said he shot a bird and it could not move, standing on the top of a tree. A person listening to the story comments:

(8.74) *ī-i* *kībo = ōo-i* *ea-iebu*
 he-PSS foot-CL.LONG-LOC arrive-ASM.IN
 'the bullet hit his leg'

The assumed evidential is also often used to describe psychological states of other people, since one can hardly have a factual proof of psychological emotions. See the example below:

- (8.75) *bãria hi = pakĩ-i hoã-dõ-i dĩ-i = e-de, õ ãbẽ-dõ*
 Mary my = father-PSS long-CNT-LOC go-ST = MSS-OBL she bad-CNT
tĩõ-dĩ bãu#te-ðobẽ
 sad-CNV stay#do-ASM.3FEM
 'Mary gets really sad when my father travels for faraway'

Another interesting use of the assumed evidential is to make digressions and interpretations about texts. The two extracts below come from the manioc creation myth by the deity *Kari*. The story was being narrated using the reportative evidential. The narrator makes two digressions from the story to explain things about the present world and uses the assumed evidential:

- (8.76) a. *ke baru ã-i = e upa = wĩ ãi*
 thus because eat-st = mss dance = CL.AN.COL he-PSS
upa-i = e-bebu a-jĩ-bu = ra jĩ
 dance-ST = MSS-COP.ASM say-NMZ.MSC-COP.N.3AN = PRCSLY I
 'That is why the food offering festival might be in his honor'
- b. *aru dõ kãidĩ = bi dõ ã-i bahu = bebu*
 and ANPH.CNT form = CL.FILLED ANPH..CNT he-PSS body = ASM.COP
 'The manioc stick is likely to be his body'

The assumed evidential in the remote past *-kebã* has a standardized use in narrative genres, as discussed further below. In personal narratives it is used to code situations that happened in the remote past to which the speaker has little evidence for, such as pictures, as illustrated in (8.77a), or whenever the speaker is making an assumption about a fact, as illustrated in (8.77b), which is similarly to the use of the assumed evidential in the recent past.

- (8.77) a. *koch-grunberg dãbũ#koriba-i ki#te-kebã-awĩ*
 Koch-Grünberg fish.sp#stretch-loc exist#do-PST.ASM-II.1/2/3IN
 '(the anthropologist) Koch-Grünberg lived in Namukoriba (Puerto López) village'²⁴

²⁴ Koch-Grünberg was a german anthropologist who lived among the Kubeos from Puerto López village in the Cuduyarí river for few months in 1903. The evidence for this sentence is based on pictures from his books.

below illustrate the beginning of two narratives containing *-deha* 'historical past modal', which contrast as how absolutely old they are:

(8.79) THE CREATION OF A VILLAGE. TIME REFERENCE 60 YEARS FROM THE TELLING.

- a. *bābā#dībī-de* 'wawī=ja *kīporī*
 new#time-OBL toponym = CL.RIVER river.mouth
kī-deha-kebā-awĩ
 exist-HST.PST-PST.ASM-II.1/2/3/IN

'In the beginning, we were living in the mouth of the Wawija river'

A CHILDHOOD FIGHT. TIME REFERENCE 10 YEARS FROM THE TELLING.

- b. *kuidā#hārāwi-ba-deha-awĩ* *bāhē* *kī-dō-de*
 one#day-BE-HST.PST-PST.ASM-II.1/2/3/IN our.incl exist-CNT-OBL
jī aru hi = bābī-kī
 I and my = older.sibling-MS

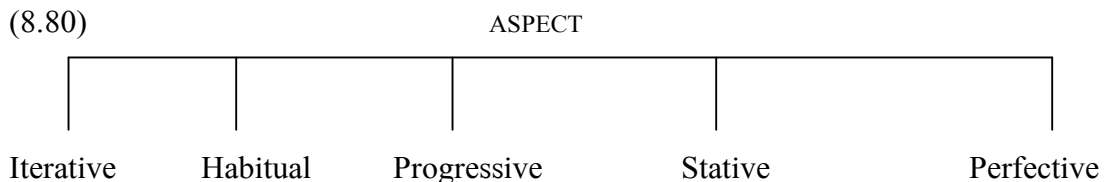
'One day my older brother and I were at home'

Tales are not marked with *-deha* 'historical past'. On the other hand, myths that are interpreted as being linked to the creation to the real world are marked by the historical past tense.

Narratives of personal experience are consistently narrated using the first-hand evidential, either in recent or remote past. In tales, the remote past is consistently used in connection with the reported evidential.

8.2.3.2 Aspect. The analysis of Kubeo aspect reveals deeper ways of how the categories of verbal inflectional are interlocked and implied in one and the other.

The following chart summarizes the types of aspect in Kubeo:



Kubeo has three grammaticalized aspect constructions: iterative, habitual, and the progressive. These aspects can be used in a variety of contexts and are discussed along this section. However, the bulk of aspectual relations in the language falls within the semantics of perfective and stative aspect, which are determined by the aspect of the verb stem, as illustrated in sections 8.2.1 and 8.2.2. Stative is the default semantics of stative verbs and there is a specific stative suffix *-i*, which appears in finite verb forms as well as in non-finite forms (see section 8.2.4 below), deriving dynamic verbs into

stative stems. The perfective has no specific morpheme, and is the default interpretation of dynamic verbs (see section 8.2.1 and 8.2.2).

The iterative is expressed by reduplication (cf. section 6.5, chapter 6). It is used with events that are repetitive under a short period of time, as exemplified below:

- (8.81) *hātūrū-ikūrē* *tī-tī-i=e* *bī*
 roll-ST=CL.EMB-OBL fall-RED-ST=MSS your
kīra#kūa=ōo-a-ba-ke *dō-de=da* *ābē-dō*
 excrement#bone-CL.LONG-IN.P-BE-ORG.MSS ANPH.CNT-OBL=PRCLY bad-IN.CNT
 'in the car (going in a particular awful road), the bones from your butt go hitting, hitting... so badly!'

The habitual is coded by the suffix *-wa* 'habitual', which has several morphophonological exceptions, analyzed as a prosodic repellent suffix (cf. chapter 3, 4 and 6). It can be used with events that are repetitive (through a larger time interval than the iterative) or customary. Stative verbs can also be combined with the habitual in Kubeo (see (8.82d,e)). In addition the habitual can be combined with both class I and class II inflectional suffixes (see (8.82f)). See the sentences below:

- (8.82) a. *jī* *hawehīna* *kujawawī*
 I early.morning bathe-HAB-N.3AN
 'I always bathe early in the morning'
- b. *jī* *i=e=bīa#tī-i=e=ta* *usa-wa-i-wī*
 I this=MSS=SAME.FC#fall-ST=MSS=E.FC use-HAB-ST-N.3AN
 'I usually wear only this ones'
- c. *īhi-ba-e-de* *wekī-wa* *hia* *ira=ja-de* *korika*
 summer-BE-MSS-OBL tapir-AN.P river big=CL.RIVER-OBL middle
 '*da-wa-bā*
 come-HAB-3AN.P
 'during the summer, the tapirs usually come to the Vaupes river'
- d. *jī* *computador* *'i-wa-i-wī*
 I computer want-HAB-ST-N.3AN
 'I want a computer so bad!'
- e. *īre* *jai* *kī-dō-de* *bāhī-wa-i-wī* *çiā* *jī*
 a.lot liana exist-CNT-OBL know-HAB-ST-N.3AN VOC I
 'I know where there is a lot of lianas'

- f. aru *kĩrãbĩ-a-de* *dãidũ* *eda-wa-deha-ibã=ja*
 so house-IN.P-OBL evening arrive-HAB-HST.PST-II.3AN.P = REP
 'they used to arrive at home by the evening' (López et. al 1976)

The progressive is constructed by a dynamic nominalized verb form plus a verb 'to be' form (the phrasal-affixal or the bound-stem copula). It indicates that an event is progressing, developing in its internal phases, with no reference to the point where it started or ends. The progressive can be used with any time reference and any evidential. See the examples below:

- (8.83) a. *ĩ* *hiađo=kũ* *tite-ji-be*
 he tree.sp = CL.EMB carve-NMZ.MSC-COP.3MSC
 'he is making a canoe'
- b. *ji-de* *tfiki-i-dõ-bu*
 I-OBL hiccup-ST-CNT-COP.N.3AN.SG
 'I am having hiccups' (lit. hiccups are occurring at me)
- c. *hawedã-de* *hãrãvi#hoa-dõ* *hahowa-ji-ba-kĩyibũ*
 tomorrow-OBL day#long-CNT fish-NMZ.MSC-BE-FUT.1.MSC
 'Tomorrow I will be fishing all day'
- d. *ĩ* *kuja-ji-ba#te-ji-bẽ* *dõ* *õpõ#ti-i=e-de*
 he bathe-NMZ.MSC-BE#DO-ASM.3MSC ANPH.CNT thunder#fall-ST = MSS-OBL
 'He was likely bathing when it thundered'
- e. *aru jĩhẽ* *ea-i=e-de* *dã* *jĩhã-de*
 so our.exc arrive-ST = MSS-OBL they we.excl-OBL
kore-i = wi-ba#te-dãbã
 wait-ST = CL.AN.COL-BE#do-INFR.3AN.P
 'and so, when we arrived, they were waiting for us'
- f. *hõjã-dĩ* *da-ji-ba#te-abẽ=ja*
 come.down-CNV come-NMZ.MSC-BE#do-II.3MSC = REP
ĩ-i *jai-i=e-de*
 he-PSS die-ST = MSS-OBL
 'he was coming down (from the moon) when somebody else died'

Turning now to the stative and perfective aspects, under the scope of these categories different aspectual interpretations can occur. I call these interpretations

CONTINGENT ASPECTS. The following examples are good illustrations of perfective contingent aspects in recent past and first-hand evidential:

- (8.84) a. *jĩ* *ihĩ = e#te-wĩ* *'jobekĩri#hãrãwi-a*
 I pain-MSS# do-N.3.AN three#day-IN.P
aru ihĩ-wĩ *jĩ-de kari-de*
 so pain-N.PST-N.3.AN I-OBL now-OBL
 I-OBL current.time-OBL
 'I have been sick for three days and I am (still) sick'
- b. *'jobekĩri#hãrãwi-a* *ihĩ = e#te-wĩ.* *ẽdõa-ba-de-de*
 three#day-IN.P pain-MSS# do-N.3.AN yesterday-BE-PAS.MSS-OBL
hĩo-wĩ
 heal-N.3.AN
 'I was sick for three days, but I got better yesterday'
- c. *ihĩ = e#te-wĩ* *ẽdõa-ba-de-de*
 pain-MSS# do-N.3.AN yesterday-BE-PAS.MSS-OBL
oko ihĩya-ke-de *ũkũ-jĩ*
 water vaupes-ORG.MSS-OBL drink-NMZ.MSC
 'I got sick yesterday by drinking water from the Vaupes river'

The verb form *ihietewĩ* 'I got sick' in each sentence above has the notion of perfective aspect as an umbrella from which different contingent aspectual interpretations can be derived. In (8.84a) one finds a perfect aspect: the event of getting sick (a change of state) happened in the past and it is carried to the present as an actual state. In (8.84b) to get sick is a state that started and ended in the past, hence a closed state. And (8.84c) is simply a statement about a change of state, with no further information about whether the person is still sick or not, a mid-point in the aspectual interpretation between sentences in (8.84a) and (8.84b).

Every sentence in the INFERRED EVIDENTIAL manifests perfect aspect, which is a contingent aspect of the perfective in Kubeo. Notice that stative aspect can never be coded along with the inferred evidential, since the inferred code a situation that is seen as complete in the past, hence always under the umbrella of the perfective aspect. The perfect interpretation in the inferred evidential arises because one infers about an event based on its consequences to the present. A sentence such as (8.83e) is particularly interesting because it codes a perfective progressive, i.e. a situation with an internal

temporal development that is seen as complete, which is not a very common aspectual combination (cf. Comrie 1976).

Stative contingent aspects are illustrated below:

(8.85) a. *hi = pakĩ eda-i-bi*
 my = father arrive-ST-3MSC
 'my father arrived exactly now'

b. *oko da-i-wĩ*
 water come-ST-N.3.AN
 'rain is coming'

b. *bo-ri = bi hipo = bi*
 white-nmz = cl.container head = CL.CONTAINER
dĩ-de#ða-i-wĩ *bãhã-de*
 go-INF#make-ST-N.3AN we.incl-OBL

'(wearing a feather crown without ritual preparation) makes our head ('s hair) to grow white'

A stative aspect can code the exact moment of the completion of a telic event, as in (8.85a), a point in the process of an active event, as (8.85b), or a general state that is unbound by time constraints, as (8.85c).²⁶ Notice that when a state is bound to a particular time constrain, such as in (8.85a,b), first-hand evidential is implied, meaning that the speaker is actually seeing the event taking place.

An important difference between stative and progressive aspect is the fact that the progressive describes a situation as developing phase-by-phase, whereas the stative aspect describes a situation as a static, undifferentiated whole or as a single point. Hence, the classic Vendlerian (cf. Vendler 1957) diagnose to distinguish between states and events can be applied to differentiate Kubeo stative aspect and the progressive.²⁷ To a question as in (8.86), only the progressive form in (8.87a) can be a proper answer, but not a verb in the stative aspect, as in (8.87b).

²⁶ As it is demonstrated in (8.87) below, sentences (8.85a,b) cannot be faithfully translated by the English progressive, nor the past as attempted in (8.85a). (8.85b) is more similar to the in simple present sentences as *here comes the rain* (though there is no 'here' operator in the Kubeo sentence [but perhaps the evidential can be analyzed as equivalent to the 'here' operator]). (8.81c) can be well translated by the idea of habitual in English simple present, though in Kubeo it is distinct from the habitual.

²⁷ Vendler (1957) proposes the use of questions such as "*What is he doing?*" whose answer always has to be in the progressive, whereas a state cannot respond to that question, such "**He loves Mary*".

- b. *'hi#bāki bē ũku-i-abē 'õre okokayue-de*
 my#son well drink-ST-II.3MSC banana porridge-OBL
 'my son is a great drinker of banana porridge'
- c. *aru ãĩ#te-abē = ða-iki dā-deka*
 so remember#do-II.3MSC = REP-P.V they-OBL.SAME
kõrē-i-ako awawako
 urinate-ST-II.3FEM Curupira
 'and then he remembered that the Curupira is use to urinate on people'
- d. - *dõ-de ðĩ-be-ha-ki!*
 ANPH.CNT-OBL go-NEG-IMP-MSC
 - *jêkũjo jĩhã dõ-i êbê-i-karã*
 grandpa we.exc there-LOC descend-ST-II.1EXC
 - Do not climb there! – Grandpa, we are used to come down from there'
- e. *dā ã-ða-ibã je kai = hĩ-dã ãbê = hĩ-dã*
 they eat-ST-II.3AN.P INDEF all-DIM-AN.P bad = DIM-AN.P
 'they (the armadillos) eat all those classes of ugly animals (insects)'
- f. *hiorohoi kiabē ĩ, bākã#kõria#bĩ*
 decay.garden exis-II.3MSC he jungle#grass#bird
 'He, the bird (sp.), lives in the decay gardens'

The generic predicates from above vary along how specific are the situations they describe. Some situations are as general as natural events can be (8.89a) or a class of animals (8.89f,g). Others are more circumstantial to individuals (8.89b,d,e). The more specific situations can conflict semantically with general states as described in (8.85f) and with some usages of the ASSUMED evidential, as in (8.70) above. I have noticed in my corpus that some speakers are more prone to use one of these forms instead of the others. More research in this area is necessary.

Because class II suffixes when combined to the stative suffix code a generic predicate, durativity in remote past is usually coded by a progressive construction (see (8.83f)) or the context may force some durative interpretation to the perfective predicates of remote past, especially when these forms are functioning as background information in narratives. The habitual can also be used to indicate durativity of events in the remote past, as sentence (8.94) in section 8.3 below illustrates.

Stative aspect is also the pivot between a crucial distinction of FIRST-HAND and ASSUMED evidentials. Kubeo speakers are reluctant to use FIRST-HAND evidentials to states that they cannot really attest. For instance, in the following sentence a speaker defends another person from an accusation, but he cannot attest what he is saying, so he uses the ASSUMED evidential form:

- (8.90) *pakote#biki-ki-ba-dĩ* *du-jĩbẽ* *ibenĩta*
 drunk#great-MSC-BE-CNV FRUST-ASM.3MSC however
jãwã#biki-ki *ãbẽ-kibẽ*
 thief#great-MSC COP.NEG-ASM.3MSC.ST
 'He could even be a big drunk, though, but he might not be a thief'

The following sentence illustrates a situation where the speaker's son is in another city studying in the university. The father uses the assumed evidential to describes what his son is studying and where he is living:

- (8.91) *hi#bãki* *manau* *ki-kibe* *agronomia* *bue-jĩ-bebu*
 my#son Manaus exst-ASM.3MSC.ST agronomy study-NMZ-COP.ASM
 'my son lives in Manaus, he studies agronomia'

The following sentence is a statement about a girl who has passed through some food restrictions and now can eat roasted food. The assumed evidential is used to describe her present state (the speaker is not a shaman):

- (8.92) *kari-de* *hoa-i-dõ-de* *ã-dĩ* *bãhi-kobẽ*
 now-OBL roast-ST-CNT-OBL eat-CNV know-ASM.3FEM.ST
 'she can now eat roast food'

The need to use the ASSUMED evidential for stative verbs is ultimately similar to the need to use the same evidential of psychological events, as illustrated in (8.75).

8.2.4 Verb class changing derivation. The type of verb derivation discussed in this section can be analyzed as NOMINALIZATION, i.e. a strategy to turn verbs into nouns (cf. Comrie and Thompson 2007). The devices described here can either change verbs into a full noun, adjective and adverb or into a DEPENDENT STEM (cf. section 6.3, chapter 6) that can be inflected as a noun or participate in compounds.

There are no real processes of adjectivization or adverbialization (though see converbs below). It is rather the syntactic context that determiners the function of nominalized verbs. In addition, all categories that nominalized verbs can inflect for are the same ones found within the noun phrase agreement (cf. section 8.1.2). These issues

follow from the fact that in Kubeo morphology only nouns and verbs are distinct classes, despite that in the lexicon and in syntax nouns, verbs, adjectives and adverbs are distinguished (cf. chapter 7).

Before presenting the nominalization devices in Kubeo, it is important to distinguish another type of derivation, which could also be analyzed as inflection for linguists that treat participials and gerunds as verb inflection. These are the converb suffix *-dĩ* and the 'conditional' suffix *-du*. The converb makes a verb to function as a modifier of another verb, hence it is a device to make adverbs out of verbs. There are different uses of the converb in Kubeo, the examples below illustrate a few:

(8.93) MANNER

<i>bui</i>	<i>'hi#kĩrãbĩ</i>	<i>biara-dĩ</i>	<i>da-bi</i>
agouti	my#house	jump-CNV	come-3MSC

'the agouti came jumping to my house'

(8.94) SEQUENCES OF EVENTS

<i>'hã-dĩ</i>	<i>wi-dĩ</i>	<i>dĩ-rĩ</i>	<i>hoki = ki-de</i>	<i>hã-dĩ</i>	<i>jawa-dĩ</i>	<i>ti-dĩ</i>
see-CNV	fly-CNV	go-CNV	tree = CL.TREE-OBL	crash-CNV	spread-CNV	fall-CNV

dĩ-wa-i-abẽ = ja
go-HAB-ST-IL.3MSC = REP

'Every time he went, he first look at it, then flew, crashed into a tree and fall '

(8.95) LISTING OF EVENTS

<i>dẽ</i>	<i>upa = wi</i>	<i>te-i = e-de</i>	<i>ji</i>	<i>butfi#dũ-dĩ</i>	<i>upa-dĩ</i>
their	dance = CL.AN.COL	do-ST = MSS-OBL	I	tobacco#suck-CNV	dance-CNV

ũkũ-i = e-de *ũkũ-kiyĩmu*
drink-ST = MSS-OBL drink-FUT.1MSC

'in their offering festival, I will smoke, dance and drink manioc beer'

(8.96) EXTENDING DURATION OF EVENTS

<i>aru</i>	<i>ke</i>	<i>a-dĩ</i>	<i>kũidã-ki-de</i>	<i>hakotĩ-kaki,</i>	<i>hakotĩ-dĩ,</i>	<i>hakotĩ-dĩ...</i>
so	thus	make-CNV	one-MSC-OBL	surround-IL.1MSC	surround-CNV	surround-CNV

'so I surrounded one (a bird), surrounded it, surrounded it...'

The 'conditional' morpheme *-du* can in general be translated as 'if' and it occurs in a subordinated clause as illustrated below:

- (8.97) *kihĩ-ki-de* *'hi#dākōwã-du* *dĩ-he = bu*
 small-MS-C-OBL my#sustain-IF go-HYP = PROB
 'if I would hold the child, he could walk'

There are other types of nominalizations used with some auxiliary verbs that are not treated in this dissertation, such as the forms *-ki* 'masculine perfective', *-ko* 'feminine perfective' and *-dã* 'animate plural perfective' in motion auxiliary verbs, and the infinite form *-de* used in periphrastic causatives and other verb complements forms (see Morse and Maxwell 1999, who present data about these forms).

Nominalizations in Kubeo can be divided in active, stative and passive according to the properties of their nominal referents. Temporal reference can be future, present (simultaneous) and past (anterior) according to the tense of the main verb. They can also code aspect, such as imperfect and perfective on top of temporal reference. Before summarizing the nominalization paradigms I show how those categories work in Kubeo. There is no separate nominalizer morpheme. The coding of nominalization is blended among the morphemes coding temporal reference, aspect and nominal properties of referents.

The distinction of active and stative follows from the aspect of the verb roots, so *da-jĩ* (come-NMZ.MSC) 'the one who comes' contrasts with *ki-ki* (exist-NMZ.MSC) 'the one who is at a given location'. The same for inanimate nominalizations, *toi-wa-i-dõ* (colorful-CAUS-ST-CNT) 'the thing used to write/paint' or simply 'writing, to write' contrasts with *doba-dõ* (sti-NMZ.CNT) 'the thing used to sit, a bench' or simply 'sitting, to sit'.

To code nouns that denote a person that is typically associated with an activity, Kubeo uses the noun *põe* 'person', in a compound with a dynamic verb nominal form, such as in *hio-i#põe-wa* (heal-ST#person-AN.P) 'health providers'. People that are typically associated with a state are more generally coded by a classifier or gender suffix, such as in *ãtĩ#doba-di = wi* (ancestral.cult#sit-NMZ = CL.AN.P) 'those that are being prepared for initiation rites'. Inanimate elements associated with a particular state or action are used in their plain classifier or affixal forms.

Also, the category of animate plural feminine is coded by a compound construction with the noun *dõbĩwã* 'women' for any nominal verb form. Hence to say 'the women who are sitting' the form is *doba-di#dõbĩ-wa* (sit-NMZ#woman-AN.P), to say 'the woman who are health providers' the form is *hio-i#põe#dõbĩ-wa* (heal-ST#person#woman-AN.P). The simple plural form implies masculine by default.

Passive nominalizations can be used both with stative and dynamic verb roots. Thus, *da-wa-i-bĩ* (come-CAUS-ST-PAS.MSC) 'the one who is being brought' has the same passive connotation as *ihi-bĩ* (pain-PAS.MSC) 'the one who is in pain, the sick one'. Notice that a stative verb such as *ihi* 'to be in pain' can hardly be combined with a stative, non-passive nominalization, such as *(?)ihi-ki* to which Kubeo speakers forcefully translate as 'the one with a property of bearing pain' such as poisonous animals.

On top of these categories there is the issue of temporal reference, which is relative to the tense of the finite verb in a clause or to the moment of speech, if not related to a finite verb or simply said in isolation. There are three general temporal reference markers in nominalizations: *-ki* 'future nominalizer', *-i* 'simultaneous' (glossed as 'stative', since it is the same morpheme used in dynamic verb inflection) and *-ka* 'anterior' (see verb inflectional class II morphemes for some forms bearing this suffix in (8.53)). The sentences below illustrate how the temporal reference of these morphemes correlates with a finite verb in a clause.

- (8.98) a. *bãu-bẽ-na* *oka-ha-dõ-dĩ* *jo* *toahi-dõ-de*
 stay-NEG-PRCSLY rain-IMP-CNT-3.IMP THIS.CNT heat-CNT-OBL
hariwa-ki-dõ
 extinguish-FUT.NMZ-CNT
 'It must rain as soon as possible so this heat can be over'
 (lit. rain fast! to the future end of such a heat)
- b. *ĩbĩ-i* *bẽbẽ-i = e-deka* *dõbĩo* *hieõo-wa-de*
 man-PSS work-ST = MSS-OBL.SAME woman child-AN.P-OBL
kore-i-biko
 wait-ST-3FEM
 'the woman takes care of the children, while the man is at work'
- c. *õ* *bĩbĩ-ka-ko* *hawe = ta* *abuhu = jãbĩ* *te-i-ako*
 she blink-PST.NMZ-FEM already = E.FC devil = CL.HOUSE do-ST-II.3FEM
 'when she closed her eyes, she was already in the devil's house'

Aspect in nominalizations can be used on top of temporal reference. In the following interrogative clauses, (8.99a) is a question about a present state, taking the moment of speech as the relative time reference. In (8.99b) a verb inflected for present tense is the relative time reference for a question about a past event with implication to the present, hence expressing perfect aspect. In (8.99c) a person is asking a question

INANIMATE MASS	$-i = e$ ST = MSS	$-e$ -MSS
ANIMATE PLURAL	$-i = wi$ -ST = CL.AN.P	$-di = wi$ NMZ = CL.AN.P
ANIMATE MASCULINE	$-ji$ NMZ.MSC	$-ki$ NMZ.MSC
ANIMATE FEMININE	$-jo$ NMZ.FEM	$-ko$ NMZ.FEM

The simultaneous nominalization paradigms for stative and dynamic verbs yield a clear nominalizer morpheme, which also indicates temporal reference of simultaneity, namely: $-i$ 'stative' (nominalizer of dynamic verbs, also used in finite forms, see section 8.2.1 and 8.2.2) and $-di$ 'stative verbs nominalizer of simultaneity'. In all the forms where these nominalizer morphemes are used, the nominal verb form is always followed by a clitic (classifier or diminutive) or by a noun, forming a compound. Thus, the stem formed by a verb root plus a nominalizer morpheme is a dependent stem (cf. section 6.3.1, chapter 6).

One can tell that the morphemes coding MASS in each paradigm are distinct because the clitic $=e$ in the dynamic paradigm is never target of nasal harmony, while the suffix $-e$ in the stative paradigm is a target of nasal harmony (cf. chapter 3). Hence, for consistency, I also analyze $|d\tilde{o}|$ 'count' as a clitic and an affix for the dynamic and stative paradigms respectively. In addition it should be notice that the morpheme coding the category animate plural is the classifier $=wi$ 'animate collective' (cf. section 8.1.3).

The next paradigm is for the nominalizers with anterior time reference:²⁸

(8.102) *Table 13: Nominalizers of anterior time reference*

INANIMATE COUNT AND COUNT GENERIC	$-ka = d\tilde{o}$ PST.NMZ = CNT
INANIMATE MASS	$-ke$ ($< * -ka-e$) PST.NMZ.MSS
ANIMATE PLURAL	$-ka = wi$ PST.NMZ = CL.AN.P

²⁸ In questions, there is a further distinction between perfect and plusperfect nominalizers. In declarative sentences, the plusperfect is the most productive forms, while the perfect is restricted to relative clauses with the copular verb *ba* 'to be', and has grammaticalizes in the forms of the inferred evidential (see section 8.2.2) and in constructions with an auxiliary motion verb (not discussed in this work).

It should also be brought to this perspective the issue of temporal and spatial deixis of tense in Kubeo, as discussed in connection to example (8.67) above. Similarities of this kind shouldn't be accidental, having in mind the diachronic trend that spatial notions can feed tense systems. More research on this area is imperative.

The future nominalizer forms are presented below:

(8.105)

Table 15: Future nominalizations

INANIMATE COUNT	-ki#NP _{HEAD} (noun or classifier)
INANIMATE COUNT GENERIC	<i>ki = dõ</i> FUT = CNT
INANIMATE MASS	<i>ki = e</i> [kije] FUT = MSS
ANIMATE PLURAL	<i>rãhi = wĩ</i> FUT = CL.AN.COL
ANIMATE MASCULINE	<i>-kĩĩ</i> FUT.MSC
ANIMATE FEMININE	<i>-kođo</i> FUT.MSC

One can know that the MASS form is a clitic based on the on-gliding criterion, since if it were an affix it shouldn't present on-gliding (cf. section 2.1.2.6, chapter 2). The animate masculine and feminine form present assimilation of the vowel in the nominalizer with the gender suffixes (e.g. **-ki-jĩ* > *-kĩĩ*, **-ki-jo* > *-kođo*), similarly to what happens in the nominalizer of simultaneity (cf. (8.101)).

Passive nominalizers are presented below. Temporal reference in passive nominalizers is regularly coded by the following suffixes *-i* 'stative (simultaneous)' (only for dynamic stems, since stative stems are by default 'simultaneous'), *-ki* 'future' and *-wa* 'past passive', the latter being a prosodic repellent morpheme.

(8.106)

Table 16: Passive nominalizations

CATEGORY	TIME REFERENCE MORPHEMES	PASSIVE MORPHEMES
INANIMATE COUNT AND COUNT GENERIC	<i>-i-</i> 'stative, simultaneous time reference' -ST-	= <i>dō</i> CNT
INANIMATE MASS	<i>-wa-</i> 'past passive'	= <i>e</i> MSS
ANIMATE PLURAL	-PST.PAS-	<i>-bārã</i> PAS.AN.P
ANIMATE MASCULINE	<i>-ki-</i> 'future' -FUT-	<i>-bĩ</i> PAS.MSC
ANIMATE FEMININE	<i>-rãhi-</i> 'future animate plural' -FUT.AN.P	<i>-bõ</i> PAS.FEM

The inanimate categories have the forms as in other nominalization paradigms. However, one should not analyze that inanimates lack a passive nominalizer, since they can be combined with *-wa* 'past passive', which indicates that they form a paradigm with the other forms.

8.3 Adverbs

The following is a list of words that commonly function as adverbs in Kubeo:

(8.107)

Table 17: Common Adverbs in Kubeo

WORD	DESCRIPTION
<i>bahi</i>	'exactly' (spatial), can also code reciprocal.
<i>bahu</i>	quantifier of temporal adverbs and intensifier of adjectives, can also code self and as noun means body
<i>bediowa</i>	'again'
<i>dĩiba</i>	'slowly'
<i>ẽdõa</i>	'yesterday'
<i>hawe</i>	'already, in the past' (has several derivatives)
<i>hawedã</i>	'tomorrow'
<i>hĩhe</i>	'rapidly'

<i>kaḏahĩ</i>	'near'
<i>kari</i>	'now, in the present' (has several derivatives)
<i>keda</i>	'simply, with no reason'
<i>kohedeka</i>	'again'
<i>kopi</i>	'against' (also a post-position and a verb 'to meet')
<i>ĩbĩ</i>	'high'
<i>jeba</i>	'low'
<i>hoe</i>	'long time' (derived from <i>hoa</i> 'to be long' + <i>-e</i> 'mass')
<i>'jobo</i>	after (also a post-position)
<i>koapa</i>	'separately' (also a post-position)
<i>ãbẽdõ</i>	'intensely' (derived from <i>ãbẽ</i> 'bad' + <i>-dõ</i> 'inanimate count')
<i>hiwa</i>	'up river'
<i>duika</i>	'down-river'
<i>hipoka</i>	'before' (also a post-position, derived from <i>hipo</i> 'head' + <i>=ka</i> 'origin, from')
<i>ĩbedĩ</i>	'for no reason' (derived from <i>ĩ</i> 'to want' + <i>-be</i> 'negative' + <i>---dĩ</i> 'converb')
<i>kãrẽhã</i>	'yet, still'
<i>ire</i>	'a lot' (derived from <i>ira</i> 'big' + <i>-e</i> 'mass')
<i>pare</i>	'strongly, forcefully, intensely' (derived from <i>parĩ</i> 'strong' + <i>-e</i> 'mass')
<i>obebe</i>	'a little' (derived from <i>obe</i> 'to be many' + <i>-be</i> 'negative' + <i>-e</i> 'mass')
<i>kĩhĩdõ</i> <i>kĩhĩe</i>	'a little' (derived from <i>kĩhĩ</i> 'small' + <i>-dõ</i> 'inanimate count' or <i>-e</i> 'mass')
<i>bãbã</i>	'early' (derived from <i>bãbã</i> 'new')
<i>bẽ</i>	'well' (derived from <i>bẽa</i> 'good' + <i>-e</i> 'mass')

Adverbs have one type of inherent inflection in Kubeo: they can be inflected by the locative suffix *-i*, which function by intensifying the semantics of the adverbs. The

examples below in (a) illustrate the contrast in meaning between the inflected and non-inflected adverbs, and examples in (b) show the inflected adverb in the context:

- (8.108)a. *bẽ*
'well'
- b. *kai = wi* *põe-wa bẽ-i* *a-wa-bã ãĩ* *bue-i#põe-ki-de*
every = CL.AN.COL person-AN.P say-HAB-3.AN.P teach-ST#person-MSOBL
'every one say very nice things about that teacher' (lit. [...] talks in a good way)
- (8.109)a. *ãbẽ-e* *ãbẽ-e-i*
bad-MSS bad-MSS-LOC
'badly' 'very badly'
- b. *ãbẽ-e-i* *dore-a-di* ?
bad-MSS-LOC stang-PST-INTR
'did they sting very badly?'
- (8.110)a. *hawe* *hawe-i*
already already-LOC
'already' 'for some time already'
- b. *hawe-i* *bãkã-dõ* *kiwa-di = wi*
already-LOC jungle-CNT have-NMZ = CL.AN.COL
'those that have a property (terrain in town) for some time already'

The adverb *hawe* 'already' is special because it can also be inflected for past tense by the same morpheme that inflects verbs *-a* 'past tense'. The form *hawe-a-de* contrasts with *hawe-de* by coding a situation more remote in the past as the two examples below illustrate:²⁹

- (8.111)a. *hawe-de* *cruz* *dũ-reha-awĩ* *dõ-de*
already-OBL cross stand-HST.PST-II.1/2/3IN ANPH.CNT-OBL
'There was a cross standing there in the past'
- b. *hawe-a-de* *dõ-de* *ki#te-kebã-awĩ* *pãbĩ-wa*
already-PST-OBL ANPH.CNT-OBL exist#do-ASM.PST-II.1/2/3IN indian-AN.P
'there used to exist a group of Indians there in the past'

²⁹ Both examples were given by a language consultant in order to illustrate the contrast of those two forms, which are almost identical in meaning.

8.4 Adjectives

Adjectives in Kubeo are an open syntactic word class, which means that nouns and verbs can be derived to function as adjectives (cf. chapter 7). In addition, Kubeo has a closed class of adjectives with six roots, corresponding to three out of four Dixon (2004)'s core semantic types of adjectives: DIMENSION, AGE and VALUE. Color and property terms in Kubeo are actually better analyzed as verbs that marginally share properties with adjectives. The closed class of adjectives is represented below:

(8.112) *Table 18: The closed class of adjectives*

SEMANTIC TYPE	ROOTS	
DIMENSION	<i>ira-</i>	'big, large'
	<i>kĩhĩ-</i>	'small'
AGE	<i>bãbã-</i>	'new, young'
	<i>biki-</i>	'old, great'
VALOR	<i>běa-</i>	'good, beautiful'
	<i>ãbě-</i>	'bad, ugly'

Before going to a more detailed analysis of the subclasses of adjectives, first it is important to show why these words are adjectives and why other words are not. There are three basic criteria I used to determine the class of adjectives in Kubeo, which are summarized below (see also Dixon 2004 for a cross-linguistic perspective).

- (i) Adjectives can be inflected by nominal morphology or by BOTH nominal and verbal morphology.
- (ii) Adjectives must be able to modify a head noun in a noun phrase, while inflected for agreement controlled by the head noun without requiring derivational morphology.
- (iii) Adjectives can function as attributes in both noun-attributive and attributive-noun compounds without derivational morphology (cf. section 6.4, chapter 6).

The clear semantic consistency of the closed class of adjectives (which putting into a typological perspective looks even more consistent) is contrasted with their morphological heterogeneity. The reason for this fact is pointed out in chapter 7, namely: there are only two morphological classes in Kubeo, nouns and verbs, so adjective roots are forced to pick one or both of them. Hence, depending on the

semantics of the adjectives and some amount of arbitrariness, since languages cannot live without it, an adjective root can be morphologically inflected as a noun or as noun and a verb, but never only as a verb and not as a noun. Hence the first criterion for identifying the class of adjectives is indirect:

- (i) Adjectives can be inflected by nominal morphology or by BOTH nominal and verbal morphology.

All adjective roots from (8.112) above can be inflected by nominal morphology without derivation. This is demonstrated in connection to the second criterion discussed below. But, before, it is important to show that adjectives of VALUE are the sole adjectives in Kubeo that can be inflected for verb morphology in addition to nominal morphology. The examples in (8.113) show the adjective *běa* 'good' and *ãbẽ* 'bad' functioning as verbs. In addition, example (8.114) shows the verb *ãbẽ* 'bad' in its particular function as a negative copula.

- (8.113)a. *běa-bẽ-wi* *ji-de*
 good-NEG-N.3AN I-OBL
 'it is not good for me'
- b. *ãbẽ-wi* *kãrẽhã dõ,* *hũa-be = dõ = ta-bu*
 bad-N.3AN yet THAT.CNT red-NEG-CNT = E.FC-COP.N.3AN.SG
 'that (bunch) is not good yet, it is not rippen'
- (8.114) *ira-ko* *ãbẽ-biko*
 large-FEM COP.NEG-3.FEM
 'she is not fat'

The second criterion is related to nominal inflection. Every adjective in Kubeo must function as modifiers of a head noun in the noun phrase. Hence, the second criterion is a direct morphosyntactic property of adjectives:

- (ii) Adjectives must be able to modify a head noun in a noun phrase, while inflected for agreement controlled by the head noun without requiring derivational morphology.

The sentences below illustrate how this is the case for all six adjectives in Kubeo:

- (8.115)a. *ira-ki* *weki-de* *boa-bi*
 large-MSC tapir-OBL kill-3MSC
 'he killed a big tapir'

In addition, they can freely be combined with verb inflection, such as illustrated below:

- (8.117)a. *ʔjei* *jẽbĩ-debu*
 cucura black-INFR.N.3AN
 'the cucura (*Pourouma sp.*) has rippen'
- b. *hoa-kijebu* *hãrãwi*
 long-FUT.IN day
 'the day will be long...'

The third and last criterion for not analyzing them as adjectives has to do with modification in compounds. There are two types of compounds where adjectives can modify nouns: attributive-noun compounds and noun-attributive compounds (please see chapter 6, section 6.4.2.3 and 6.4.2.4 respectively). The crucial point about these compounds is that in the attributive-noun type, only underlying adjectives can modify nouns, while other stative verbs need to be derived as exemplified below:

- (8.118)a. *bẽa* #*hãrãwi*
 good #day
 'a bright, sunny, hot day'
- b. *bo-di* *hihijo*
 white-NMZ MONKEY.SP
 'Monkey species (*Saimiri sciureus*)'

The other compound type, noun-attributive, is more problematic, since adjectives and stative verbs such as color and property terms can appear in their bare root form. However, as explained in section 6.4.2.4, that compound has an inherent verb morphology associated with it, so even adjectives that cannot inflect like verbs, as *ira* 'large' can appear associated with verb derivational morphology. This is kind of a paradox (such as why *ira* 'large' cannot be inflected as verb but can be derived as a verb?), which is explained because the whole compound and not the adjective itself is associated with verbal derivation morphology.

For some time I had thought about analyzing color and a few property terms as adjectives. Nevertheless these terms cannot function in a noun-attributive compound or as modifiers in the noun phrase without being derived. Hence, to be consistent, I analyzed them not as adjectives, but as adjective-like verbs.

To summarize, the third criterion is:

- (iii) Adjectives can function as attributes in both noun-attributive and attributive-noun compounds without derivational morphology.

8.4.1 Subclasses of adjectives. As mentioned, adjectives are not a uniform class, and need to be subclassified according to their nuances. It is remarkable that semantics and grammar also correlate in this point as well. The following are the adjective subclasses and their roots:

(8.119) *Table 19: Adjective subclasses*

SIMPLE ADJECTIVES (DIMENSION TERMS)	<i>ira</i> 'large, big' <i>kihĩ</i> 'small'
NOUN-LIKE ADJECTIVES (AGE TERMS)	<i>bãbã</i> 'new, young' <i>biki</i> 'old, great'
NOUN-&-VERB-LIKE ADJECTIVES (VALUE TERMS)	<i>běa</i> 'good, beautiful' <i>ãbẽ</i> 'bad, ugly'

Plain like adjectives are different from the rest because they cannot be combined with typical nominal derivation processes, such as compounding with the light-verb *te* 'to do' (cf. section 8.1.4), while all other adjectives can, as illustrated below:

- (8.120)a. **ira#te*
large#do
- b. **kihĩ#te*
small#do
- c. *bãbã#te*
new#do
'to act like a foul, get lost'
- d. *biki#te*
old#do
'to get old'
- e. *běa#te*
good#do
'to straighten up, to groom oneself'

- f. *ãbẽ#te*
 bad#do
 'to get bad, to ruin, to rotten'

Noun-like adjectives while can be combined with *te* 'to do', cannot be combined with verb inflectional morphology. Nevertheless, there is an apparent exception to this. The root *biki* which as an adjective means 'old, great', is vastly polysemous: as a noun it can mean 'parents', 'forefathers', 'mature middle age man' and a vocative for husband and wife. As a verb it means 'to grow' (intransitive), used for animals, people and plants. Hence, there is a question whether one is dealing with a root with no classification in the lexicon to a major word class (as predicted in chapter 7), or with homonymous words, which are only related diachronically. In both ways, though, *biki* 'old, great' can function as an adjective.³⁰

Finally, the class of Noun-&-Verb-like adjectives is called as such because those roots can be inflected as both nouns and verbs.

³⁰ It should also be noticed that the morphology for animate plural it takes is *-wa*, which is never found in any noun modifier, being a typical inherent inflection morpheme. In addition, in my corpus I cannot find a sentence where *biki* is a true modifier of a noun. The example cited in (8.115d) is from Morse et. al. (1999). It is the only example in their corpus also, and sounds like a typical non-naturally occurring, elicitation sentence. One would have to hear the sentence being said in order to decide whether there is truly modification there, or it is a case of apposition, such as "*the woman, the old one*". Hence it is possible that instead of 6 the class of adjectives in Kubeo has actually 5 roots.

Chapter 9 – Closed Word Class

The closed word class in Kubeo consists of: personal pronouns (section 9.1), possessive determiners and pronouns (section 9.2), demonstratives (section 9.3), anaphora (section 9.4), alternative ("other" section 9.5), indefinite pronouns (section 9.6), quantifiers (section 9.7) and question words (section 9.8).

This chapter addresses the individual morphosyntactic and discourse functions of each of these types. However, some generalizations can be made about all closed lexical categories in Kubeo. The set of features common to all words within the closed lexical class is as follows:

- i. All closed class words are constituents of the Noun Phrase (NP).
- ii. Most closed class words are inflected according to the categories of nouns (cf. section 8.1 and 8.1.1, chapter 8), though pronouns can also inflect for person. Possessive pronouns are not usually inflected, but can be if they stand independently (without an overt noun).
- ii. Syntactically, closed class words usually precede the head noun (except when they function as the head noun of the NP) or create a compound structure (cf. section 6.3, chapter 6) with the head noun.

Most words within the closed class demonstrate characteristics of both determiners and pronouns. Structurally, words of the closed class act like determiners in that when they are in a syntactic phrase or when they are compounded with the head noun of the NP, they can mark referentiality and definiteness of the head noun. In discourse, closed class words demonstrate pronoun-like qualities in that when they stand independently in the discourse, they act as deitics - referring to a nominal referent not necessarily overtly expressed in the discourse.¹

9.1 Personal Pronouns

The following are the personal pronouns in Kubeo:

¹ For Radford (1997), these functional and semantic properties are typical of determiners, which, for him, can be both pre-nominal (e.g. I don't like *that* thing) and pronominal (I don't like *that*). With that in mind, one could refer to most of the words from the Kubeo closed class as determiners.

(9.1) *Table 1: Personal Pronouns*

First person singular	'jĩ
Second person singular	'bĩ
Third person singular masculine	ĩ
Third person singular feminine	'õ
First person plural inclusive	bãhã
First person plural exclusive	jĩhã jĩhã
Second person plural	bĩhã
Third person plural Animate	'dã

The plural form of determiners is a composite of the singular form plus =hã 'associative', except for first person plural inclusive, where the section |bã| has an unclear etymology). The first person plural exclusive has two dialectal variants, one of them, jĩhã, has undergone regressive nasalization (cf. section 3.2.2, chapter 3).

All personal pronouns refer to animate referents. Inanimate referents have no personal pronouns, but can be cross-referenced in discourse by other types of deictics. Personal pronouns semantic categories are also found with nouns, but are more specifically found in verb inflectional paradigms (cf. section 8.2.2, chapter 8), such as the category for person, categories of inclusive versus exclusive and gender, which both in verbs and personal pronouns is distinguished only for third person singular (see Benvieniste 1976 for a functional explanation of the correlation between verb and personal pronoun categories).

It is relevant diachronically that gender suffixes resemble personal pronouns in both form and function. This is illustrated in Table 2.

(9.2) *Table 2: Gender specific pronouns and affixal forms*

PRONOUNS	EXAMPLES OF SIMILAR AFFIXAL FORMS
ĩ 'third person singular masculine'	-jĩ NMZ.MSC -kĩ MSC
õ 'third person singular feminine'	-jo NMZ.FEM -ko FEM

<i>dã</i> 'third person plural animate'	<i>-dã</i> AN.PL
---	------------------

Perhaps not as clear as the cases in table 2, the suffix for 1st person animate, 2nd, person animate, and 3rd person inanimate *-wĩ* (glossed as 'non 3rd person animate', cf. section 8.2.2, chapter 8) appears to have the same final vowel as those in the first and second person pronouns *jĩ* and *bĩ*, respectively. An analogous relationship can also be observed in the forms for masculine, for example *ĩ* 'third person masculine singular', and the first and second person singular pronouns, which also end in */ĩ/*. This comparison is further supported by the semantic value of these forms. In Kubeo, MASCULINE is the default gender category (perhaps better glossed as 'non-feminine', cf. chapter 8). Similarly, the first and second person forms have no gender distinction.

All personal pronouns behave as full NPs. The sentences below illustrate how they can constitute the sole argument of an intransitive verb:

- (9.3) a. *jĩ eda-kakĩ*
 I arrive-II.1MSC
 'I arrived'
- b. *bĩ bẽa-be-wĩ*
 you bad-NEG-N.3AN
 'you are not well'
- c. *ĩ da-bi*
 he come-3MSC
 'he has come'
- d. *õ o-i-biko*
 she cry-ST-3FEM
 'she is crying'
- e. *bãhã ã-awĩ*
 we.incl eat-II.1/2/3IN
 'we ate'
- f. *jĩhã ã-karã*
 we.excl eat-II.1EXCL
 'we ate'

- g. *da-dã = dī* *bīhã*
 come-AN.PL = 2.INTR you.pl
 'have you come?' (i.e. 'welcome!')
- f. *dã* *eda-ja-bã*
 they arrive-ST-3AN.PL
 'they arrived'

Personal pronouns often appear in sentence final position, cross-referencing with a subject NP or another pronoun in the same clause, in a double subject construction, as represented below:

- (9.4) a. '*ohihī = we* *bārē* *apehī-ki = ta-ba-abē* *ĩ*
 opossum = CL.BLADE also other = DIM-MSD = E.FC-BE-II.3MSC he
 'The opossum (*Marmosa murina*) is also another little one, him'
- b. *ĩ* *bāhē* *ã-i-bĩ = ta-be* *ĩ, bui*
 he our.incl eat-ST = E.FC-COP.3AN.SG he agouti
 'he is our prey, he, the agouti'

Further investigation into the syntax-phonology interface will reveal whether double subjects could be more simply analyzed as apposition.

Kubeo speakers mostly use personal pronouns to refer to discourse participants. This is exemplified in extract of a narrative in (9.6) below where, after naming the main character, a personal pronoun is used:

- (9.5) line 1: *have-de* *ki#te-abē = ja* *pābũ = di* *ami#ki-ki*
 already-OBL exist#do-II.3MSC = REP armadillo = CL.ROUND name#exist-MSD
 'long time ago there was one called armadillo'
- line 2: *bābã#dībĩ-de* *avia* *jai-i = e-de* *ĩ* *'haro#te-kebã-awĩ*
 new#time-OBL moon die-ST = MSS-OBL he be.seen#do-PST.ASM-II.1/2/3IN
 'in the beginning of times, he was seen in the lunar eclipse'

Hence, personal pronouns have an anaphoric function. Pronouns can also have a cataphoric function (i.e. referring to nouns mentioned in a later time in a sentence) as illustrated in (9.7) below:

- (9.6) *ĩ* *kari* *a#te-abē = ja*
 he kari be#do-II.3MSC = REP
 'Once upon a time, there was him, Kari'

Inanimate referents, which do not have a personal pronoun in Kubeo, are cross-referenced in discourse using the anaphoric or demonstrative forms (see section 8.3 and 8.4 below).

9.2 Possessives

Kubeo has different strategies in marking possession. The use of possessive determiners is the primary strategy. Other strategies include possessive pronouns a possessive proclitic and a phrasal-affixal possessive morpheme. Possessive pronouns are simply the same forms of the possessive determiners plus inflectional markers, allowing them to stand independently in a sentence. The phrasal-affixal possessive *-i-* is only used for 3rd person nouns. This section discusses the functional competition between these different possessive constructions, as well as where Kubeo marks possession - in the head noun (i.e. the possessed noun) or the dependent noun (i.e. the possessor noun).

The simplest way to code possession in Kubeo is to use the pro-clitic determiner *hi* = 'generic possessive' in a syntactic construction where the possessor precedes the possessed which has the pro-clitic possessive morpheme attached to it:

(9.7) NP_{POSSESSOR} *hi* = NP_{POSSESSED} (NOUN OR CLITC)

Prosodic clues, such as stress-shift, demonstrate that the generic possessive is a pro-clitic, attaching to the possessed noun (cf. chapter 4.1, chapter 4).

As with any pro-clitic determiner, the NP to which *hi* = 'generic possessive' attaches can be an enclitic. The possessor NP can be any animate noun or 3rd person singular pronoun. See the examples in (9.8) below:

- (9.8) a. *Paulo hi = pakĩ*
 Paulo GN.PSS = father
 'Paulo's father'
- b. *bio-kĩ* *hi-dõ = ta-bu*
 kubeo.clan-MS GN.PSS = CONT = E.FC-.COP.N.3AN.SG
 'It is the land of the Biowa people'
- c. *idã* *bõa hi = pako* *hi-dã-bu*
 THESE.ANIMATE fish MY = mother GN.POSS-AN.PL-N.3ANSG.COP
 'these fish are my mother's'

The construction with the generic possessive can often be employed as a nominal predicate without use of the copula, as shown in the example below:

- (9.9) *bĩ* *ĩ* *hi-ki*
 you he GN.PSS-MS
 'you (are) his relative'

As another type of possessive construction, the POSSESSIVE DETERMINERS are the most common way to code possession in Kubeo. The table 3 illustrates all possessive pronouns in the language (forms followed by "#" indicate dependent stems that need to be complemented by a noun [in a compound structure], clitic, or affix; forms followed by "=" indicate pro-clitics that need to be combined with another noun or an enclitic):

(9.10) *Table 3: Possessive Determiners*

	DEFAULT	EXCEPTIONAL: FEW KINSHIP TERMS
FIRST PERSON SINGULAR	<i>'hi#</i>	<i>hi =</i>
SECOND PERSON SINGULAR	<i>'bi#</i>	<i>bĩ =</i>
THIRD PERSON SINGULAR	NP-i-	<i>'hi#</i>
FIRST PERSON PLURAL INCLUSIVE	<i>bãhẽ#</i>	
FIRST PERSON PLURAL EXCLUSIVE	<i>ĩhẽ#</i>	
SECOND PERSON PLURAL	<i>bĩhẽ#</i>	
THIRD PERSON PLURAL	<i>'dẽ#</i>	

Most possessive pronouns are DEPENDENT STEMS (cf. section 6.3.1, chapter 6), which means they are independent phonological words, with their own stress, but are structurally dependent on another stem, with which it forms a compound. Below are some examples of possessive phrases:

- (9.11) a. *'bĩ* *bĩbĩ = jo*
 your hummingbird = CL.LONG
 'your humminbird'

- b. *bāhē* *kī-dō*
 OUR.INC exist-NMZ.CONT
 'the place where we live'
- c. *dē* *bīkī-wa*
 THEIR old-AN.PL
 'their parents'
- d. *'hi* *pakī*
 3.PSS father
 'his father'

The only pro-clitic possessive determiners from table 3 are the ones relative to 1st and 2nd person singular forms in the exceptional paradigm. The use of morpheme types (cf. chapter 6) in making a distinction between the regular and the exceptional paradigm is striking: in the regular paradigm, 1st and 2nd person possessives are marked by a dependent stem, while in the exceptional paradigm they are coded by a pro-clitic. Curiously, the gap of a dependent stem in the exceptional paradigm for 1st and 2nd persons is "filled" by the 3rd person singular.

The exceptional paradigm is used only with a few kinship terms, roughly only those that are directly related to ego. These terms are limited to those that represent persons equal to or older than ego by no more than one generation: 'spouse' (directly related and equal to ego), 'older siblings' (directly related and older than ego) and 'parents' (directly related and older than ego). These are shown in (9.12)(phonetic forms are used to show the cliticness of 1st and 2nd person forms, see also section 6.3, chapter 6).

- (9.12) a. *hi = pakī* [hi'pakī]
 MY = father
 'my father'
- b. *bī = bābī-ko* [mī'māmī^oko]
 your = older.sibling-FEM
 'your older sister'
- c. *'hi#bā-de* *#pako* [hi'bā^ẽ pako]
 his#son-OBL #mother
 'his wife'

The only exception to the generalization that kinship terms representing persons equal to or older than ego by no more than one generation is the word *bābī* 'older sibling' (9.12b). In this case, the 1st and 2nd person possessive forms stay consistent with the exceptional paradigm, however, the 3rd person singular possessive form conforms to the regular paradigm.

The regular possessive construction for 3rd person singular (henceforth NP-i-possessive construction type, cf. table 3) is very similar to the structure in (9.7) above, though instead of the generic possessive, one finds the *-i-* '3rd person possessive' morpheme. This morpheme is a phrasal-affix and phonologically can lean towards the possessor or the possessed noun. See the examples below:

- (9.13) a. *ĩ-i* *jêkũ*
 he-PSS grand.father
 'his grandfather'
- b. *Paulo-i* *ũkũ-i=e*
 Paulo-PSS drink-ST = MSS
 'Paulo's manioc beer'

Whether *-i-* '3rd person possessive' leans towards the possessed (head) noun or towards the possessor (dependent) noun is not a morphosyntactic issue, but rather a phonological one: it leans towards the closest foot head within the possessor or the possessed words (see example (6.22) in chapter 6).

The possessive determiners can also stand independently when inflected, without a head noun, as illustrated below:

- (9.14) a. *bāhẽ=kĩ* *a-bi*
 our = MSC say-3MSC
 'our kin/friend said (it)'
- b. *ĩ* *'hi = wĩ-de* *da-wa-ka-kibe* *ji-de*
 he MY = CL.AN.COL-OBL come-CAUS-BEN-INFR.3MSC I-OBL
 'He brought my relatives on my behalf'

Because they can exist independently of a head noun, these possessive determiners are called possessive pronouns. However, it is important to note that possessive pronouns and determiners are simply the same morphemes and only their

morphosyntactic conditions distinguish their function. All possessive pronouns are inflected by the same morphemes as schematized below:

(9.15) *Table 4: Inflection of possessive pronouns*

POSSESSIVE	= <i>kĩ</i>	ANIMATE MASCULINE
DETERMINER	= <i>ko</i>	ANIMATE FEMININE
	= <i>wĩ</i>	ANIMATE PLURAL
	= <i>dõ</i>	INANIMATE COUNT GENERIC
	= CLITIC (classifier/diminutive) or # NOUN	INANIMATE COUNT
	= <i>e</i>	INANIMATE MASS

The basic differences between the partial homophonous forms *hi* = 'generic possessive' and the determiner '*hi*# 'my' is that in the plural animate form the generic possessive has the form *hi-dã* (GN.PSS-AN.PL) 'my animates (e.g. pet)', while the possessive determiner has the form '*hi* = *wĩ* 'my animates (e.g. pet, kin)'. For inanimate mass, the generic possessive has the form *hi-e* (GN.POSS-MSS) 'my mass/plural things (e.g. pair of shoes)' suffixed by *-e* 'mass' forming a monosyllabic word ['hie], whereas with the determiner form combined with the enclitic = *e* 'mass', as '*hi* = *e* (MY = MSS) 'my mass/plural things (e.g. my starch)' has the disyllabic form ['hije].

The inflected forms of the possessive pronouns are more often used when possessive determiners are used independently in a clause, without an overt head noun. In all other cases, they create compound structures with the nouns they modify, as demonstrated below:

- (9.16) a. *'hi* *kĩrãbĩ* [ˈhikĩrãmĩ]
 MY house
 'my house'
- b. *bĩ* *heme = bo* [ˈmĩhe,mẽːbo]
 YOUR *paca* = CL.OVAL
 'your *paca*'

Other closed categories are more likely to agree syntactically with the head nouns than possessive determiners. This is shown in the examples below, which contrast with (9.16) above:

- (9.17) a. *di = jābĩ* *kĩrābĩ*
 ANPH = CL.HOUSE house
 'that house (previously referred)'
- b. *jāi* *heme = bo*
 THIS.MSC paca = CL.OVAL
 'this paca (*Cuniculus paca*)'

Linguists discuss possession (as well as other morphosyntactic issues) in terms of a head-marking and dependent-marking parameter (Nichols 1986) where possessors are dependent constituents and possessed nouns are head constituents. In Kubeo this distinction is problematic. Possessive pronouns formally mark possession in the possessor stem, which also expresses the category of the possessor. Somewhat differently, the generic possessive is attached to the possessed noun and does not mark the category of the possessor. Thus, these two types of possessive constructions show two different parameters: possessive determiner and pronouns are dependent-marking and the generic possessive is head-marking.

The same is true for the pro-clitic possessive forms of the exceptional paradigm (cf. table 3 above), which have the same inflection categories as the rest of the personal pronouns, though they lean towards the head noun. Since they are inflected for categories related to the possessor and leaning towards a head noun is simply a phonological issue, possessive pronouns can also be analyzed as dependent-marking. Likewise, the morpheme *-i-* '3rd person possessive' is controlled and motivated by the category of the possessor (the dependent constituent). Thus, one can say that this is a dependent-marking possessive construction, despite the fact that for morphophonological reasons it might be attached to the head noun. In sum, head-marking in Kubeo possession occurs only with the generic possessive morpheme.

Possession in Kubeo applies to any type of nominal referent and does not have strong restrictions on what kinds of things can be possessed. The possessive pronouns and the NP-*i-* possessive construction are also used as the subject markers of non-finite clauses, as represented below:

- (9.18) a. *õ-i* *ã-dĩ* *do**ba-e-de*** *kuidã opeko* *eda-kebã-awĩ*
 she-POSS eat-CNV sit-MSS-OBL one breast.milk arrive-PST.ASM-II.1/2/3IN
 'my wife was eating when the single-breasted (forest entity) arrived'

- b. *jĩhẽ* *e-i = e-ba-karã = dõ-i*
 our.excl poison-ST = MSS-BE-NMZ.PST.AN.P = CNT-LOC
da-i = wi = bu
 come-ST = CL.AN.PL-COP.N3AN
 'we are returning from the place where we had poisoned the fish'

Complements and post-position are also related by possessive constructions.

- (9.19) a. *ĩ-i* *jobo-i*
 he-PSS after-LOC
 'behind him'
- b. *'hi* *kãtjidõ-i*
 my below-LOC
 'underneath me'

It is important to mention here that when the post-position *hipoka* 'ahead', is used with the first person (and sometimes with the 3rd person singular), it is exceptionally stressed in the first syllable *'hipoka* 'ahead of me/him'. This is either a reanalysis of the first syllable /hi/ as the manifestation of the possessive pronoun, or a process to avoid cacophony as *[hihipoka].²

Inanimate nouns, on the other hand, are often not "good possessors" in Kubeo. This has implications for how the language treats relationships of part and whole among inanimate nouns. For instance, the examples in (9.20) show a rare part and whole relationship, where inanimate nouns are expressed by the NP-i- possessive construction. The examples in (9.21), on the other hand, demonstrate the use of a genitive compound (i.e., no possessive construction is found, cf. section 6.4, chapter 4 for the concept of genitive compound). It should be noted here that body parts of animate nouns are regularly possessed, as illustrated in (9.22):

- (9.20) *hokĩ-i* *hure*
 tree-pss bark
 'tree bark'
- (9.21) a. *'hi tãrãiyõ hipokoro*
 MY flute top
 'my flute's beak'

² A further example comes from the author's elicitation of the word *bĩ bĩbĩ=jo* 'your hummingbird'. Upon hearing the sound [mimimijo], the group of native consultants laughed.

- b. *hokĩ = kĩ* *kawabi-a*
 tree = CL.TREE branch-IN.P
 'tree branches'
- c. *toabo biko*
 fire smoke
 'fire smoke'
- (9.22) a. *hi* *jako = dĩ*
 my eye = CL.RND
 'my eyes'
- b. *ĩ-i* *kĩbo = ba*
 he-PSS foot = CL.TIED.UP
 'his foot'

Inanimate nouns do not frequently have possessive morphemes due to complex semantic issues in hierarchies of referentiality, definiteness, and animacy (see for instance related phenomena in section 8.2.2.1). This can also be indirectly observed in rare cases where body parts of animate nouns are not marked by a possessive morpheme, such as in *take pĩkõ = bũ* (monkey tail = CL.THICK.LINE) 'monkey's tail', where *take* 'monkey' is indefinite and generic. Given that inanimate nouns are by default indefinite and generic in Kubeo, they tend not to be good possessors.

These facts relate to how Kubeo organizes possession relations by taking the possessor noun as more salient than the possessed noun for the purposes of how possession is grammatically encoded. Kubeo's possession, thus, contrasts with the general trend mentioned in the typological literature about possession where it is usually the possessed noun that is more salient for defining the different types of how possession is grammatically encoded, as seen, for instance, in how alienable and inalienable nouns have distinct possessive constructions cross-linguistically (cf. Bickel and Nichols 2012).

The majority of possessive pronouns appear to be diachronically derived from the incorporation of the generic possessive morpheme *hi =* into the personal pronoun roots, followed by a syncope of /h/, as exemplified below:

(9.23) *Table 5: Diachronic Evolution of Possessive Pronouns*

PERSONAL PRONOUN		GENERIC POSSESSIVE		POSSESSIVE PRONOUNS
<i>*bĩ</i>	+	<i>hi</i>	→	<i>bĩ</i>
<i>*bãhã</i>	+	<i>hi</i>	→	<i>bãhẽ</i>
<i>*jĩhã</i>	+	<i>hi</i>	→	<i>jĩhẽ</i>
<i>*dã</i>	+	<i>hi</i>	→	<i>dẽ</i>

It is useful to note that the changes of [ai] to [ɛ] and [iĩ] to [i] is also well documented in synchronic processes (cf. section 2.1.2.1, chapter 2). This diachronic analysis shows that the generic possessive that is attached to the possessed (head) noun, was incorporated into the possessor (dependent) noun, which accommodates the more general rule of marking the possessor (dependent) noun in Kubeo possessive constructions.

The form of the first person singular possessive (which does not follow the pattern in (9.23) above) is the result of an extension of the generic possessive as the possessive marker for first person singular, where first person is treated as \emptyset or default person (i.e. with no need to be overtly coded, which follows from pragmatic reasons, since it can always be very clear that one is talking about his/her own things, more clear than for other persons at least). This construction is paralleled in other Tukanoan languages. For instance, in Tukano, the possessive morpheme *jaa* (clearly not a cognate of Kubeo *hi* 'generic possessive') has a very similar construction to (9.7) above, where the possessor NP must be overtly stated for every type of NP or pronoun except for first person singular, which takes *yaa* without an NP in the possessor slot (Ramirez 1997).

Differently from Tukano, Kubeo appears to use the extension of a possessive morpheme to 3rd person singular in the exceptional paradigm of possessive determiner forms (see (9.10)). This comes as no surprise, however, as treatment of 3rd person as \emptyset or no-person is quite common in personal pronoun systems cross-linguistically (see Benveniste 1976, Siewierska 2004).

The morpheme *-i-* '3rd person possessive' is very likely a borrowing. In Tariana (Aihkenvald 2003) and Baniwa (Ramirez 2001) there is a prefix *i-* that marks the possessed (head) noun in possessive construction with a third person possessor, as the Baniwa example below shows:

- (9.24) *pedojo i-káapi*
 Peter 3.NEUTER-hand
 ‘Peter’s hand’

When Kubeo borrowed the Arawakan prefix *i-*, the language reanalyzed it as a phrasal affix, whose phonological dependency is constrained by metrical issues.

These diachronic facts can explain why there are several cases of functional competition between possessive constructions. For instance, in explicit grammaticality judgments, mixing a NP-*i-* construction with a generic possessive construction as in (9.24) below sounds ungrammatical to Kubeo native speakers. Nevertheless, such constructions have been observed to occur in natural occurring speech, as illustrated in (9.25) below (relevant parts of the examples are underline for longer extracts):

- (9.24) **ĩ-i* *hi = paki* EXPLICIT GRAMMATICALITY JUDGEMENT
 he-PSS GN.PSS = father
 *‘his father’

- (9.25) *ĩ-i* '*kaju-wa = pe* *pa-i = wi = ta-ba-ibã = ja*
 he-PSS chicke-AN.P = AS kind-ST = CL.AN.COL = E.FC-BE-II.3AN.P = REP
ina *jape duri-wa* *aipe paiwi*
 THIS.AN.PL curassow-AN.PL how kind-ST = CL.AN.COL
ĩi *hinata-ba-ibã = ja*
 he-PSS GN.PSS-AN.PL = E.FC-BE-II.3AN.P = REP
 ‘it is said that his (Curupira’s)³ chickens are the nocturnal curassows, that
 it is his class of domesticated animals that he has’

Another demonstration of the functional competition present among Kubeo possessive constructions is seen in the marking of 3rd person subjects of non-finite clauses. The most general way is to use the NP-*i-* type, as represented in (9.18a) above. However it is also fairly common to see 3rd person being marked by the dependent stem *‘hi#*, the same marker for 1st person singular, as represented in (9.26) below:

- (9.26) a. *hi = pako* *jiri#ja-i-biko* *‘hi* *běbě-i = e-de*
 MY = mother smile#make-ST-3FEM MY(HER) work-ST = MSS-OBL
 ‘my mother is singing while working’

³ A forest species known as the lord of the game animals.

- b. *aru* *ĩ-i* *tãuri e-i = dõ* *bõa-de* *'hi* *hẽ-i-dõ*
 so he-PSS trap set-ST = CNT fish-OBL MY(HIS) get-ST = CNT
 'so his trap (was) set, with which he catches fishes'

These examples of competition provide interesting evidence for how structural borrowing has made the entire possessive construction system more complex.

9.3 Demonstratives

Kubeo has two sets of demonstratives: proximal (9.27) and distal (9.28):

(9.27) *Table 6: Proximal Demonstratives⁴*

Grammatical Categories	Forms
INANIMATE COUNT	<i>i = NP_{HEAD}</i>
INANIMATE MASS	<i>i = e</i> <i>this = MSS</i>
INANIMATE COUNT GENERIC	<i>'jo</i> THIS.CNT
ANIMATE MASCULINE	<i>'jãi</i> THIS.MSC
ANIMATE FEMININE	<i>i-ko</i> <i>this-FEM</i>
ANIMATE PLURAL	<i>i-dã</i> <i>this-AN.PL</i>

⁴ The forms not marked with a morpheme boundary can function as independent words syntactically.

(9.28) *Table 7: Distal Demonstratives*

Grammatical Categories	Forms
INANIMATE COUNT	$\tilde{a}d\#$ NP _{HEAD}
INANIMATE MASS	$\tilde{a}d\tilde{i} = e$ that = MSS
INANIMATE COUNT GENERIC	$\tilde{a}d\tilde{o}$ THAT.CNT
ANIMATE MASCULINE	$\tilde{a}j\tilde{i}$ THAT.MSC
ANIMATE FEMININE	$\tilde{a}\tilde{o}\tilde{o}$ THAT.FEM
ANIMATE PLURAL	$\tilde{a}d\tilde{i}-d\tilde{a}$ that-AN.P $\tilde{a}d\tilde{i}a$ THAT.AN.P

Inflection categories of the demonstratives are essentially the same type of inflection categories found in nouns (cf. section 8.1, chapter 8). The proximal demonstrative has the clitic *i* = 'this' as its base, and the distal demonstrative has the DEPENDENT STEM $\tilde{a}d\#$ 'that' as its base. Both bases form their plural generic form through the affix $-d\tilde{a}$ 'animate plural' rather than with the classifier clitic = *wi* 'animate collective'. An exception to this is the variant form $\tilde{a}d\tilde{i}a$ 'those animate plural', which uses the inanimate (!) plural suffix to code the animate plural form.

There are many demonstrative forms that cannot be properly morphologically segmented and constitute cases of reanalysis of the previous demonstrative + affix/clitic as a single morpheme. In the proximal paradigm forms, this is the case for the forms *'jo* 'inanimate count generic' (where the basis *i* = fused with some sort of inanimate count suffix |o|⁵) and *'j\tilde{a}i* 'animate masculine' (where an /a/ was epenthesized between the basis *i* = and a masculine suffix |i|⁶). For distal demonstrative forms this is the case for

⁵ The abstract representation |o| follows from the recurrent use of [õ] forms in inanimate count forms.

⁶ Epenthesis of /a/ between two /i/s is also proposed for the allophones of $-i$ 'stative' in the 3rd animate plural verb forms (cf. section 8.2.2, chapter 8; but see also discussion of examples (2.61), chapter 2). In addition the abstract form |i| (which is differently from the more common masculine form |ĩ|) is a hypothesis based on a few forms in Kubeo that mark default gender (i.e. non-feminine) such as in the verb affix $-bi$ '3rd person masculine'. See also in Tukano the demonstrative *atigo* 'this woman' and *\tilde{a}ri* 'this man' (cf. Ramirez 1997), where |go| 'feminine' contrasts with |i| masculine.

ãdõ 'inanimate count generic' (basis *ãdĩ* + |o| 'inanimate count' and syncope of medial /i/), *ãjĩ* 'animate masculine' and *ãðõ* 'animate feminine' (basis *ãdĩ* + |ĩ| 'masculine' and |o| 'feminine', followed by the fusion of medial /d/ and /i/ from the base into /j/). The forms that did not undergo grammaticalization are those based on a CV suffix (e.g. animate plural) or those with a clitic that triggered on-gliding forming a CV syllable (e.g. inanimate mass).

The usage of each demonstrative as well as a generalization about their individual syntactic behaviors is illustrated in the examples below. Syntactic behavior of each demonstrative is discussed in three parameters: (1) a demonstrative can form a compound structure with the head noun if the demonstrative is in the DEPENDENT STEM form, as in (9.29a), or can form a word if the demonstrative is a clitic, as in (9.29b); (2) a demonstrative can form a syntactic phrase with the head noun when the demonstrative is inflected and agrees with the head noun, as in (9.30); (3) or a demonstrative can function as the head of an NP, without an overt noun, as in (9.31).

- (9.29) a. *ãdĩ* #*kobe-de ko-be-ha-ki*
 that #hole-OBL enter-NEG-IMP-MS
 'do not enter in that hole!'
- b. *i = koriba = ka* *põe-ki* *okoji-ki*
 this = river.stretch = ORG person-MS Wanano-MS
 'the owner of this river stretch, the Wanano (ethnic group)'
- (9.30) a. *ãðõ* *biki = hĩ-ko* *'hi#jẽkõ-be*
 THAT.FEM old = DIM-FEM MY#grandmother-COP.3AN.SG
 'that old lady is my grandmother'
- b. *i = kũ* *hiaðo = kũ* *kopo-i-kũ = ta-bu*
 this = CL.HOLLOW tree.sp = CL.HOLLOW break-ST = CL.EMB = E.FC-COP.N.3AN.SG
 'this canoe is broken'
- (9.31) a. *je-de ãðõ wo-jo-ba*
 INDF-OBL THAT.FEM search-FEM-COP.INTR
 'what is that woman looking for?'
- b. *ji ãdõa-de* *ina-de* *kira#du-wa-wi*
 I yesterday-OBL THOSE.AN-OBL excrement#release-CAUS-N.3AN
 'I removed the insides of those (peccaries) yesterday'

The morphosyntax of demonstratives referring to inanimate count nouns is more complex. As one can see from tables 6 and 7 above, there are two demonstrative forms for this class of nouns: a bare form demonstrative (*i* = 'proximal' and *ãdĩ#* 'distal') followed by an NP_{HEAD} (a full noun or clitic), and an inanimate count generic, *jo* and *ãdõ*. When the head noun of the NP is an inanimate noun that has no classifiers, the demonstratives can either stay in their bare form or agree, by being inflected for the INANIMATE COUNT GENERIC forms, *'jo* 'proximal count generic' and *ãdõ* 'distal count generic', as represented in (9.32) and (9.33) respectively:

- (9.32) a. *i = kađawa*
 this = shelf
 'this shelf'
- b. *i = ihĩ*
 this = summer
 'this summer/year'
- c. *i = hĩ-dõ*
 this = dim-.cnt
 'right here, very close'
- d. *'jo* *ãbĩja*
 THIS..CNT name
 'this name, this plate, sign'
- e. *jo* *ibãrõ*
 THIS..CNT village
 'this village'
- f. *i = ěkari* / *'jo* *ěkari*
 this = edge THIS.CNT edge
 'this edge'

- (9.33) a. *ãdĩ kaḏawa*
 that shelf
 'that shelf'
- b. *ãdĩ ihĩ*
 that summer
 'that summer/year'
- c. *ãdĩ = hĩ-e*
 that = DIM-MSS
 'those little things'
- d. *ãdĩ ãbĩja* / *ãdõ ãbĩja*
 that name THAT.CNT name
 'that name, plate, sign'
- e. *ãdĩ ibārõ* / *ãdõ ibārõ*
 that village that.cnt village
 'that village'

This type of variation is the result of how speakers manipulate the category of inanimate count in agreement relations. When the semantic value of a noun is meant to convey a place, area, or space, the inanimate count generic demonstrative form can be used. This is because the inanimate count generic form can function as an independent word, meaning 'here, this place' or 'there, that place'.

The general rule for words with classifiers is that the demonstrative must agree with the classifier, as represented by (9.30b) above and (9.34a) below. However, there can be variation in the way the demonstrative agrees with the noun bearing a classifier. As represented in example (9.34b), under special circumstances, a demonstrative can also keep its basic form and not agree with the classifier (as it is the rule for possessive demonstratives, cf. e.g. (9.16)):

- (9.34) a. *i = ka ãe = ka*
 this = cl.3D nose = cl.3D
 'this nose'

- b. *i = ũe = ka* *ji-de boa-bi*
 this = nose = CL.3D I-OBL kill-3MSC
 'he hit me in this right nose!'

This alternative construction is motivated whether or not in a given illocution the semantic value of the classifier is more salient than the semantic value of the whole noun (i.e. host + classifier analyzed as single piece). When the semantic value of the classifier is more salient, agreement is controlled by the classifier; when the semantic value of the whole noun is more salient, agreement is controlled by the feature INANIMATE COUNT, which leaves the demonstrative in its bare form (cf. section 8.1.2 and 8.1.3, chapter 8). This is similar to the cases found in examples (9.32) and (9.33) where demonstratives are inflected for the feature inanimate count generic (*jo* and *ãdõ*) or are left in their bare form.

Whereas the proximal demonstrative nearly always agrees with the classifier, the distal demonstrative more frequently keeps its basic form and does not show agreement with the head noun. The examples in (9.35) below show that the choice of demonstrative alters the semantic value of the whole head noun:

- (9.35) a. *ãdĩ* *biki-ki*
 that old-MSC
 'that middle age man (30s ~ 40s)'
- b. *ãjĩ* *biki-ki*
 THAT.MSC old-MSC
 'that old man (60s and above)'

Agreement between the demonstrative and the head noun seems to reflect what semantic feature of the head noun is prominent. The root *biki* is vastly polysemous, meaning 'old', 'great, respectful', 'to grow', 'parents', 'ancestors' and 'elder'. What is therefore seen in the manifestation of demonstrative-head noun agreement is a more profound indication of the intended semantic value of a root.

The demonstratives inflected for the inanimate mass category can either refer to a single mass noun or to a plural set of inanimate count nouns, as represented below:

- (9.36) a. *ãdĩ = e* *hitira*
 this = MSS flour
 'this flour'

- b. *i=e estoria*
 this = CL.MSS story
 'this story'
- (9.37) a. *ãdĩ=e piẽ-a hoã-ki=e=ta-bu*
 that = MSS basket-IN.PL burn-NMZ.FUT = MSS = E.FC-COP.N.3AN.SG
- b. *i=e pika piẽ-a-bu*
 this = MSS two basket-IN.PL-COP.N.3AN.SG
 'these two baskets'

Kubeo demonstratives can also be used for temporal reference. The distal demonstrative forms indicate the past, and the proximal demonstratives mark the present as illustrated in (9.38). Future reference is coded by the alterative determiner *ape* 'other' (cf. section 8.5).

- (9.38) a. *ãdĩ ihi-de hi=pakĩ ihi-e##te-jĩ-ba##te-abẽ*
 that summer-OBL MY = father pain-NMZ.MSS#do-NMZ.MSC-BE#do-II.3MSC
 'last year my father was sick'
- b. *kebaru põẽ-wa i-hãrãwi-de jai-dĩ*
 thus person-AN.P thi-day-OBL die-CNV
jai-i=wi-ba##te-awĩ=ja hoki=ki=pe-deka
 die-ST = CL.AN.COL-BE#do-II.1/2/3IN = REP tree = CL.TREE = AS-OBL.SAME
 'that is why in these days people are mortals, justlike trees'

In the relative timeline of discourse information, the proximal demonstrative code information yet to be mentioned, i.e. function as a cataphora:

- (9.39) *i=e ãbĩ##ki-e=ta a-deha-ibã*
 this = MSS name#exist-NMZ.MSS = EM.FOC say-HST.PST-II.3AN
- biki-wa-ba-kawi: biki pora = dĩ tõđo tiró...*
 old-AN.PL-BE-PST.NMZ.AN.PL great post = CL.ROUND corner rear
 'All of these had names, so the elders used to say: the central posts, the corner, the rear' (talking about the traditional architecture of the long house)

On the other hand, anaphora is coded by a special determiner, *dĩ* 'anaphora', which is discussed in the next section, 8.4.

Finally, it should be mentioned that the distal demonstrative is very likely a borrowing. Tariana (Aikhenvald 2003:206) has the form *hane* ‘that’ for the distal demonstrative. Not only are the Kubeo and Tariana distal demonstratives phonologically similar, but two other facts support the identification of this demonstrative as a borrowing:⁷

- (i) The environment where [n] appears in *ãdĩ* ‘distal demonstrative’ is phonologically unexpected: since it follows a nasalized /a/ it should have had the form [ĩ] if it were a native Kubeo morpheme (cf. section 2.2.2.5).
- (ii) There are no cognates of *ãdĩ* ‘distal demonstrative’ in Tukanoan languages. The proximal demonstrative forms in Tukano and Makuna are *a’ti* ‘this’ and *adi* ‘this’, respectively. If Kubeo had a cognate of these forms, one would expect **ari*, which doesn't exist.

9.4 Anaphora

Anaphora can be combined only with inanimate nouns, classifiers, and the diminutive. This class of nouns lacks personal pronouns, as stated in section (9.1). Thus the basic function of the anaphora is to cross-reference the discourse information with pre-mentioned inanimate nouns. Another important function is its use as a definite marker (discussed in the end of this section). The forms of the anaphoric determiner are given in the table below:

(9.40)

Table 8: Anaphora

INANIMATE COUNT	<i>di</i> = NP _{HEAD} (noun or clitic)
INANIMATE MASS	<i>di</i> = <i>e</i> ANPH = MSS
INANIMATE COUNT GENERIC	<i>dõ</i> ANPH.CNT

There are some lexicalized forms of the anaphoric determiner and the head noun/clitic it combines with, such as for the word *di* = *dĩbĩ* (ANAPH = time/epoch) ‘those days, that epoch’, which can be pronounced by some speakers as [diĩmĩ] or [nĩ'nĩmĩ]. The latter form indicates lexicalization, where the anaphora pronoun was reanalyzed as part of the head noun stem. Two other cases are found with the words *di* = *hĩ-e* (ANAPH = DIM-MSS) ‘those little/few things’ pronounced as [nĩ'hĩe] and *di* = *hĩ-ki*

⁷ Not necessarily directly from Tariana. Other Arawakan languages are possible sources as well.

(ANAPH=DIM-MS) 'that little masculine one' pronounced as [nĩ'hĩ^hki], which both contrast with the word *di=hĩ=ki* (anaph=DIM+CL.TREE) 'that little tree/straight vertical thing', pronounced as [di'hĩ^hki]. See section 3.2.2, chapter 3, for an analysis of these words in terms of regressive nasalization.

The construction between the anaphora and a head noun obeys the same three morphosyntactic parameters presented for the demonstratives in section 8.3: (1) the anaphora, as a pro-clitic, can form a single word with a head noun that bears no classifier, as in (9.41) below; (2) it can form a syntactic phrase when agreeing with the head noun, see (9.42); (3) or it can be the sole constituent of an NP, as in (9.43).

- (9.41) a. *aipe a-ji-ba#te-ki-ba* *'bĩ* *'jo-ki*
 what do-NMZ.MSC-BE#do-NMZ.PRF.MSC-COP.INT YOUR younger.sibling-MS
di=hãrãwi *õpõ#tii* *hãrãwi-de*
 ANPH=day noise#fall-ST day-OBL
 'what was your brother doing during the time of thunder?'
- b. *aru ke a-dĩ* *di=dĩbĩ* *kuina#tiri*
 so thus make-CNV ANPH=time one#edge
di-dãhi-wi *a-ibã=ja*
 go-FUT.AN.PL say-II.3AN.PL=REP
 'so in that moment, they said 'let's go now''
- (9.42) a. *di=ba* *kibo=ba* *hũa-di=ba* *bãu#te-debu*
 ANPH=CL.BRNCH foot=CL.BRNCH red-NMZ=CL.BRNCH stay#do-INFRR.N3AN
 'that foot got red (after hit by a hammer)'
- b. *di=bi ã-i=e tẽbũribi* *'hapura#te-awĩ=ja*
 anph=CL.FILLED eat-ST=MSS drum be.heard#do-II.1/2/3IN=REP
 'that Nourishment-Drum was heard'
- c. *ĩbedĩta* *di=ki ira=ki ãbẽ#te-a-di?*
 however ANPH=CL.TREE big=CL.TREE COP.NEG#do-PST-INTR
 'but wan's he in that tree (your were talking about)?'

- (9.43) a. *hawehĩna-ba-e-de* 7 *ora ea-i=e* *bahu-de*
 early.morning-BE-NMZ.MSS-OBL seven hour arrive-ST = MSS ITNS-OBL
pribẽiro sidõ boa-dĩ aru 7:30 *bahi segundo aru 8 ponto bahi*
 first bell hit-CNV and seven.thirty exactly second and eight o'clock exactly
no *terceiro*
 anph.incont third
 'early in the morning 7 o'clock first bell sounded, then at seven thirty the
 second and then at eight o'clock the third one'
- b. *abuhu kĩrãbĩ-ba#te-awĩ=ja* *di=jãbĩ*
 devil house-BE#DO-II.1/2/3IN = REP ANPH = CL.HOUSE
 'that house was the devil's house'
- c. *di=ki* *kai=hĩ-e* *ã-i=e* *'ki#te-awĩ=ja*
 ANPH = CL.TREE all = DIM-MSS eat-ST = MSS exist#do-II.1/2/3IN = REP
õre ihi *kawa#bẽdẽ* *jãbu...*
 banana pineapple sugarcane yam
 'that tree had all kinds of food: banana, pineapple, sugarcane, yam...'

The inanimate count generic form *dõ* has special functions in the discourse. It can refer to inanimate count nouns as in (9.43a), to places as in (9.44) below, and can also be used to refer to a whole sentence or idea, as exemplified below in (9.45):

- (9.44) a. *dõ=ta* *jĩhẽ* *kĩrãbĩ põe#eta* *kĩrãbĩ*
 ANPH..CNT = EM.FOC our.excl house person#leave house
 'right in that place, our house, our house of creation'
- b. *dõ=ka#põe-ki*
 ANPH..CNT = ORG#PERSON-MS
 'the person from that place / the owner of that land'
- (9.45) a. *hawede* *dõ=pe-ba-reha-kebã-awĩ*
 already-OBL ANPH..CNT = AS-BE-HST.PST-ASSM.PST-II.1/2/3IN
 'that is how those things were in the past'

- b. *aru dõ = pe dapia-i-wi bãhẽ i = jãbĩ-de*
 ANPH..CNT = AS THINK-ST-N.3AN OUR.EXCL this = cl.house-OBL
dãkõwã-i = wi
 build-ST = CL.AN.COL
 'so that is how we see the reason for building this long house'

The inanimate anaphora *die* can refer to a plural set of inanimate count nouns as in (9.46a) below, or it can refer to a single mass noun as in (9.46b) below:

- (9.46) a. *kawa-i pođa bĩ = hĩ-dã pođa di = e-de*
 vulture-PSS feather bird = DIM-AN.PL feather ANPH = MSS-OBL
dã bohi#te-kebã-awĩ
 they young#do-ASM.PST-II.1/2/3IN
 'vulture's feather, little bird's feather, they adorned (themselves) with
 those sorts of things'
- b. *di = e toahi#te-i = e-de di = e ãbĩbõe-de*
 ANPH = MSS heat#do-ST = MSS-OBL ANPH = MSS açai-OBL
jua-dĩ ađa-dĩ
 pour-CNV put.onto-cnv
 'once the water is heated up, one pour the açai (into the water)'

Finally, an important function of the anaphora, which goes beyond the discourse cross-referencing function, is to code definiteness of inanimate nouns. The sentence below that was extracted from a myth about the creation of manioc, the main crop for the Kubeo people, illustrates this point.

The alterative determiner has a meaning of 'other', as illustrated in the examples below:

- (9.48) a. *bāloka* *ape* *pūrā-i* *bola* *yahu-i* *tāibi*,
 long.house OTHER side-LOC ball play-ST yard,
ape *pūrāwi-de* *hia = hī = ja*
 OTHER opposite.side = OBL river = DIM = CL.RIVER
 'in one side of the long house (is) the soccer pitch, to the other side is the creek '
- b. *aru* *bī* *ape = ki-i = ta* *te-kaki-dī* ?
 and you OTHER = CL.TREE-LOC = E.FC do-NMZ.PST.MSC = 2.INTRR
 'and were you in another tree?'
 (the bird the man was chasing was in one tree, he was in the other)
- c. *bīhā-de* *ea-be-wi* *kari*, *ape = wi-de* *hī-naha-de*
 you-OBL fit-NEG-N.3AN TOPIC, OTHER = CL.AN.COLL-OBL give-FUT.AN.PL-EXRT
 '(the clothes) do not fit on you guys, let's give to other people'
- d. *ī* *kari* *ape* *biki-ki* *kūidā = dō-i* *kīrābī* *a-dī*
 he topic OTHER old-MSC one = CL..CNT-LOC house make-CONV
 'he and another middle age man made a house while living in a single place'

A parallel can be made between the morphosyntax of the alterative determiner and the distal demonstrative. In (9.48d) the word *ape biki-ki* 'another middle age man' *biki-ki* can also be treated in the same way as is found in example (9.35a). When the alterative determiner agrees with the word *biki-ki*, as in *apeki biki-ki* 'another old man', the meaning is similar to that in example (9.35b).

In addition, the alterative determiner is facultative, whether combined with a classifier or a noun:

- (9.49) a. *ape = wi*
 other = CL.AN.COL
 'another group, clan, family'
- b. *ape#pōe-wa*
 other#person-AN.P
 'another people'

- (9.50) a. *ape = dõ*
 other-CNT
 'another place, land, thing'
- b. *ape#hobo-dõ*
 other#earth-CNT
 'another land, territory'
- c. *ape = dõ-i = ta* *ape#hobo-dõ-i = ta*
 other = CNT-LOC = EM.FOC other#earth-CNT-LOC = EM.FOC
- dĩ-abẽ = ja* *ĩ*
 go-PST.3MSC = REP he
 'he went to another land'

When combined with an inanimate count clitic, as in *ape = dõ* (other = CNT) the alternative determiner can mean either 'another place', 'another thing', or 'another one', as illustrated in the examples below:

- (9.51) a. *ape = dõ-i* *dĩrã-i = dõ* *ki-be = e = da*
 other = CNT-LOC move-ST = CNT exist-NEG = MSS = PRCSLY
 'they never moved from there'
- b. *ĩ* *kuwai* *ape = dõ* *'dapia-jime* *kari*
 he Kuwai other = CNT think-ASM.3MSC TOPIC
- "dĩi* *hai-di"* *a-jibẽ* *kari*
 go-ST need-NMZ say-ASM.3MSC TOPIC
 'Then, he, Kúwai, thought about another thing: "I'd better go" he said'

The alterative determiner has lexicalized in some constructions. One of them is *ape = hĩ-e* (OTHER = DIM-MSS) which means 'little things' but also 'one's possession'. See the example in (9.52) below:

- (9.52) *jĩhẽ* *ape = hĩ-e-de* *ađa-dĩ* *da-karã* *kari*
 OUR.EXCL other = DIM-MSS-OBL put.onto-CNV come-pst.1EXCL TOPIC
 'we loaded our things and then came'

Furthermore, an idiomatic expression using the alterative determiner is found in the word *ape=no-ba-* (OTHER=CNT-BE-) which codes a hypothetical situation and carries a meaning of 'it could/might be', as exemplified below:

- (9.53) a. *ape=dō-ba#te-jī* *ādī* *kobe-de*
 OTHER=CNT-BE#do-NMZ.MSC that hole-OBL
pābū=dī *kī-he=bu*
 armadillo=CL.RND exist-HYP=PRB
 'perhaps there could be an armadillo in that hole'
- b. *ape=dō-ba#te-i=dō* *pika#sebādā* *'jobo-i=ta*
 OTHER=CNT-BE#do-ST-CNT two#week after-LOC=E.FC
hia *koa-ki=e=bu*
 river dry-NMZ.FUT=MSS=PRB
 'it could be that after two weeks the river will get lower'

The word *ape=no-ba-* always agrees with the sentence topic, as is demonstrated in (9.53a) with the animate masculine and in (9.53b) with the inanimate count, as revealed by the nominalizer after the verb *te* 'to do'.

Another case of lexicalization of the alterative determiner is in the form *ape#dībĩ* (OTHER#time), which means 'sometimes', 'when' (in a non interrogative usage), and 'perhaps', as illustrated in (9.54) below:

- (9.54) a. *ape#dībĩ-de* *bābā-ko* *oko#kaju-e* *ja-dī* *o*
 OTHER#time-OBL young-FEM water#mix-NMZ.MSS make-CNV or
ape#dībĩ *'hi#pako*
 OTHER#time HER#mother
 'sometimes is the daughter that makes the porridge, or sometimes is her mother'
- b. *ke-ba#te-awĩ* *ape#dībĩ* *ihi-dō* *kī-dō* *bāhā-de*
 thus-BE#do-PST.1/2/3in OTHER#time pain-NMZ.CNT exist-NMZ.CNT we.incl-OBL
 'this is like when the we are in (labor) pain'

The alterative determiner is also used for coding NPs with future time references, such as in (9.55) below:

- (9.55) a. *ape ihĩ*
 other summer
 'the next year'
- b. *hawe hia jaboribo ape çubãdã-i*
 already river flood OTHER week-LOC

kĩrã-dãharãbã bõa
 spawn-FUT.AN.P fish
 'the river is getting higher, in the next week the fish might spawn'
- d. *bãhã pãbĩ-wa ape#hãrãwi-a ki-be = dõ bãhã kari*
 we.incl Kubeo-AN.P OTHER#epoch-IN.P exist-NEG = CNT we.inc topic
 'in a future time there will nothing for us, then'

The alterative can also be used as a manner adverb in the form *ape-i* (OTHER-LOC) meaning 'differently', as in the sentence below:

- (9.56) *hawe = ka = jãbĩ-ba-kãrõ ape-i = ta-ba-deha-awĩ*
 already = ORGN = house-BE-PST.NMZ.CNT other-LOC = E.FC-BE-HST.PST-II.1/2/3IN
 'the houses from the past were different (had a different style)'

9.6 Indefinite Pronoun

The indefinite pronoun, *je*, has many functions in Kubeo, due to the language's lack of articles, predicate negation (negation has scope over verbs only), and the majority of noun roots generic concepts. The indefinite pronoun can be inflected as follows:

(9.57) *Table 9: the indefinite pronoun*

INANIMATE COUNT	<i>je#NP</i> (noun or clitic)
ANIMATE MASCULINE	<i>je = ki</i> indef = MSC
ANIMATE FEMININE	<i>je = ko</i> indef = FEM
ANIMATE PLURAL	<i>je-dã</i> indef-AN.PL
ANIMATE PLURAL DISCRETE GROUP	<i>je = wi</i> indef = CL.AN.COL

The use of the indefinite pronoun for unknown referents is so pervasive that it has evolved into a vocative, largely used by women when talking to anyone, even their close relatives. This reflects a typical feminine ethos in Kubeo society, marking a social indifference and personal detachment in certain social circumstances.

Another usage of the indefinite pronoun is in discourse pause and hesitation:

- (9.60) a. *ĩ-i... 'je... ĩ-i* *aribo-dã*
 he-PSS indef he-PSS shoulder-LOC.SPCF

tuba-ki#dĩ-awĩ = ja
 stay-NMZ.PRF.MSC#go-II.1/2/3IN = REP
 'he went off to rest on his, hmm, his shoulder'
- b. *idã* *'je-dã* *'bĩ#jawi-wa* *jawi#tãkũwe-i*
 THIS.AN.PL indef-AN.PL bird#jaguar-AN.PL jaguar#rapids-LOC
bi-ĩçi-ibã *dã*
 start-IRR2-PST.3AN.PL they
 'they, those animals hmmm, the harpy eagles, began in Iauaretê'
- c. *'kãbã = ki-de* *ĩ-kebã-awĩ*
 turi.tree = CL.TREE-OBL take-PST.ASM-II.1/2/3IN
'je = ki-de *'dapoa = ki-de*
 indef = MSC-OBL japura.tree = CL.TREE-OBL
 'they used to take Turi tree and, hmm that tree, Japurá tree'

The indefinite pronoun can also be incorporated into the verb *te* 'to do'. The resulting compound expresses an indefinite event. The fact that the event is indefinite allows it to refer to any event that the discourse or pragmatic context can provide. See some examples below:

- (9.61) a. *ki-kijĩ* *ãbẽ#te-kebã-awĩ,* *ibedĩta*
 exist-FUT.MSC COP.NEG#do-PST.ASM however
'je#te-ji-ba#te-kebã-awĩ
 indef#do-NMZ.MSC-PST.ASM-PST.1/2/3IN
 '(they were building a house) not for their living, they were doing so without any purpose'

- b. *ape = wi* *dã* *'je* *te-i#i-di = wi*
 other = CL.AN.COL they indef do-ST#WANT-NMZ = CL.AN.COL
 '(one god became the sun) the other ones became what they wanted'
- c. *dã-de* *kore-ka-i = wi-ba-kawi = da = ta*
 they-OBL look.after-BEN-ST = CL.AN.COL-BE-PST.NMZ.AN.PL = PRCSLY = E.FC
bĩhã *'je* *#te-ja-dãmu-iki*
 you.all indef #do-ST-ASM.N.3AN-P.V
 'you would definitely act (respectfully) since you were taking care (of the land) for them'

One of the most important functions of the indefinite pronoun is its use with negated predicates. Negation in Kubeo has scope only over the verb, following from the fact that it is a verb suffix, *-be* 'negative' (cf. section 8.2.1.1). In addition, Kubeo lacks any kind of negative determiner or quantifier. Hence, the function of the indefinite pronoun in negated predicates is to either negate the verb event completely (i.e. coding ideas such as 'nothing', 'any', 'none', etc.), or negate NPs, (coding ideas such as 'nobody' and 'no'). See the two sets of examples below:

- (9.62) a. *bãhẽ* *bãkĩ* *'je* *ã-be-bi* *kãrẽhã*
 OUR.INC son indef eat-NEG-3MSC yet
 'our sone has eaten nothing yet'
- b. *'je* *okabewi*
 indef rain-NEG-N.3AN
 'there was no rain' (lit. nothing rained)
- c. *aru wo-rã* *dĩ-wa-ibã = ja* *dã*
 so search-AN.P go-CAUS-IL.3AN.P = REP they
ea-be#te-ibã = ja
 find-NEG#DO-IL.3AN.P = REP
 'so they went off searching. They found nothing'
- (9.63) a. *i = sebãdã-de* *'je* *kũidã#hãrãwi* *'bo-be#te-di ?*
 this = week-OBL indef one#day sun.heat-NEG#do-INTR
 'it did not have sun light not a single day this week?'

- b. *bi, bāhā kulpado ābē-wi-iki*
 we.inc guilty COP.NEG-N.3AN-P.V
'je kōhē-i=e-de, 'je kapitāo, 'je profesore
 indef order-ST=MSS-OBL indef leader indef teachers
 'no! we are not guilty, nor the village, nor the leader, nor the teachers'

- c. *"je=ki=ta-ba jāi?" a-abē=ja.*
 indef=MSC=E.FC-COP.INTR THAT.MSC say-PST.3MSC=REP
"je=ki ābē-bi kiwa-e=ka-ki-be"
 indef=MSC COP.NEG-3MSC have-NMZ.MSS=ORGN-MSC-COP.3AN.S
a-abē=ja ape=ki
 say-PST.3.MSC=REP other=MSC
 "who is that one?" he said, "he is nobody, (he is) the one that owns stuff
 (i.e the white man)" another one said.

9.7 Quantifiers

Quantifiers in Kubeo include determiners such as *kai* 'all, every', *ire* 'a lot', a stative verb *obe* 'many', *obebe* 'few', a post-position *koapa* 'each, one by one' and numerals. Quantifiers are a heterogeneous grammatical category. Some quantifiers; like *kai* 'all, every', *kuidā* 'one', and *pika* 'two'; are dependent stems and as a result behave similarly from a morphosyntactic perspective. Other quantifiers have distinct and separate morphosyntactic properties.

Negative quantifiers (e.g. no one, nothing, etc.) and indefinite quantifiers (e.g. someone, something, whoever, etc.) have no specific morphemes in Kubeo and their expression is achieved by different means (see further below).

Quantifiers appear to have a close relationship with adverbs. This is evident in that many quantifiers form adverbial expressions, and still other quantifier morphemes can function either as quantifiers or adverbs (see further below in this section).

All quantifiers usually precede the head noun in a syntactic phrase or compound structure, as illustrated in (9.64) and (9.65), respectively. The sole exception is the post-positional quantifiers *#koapa* which always follow the head noun, as represented in (9.66):

- (9.64) a. *ĩhã põe#te-kebã-awĩ kai = wĩ ĩhã bõa-wĩ*
 we.exc person#do-PST.ASM-II.1/2/3IN all=CL.AN.COL we.exc kill-N.3AN
 'we were born as fish, all of us'
- b. *obe-be = wĩ 'hi#tio-i 'bã-rã-de ea-wĩ*
 many-NEG = CL.AN.COL MY#uncle-PSS child-AN.PL-OBL arrive-N.3AN
ĩ *jawi#tãkũwe-i*
 I jaguar#rapids-LOC
 'I met a few cousins in Iauaretê'
- (9.65) a. *obe-di pãbĩ-wa beha-bã bĩtu-i*
 many-NMZ Kubeo-AN.PL go.up.river-3AN.PL Mitu-LOC
 'many Kubeos went up to Mitú'
- b. *kari pika ihĩ-a dĩ-ki = da-ji-bebu ĩ*
 now two summer-IN.PL go-NMZ.PRF.MSC = PRCLY-NMZ.MSC-ASM.COP he
 'He should be going in two years from now'
- (9.66) *jãbĩ-a koapa 'hi#bãko "ji-de kojĩ-ha-ki" a-wa-i-biko ji-de*
 night-pl each my#daughter I-OBL tell-IMP-MSC say-HAB-ST-3FEM I-OBL
 'Every night my daughter asks me to tell her stories'

Some quantifiers that can take a clitic or a full noun as a complement can also function independently, without a head noun, as illustrated below:

- (9.67) a. *idã obe-di = wĩ = ta-bu*
 THIS.AN.PL many-NMZ = CL.AN.COL = E.FC-COP.N.3AN.S
 'These ones (a clan) are so many!'
- b. *kai = e di = ki kiwa#te-awĩ = ja*
 all = MSS ANPH = CL.TREE have#do-II.1/2/3IN = REP
 'That tree had it all'

When a quantifier that typically precedes the head noun is actually following it in a particular sentence, it is usually a case of apposition, as illustrated in (9.68) below:

- (9.68) *ki#te-awĩ=ja* *kĩi=ba*
 exist#do-II.1/2/3IN = REP manioc = CL.TIED.UP
õre *ihi* *kawa#bẽdẽ* *kai=e*
 banana pineapple sugarcane all = MSS
 'it had manioc sticks, banana, pineapple, sugarcane, all of it'

One also finds cases of "quantifier movement", i.e. when the quantifier and the head noun are in a discontinuous position in the clause, as a result of syntactic movement of the quantifier towards the left edge of the clause, as represented below:

- (9.69) a. *ĩ jai-ki* *hipoka kai=e-de* *bãhi-bi=ja*
 he die-FUT before all = MSS-OBL know-3MSC = REP
di=e *estoria-de*
 ANPH = MSS story-OBL
 'It is said that before he died he knew all the stories'
- b. *pirabĩri=ka=dõ* *fiesta obe-di* *bahu-ba#te-bã*
 Piramiri = ORG = CNT party many-NMZ INTNS-be#do-3AN.P
põe-wã
 person-AN.P
 'There were a lot of people in Piramiri's party'

The quantifier *kai* has a semantic value that is in between 'every' and 'all'. In the sense of 'all', it refers only to a group of elements, as in the examples below:

- (9.70) a. *kai=kĩ-de* *ĩ-de* *hãpiãpõ-i-mĩ=ta* *te-bi*
 all = MSC-OBL he-OBL scratch-ST-PAS.MSC = E.FC DO-3MSC
 'he had scratches all over him'
- b. *kai=e* *oko hitabi-ke* *popo-wĩ*
 all = MSS water lake-ORGN.MSS dry-N.3AN
 'all the water from the lake has dried'
- c. *habo-wa* *kai=wĩ* *hoa-dõ=ka=wĩ*
 leader-AN.PL all = CL.AN.COL far-NMZ.CNT = ORG = CL.AN.COL
eda-i=wĩ *bĩhã*
 arrive-ST = CL.AN.COL you.all
 'you, all leaders from far away, are arriving'

- d. *kūidā hatio-dĩ kai = dō ã-dĩ*
 one cook-CNV all = CNT eat-CNV
 'one cooks all at once and eats all of it'

In the sense of 'every', it refers to the collection of singular elements, but highlights the individuality of each element, as illustrated below:

- (9.71) a. *kai hawehĩna oko#kaju-e ũkũwaiwi*
 every early.morning water#mix-NMZ.MSS drink-HAB-ST-N.3AN
 'I drink porridge every day, early in the morning'
- b. *kãidi = dī ða-ha-dã kai = e letras B*
 form = CL.RND make-IMP-AN.PL every = MSS letter B
 'draw a circle in every letter B'
- c. *kai = wi-de jawa-dĩ hariwa-biko*
 every = CL.AN.COL-OBL spread-CNV give.away-3FEM
 'she gave away (candies) by distributing to everyone'

When combined with the diminutive enclitic, the quantifier *kai* 'all, every' marks a general class of things, i.e. the totality of a kind, as exemplified in (9.72) below:

- (9.72) a. *kai = hĩ-dã bõa-de ã-i-kakĩ*
 every = DIM-AN.PL fish-OBL eat-ST-II.1S.MSC
 'I eat all kinds of fish'
- b. *dĩ = kī kai = hĩ-e ã-i = e*
 ANPH = CL.TREE all = DIM-MSS eat-ST = MSS
'kĩ#te-awĩ = ja 'õre ihi kawa#bẽdẽ jãbu...
 exist#do-II.1/2/3IN = REP banana pineapple sugarcane yam
 'that tree had all kinds of food: banana, pineapple, sugarcane, yam...'

There is some semantic overlap between the quantifier *kai* (when carrying the meaning 'every') with the quantifier *koapa* in the sense of 'each, one by one'. This is shown in the sentence below where the two quantifiers co-occur:

- (9.73) *bãhẽ ã-dãhi = e-de epe-jĩ kai = e-de*
 our.inc eat-FUT.AN.PL = MSS-OBL leave-NMZ.MSC every = MSS-OBL
kĩi... bãhẽ ã-i = e koapa
 manioc our.inc eat-st = cl.mss each
 'everything we were going to eat he left us: manioc... each one of our food'

Other examples of *koapa* 'each, one by one' are provided below:

- (9.74) a. *ibedīta hārāwī koapa wai-be#te-wī=ja*
 however day each pass-NEG#do-N.3AN = REP
 'nevertheless, (the bus) did not pass every single day, so they say'
- b. *butfi kūi-jī koapa ābē-wa-i-bi tfiā*
 tobacco end-NMZ.MSC each bad-HAB-ST-3MSC, male.vocative
 'every time the tobacco runs out, he gets crazy, man!'

Further distinctions between *koapa* 'each, one by one' and *kai* 'all, every' are illustrated by their use as temporal adverbs:

- (9.75) a. *hārāwī koapa*
 day each
 'every single day'
- b. *kai hārāwī*
 all day
 'all day'
- c. *kai hārāwī-a*
 every day-IN.PL
 'every day'
- d. *kai dībī-a*
 every time-IN.PL
 'always'

The quantifier *koapa* 'each, one by one' can also be used independently as an adverb:

- (9.76) *koapa = ta 'jo-de ki#te-kebā-awi*
 each = E.FC here-OBL exist#do-PST.SM-II.1/2/3IN
 'they lived here separately (i.e. in single family houses)'

Another semantic overlap between quantifiers occurs with *obe* 'many', a stative verb root ('to be many, plenty'), and *ire* 'a lot' (formed from the adjective *ira* 'big' and the suffix *-e* 'mass'). The former can only refer to animate nouns, as represented in (9.77), whereas the latter usually refers to any kind of noun, as illustrated in (9.78):

- (9.77) a. *hia ēkāri-de obe-di bahu bĩrẽ-wa ki-ma*
 river edge-OBL many-NMZ intens mosquito-AN.PL exist-3AN.P
 'there are many mosquitos at the river edge'
- b. *dã obe-di = wi ũkũ-i = wi = ta te-ibã*
 they many-NMZ = CL.AN.COL drink-ST = CL.AN.COL = E.FC do-II.3AN.P
 'many of them used to drink'
- (9.78) a. *ire jawi-wa ki-rãbã haija-de*
 a.lot jaguar-AN.P exist-ASM.AN.P Aiyari-OBL
 'there should be a lot of shamans in the Aiyari river'
- b. *ire kōhã dawawi*
 a.lot bacaba come-CAUS-N.3AN
 'I brought a lot of bacaba (fruit from a palm species)'
- c. *ire jai ki-dõ-de bãhĩ-wa-i-wi çĩã jĩ*
 a.lot liana exist-CNT-OBL know-HAB-ST-N.3AN VOC I
 'I know where there are a lot of lianas'

The quantifier *obe* 'many' is used only with animate nouns, while *ire* 'a lot' can be used with both animate and inanimate nouns. It should be noted that neither my corpus nor that of Morse et. al. (1999) contains any quantifier meaning 'many' for inanimate count nouns. Every time a Kubeo native speaker refers to many inanimate nouns they simply use the plural form of these nouns.

To mark something with the meaning 'a few', Kubeo uses the negation of 'many': *obebe* 'a few, little', which can refer to both animate and inanimate nouns.

- (9.79) a. *jo-i jĩ 'hã-wĩ obe-be = wi jãbã-wa*
 here-LOC I see-N.3AN many-NEG = CL.AN.COL deer-AN.P
 'I saw a few deer over here'
- b. *'hi#hio-de obe-b#ote-i = e 'ki#te-wi*
 my#garden-OBL many-NEG#plant-ST = MSS exist#do-N.3AN
 'my garden has only a few crops'

(9.82)

Table 10: Numerals

ANIMATE FEMININE	<i>kuidā = ko</i> one = FEM			
ANIMATE MASCULINE	<i>kuidā = ki</i> one = MSC			
ANIMATE PLURAL	<i>kuidā = wi</i> one = CL.AN.COL 'a family, clan, group of animals, etc.'	<i>pika-dā</i> two-AN.P 'two animate ones'	<i>'jobeki-di = wi</i> three- NMZ = CL.AN.PL 'three animate ones'	<i>'jowaikiwai = wi</i> four = CL.AN.COL 'four animate ones'
INANIMATE COUNT GENERIC	<i>kuina = dō</i> one = CNT 'one thing, place'	<i>pika = dō-a</i> two-CNT-AN.P 'two places or things'	<i>'jobeki = dō-a</i> three = CNT-IN.P 'three places or things'	<i>'jowaikiwai = dō-a</i> four = CNT-IN.P 'four places or things'
INANIMATE COUNT CLASSIFIER	<i>kuidā = kū</i> one = CL.EMB 'one bunch'	<i>pika = kū-a</i> two = CL.EMB- IN.P 'two bunches'	<i>'jobeki-di = kū-a</i> three = CL.EMB-IN.P 'three bunches'	<i>'jowaikiwai = kū-a</i> four = CL.EMB-IN.P 'four bunches'
INANIMATE COUNT NOUN	<i>kuidā jahubo</i> one group 'a single group'	<i>pika jahubo</i> two group 'two groups'	<i>'jobeki-di jahubo</i> three group 'three groups'	<i>'jowaikiwai jahubo</i> four group 'four groups'

Numerals can be combined with the quantifier *kai* 'all, every' as in the sentence below:

(9.83) *kai pika dōbī-wa-deka kōhi-wa-i-wi*
 all two woman-AN.P-OBL.SAME like-HAB-ST-N.3AN
 'I like both the two women'

Numerals can also be used in adverbial expressions, as *pīke* 'twice' (from *pika = e* two = MSS) and *kuina = da* 'once' (one = PRECISELY).

Finally, inherently negative quantifiers do not exist in Kubeo. In fact negation is a property of verbs, rather than predicates or even NPs. In addition, because Kubeo has a specific indefinite pronoun, and negative quantifiers are usually semantically indefinite cross-linguistically, it is not surprising that in Kubeo most expressions of negation are achieved by a combination of a negated verb plus the indefinite pronoun. For example, 'nothing' is expressed by the indefinite pronoun *'je* (see section 8.6 above), however 'nobody' is expressed by the question word *jābē* 'who' in combination with the word *bahu* 'intensifier' (which is optionally, but frequently, attached to

(9.88)

Table 12: 'a 'which'

'a-ko which-FEM	ANIMATE FEMININE
'a-ki which-MS	ANIMATE MASCULINE
'a-dã which-AN.PL	ANIMATE PLURAL
'a-dõ which-CNT	INANIMATE COUNT GENERIC
'a#NP (noun or clitic)	INANIMATE COUNT
'aðe ⁹	INANIMATE MASS OR PLURAL

The morpheme for the inanimate mass category *aðe* has an unexpected /ð/ in between the two vowels. It is possible to speculate that there was not previously /i/ in the root's final position, **ai*, which was lost in other forms, but was fossilized in the inanimate mass form according to the following process: **ai-e* > **aije* > **aje* ['aðe]. This could suggest that the whole paradigm of QWs was based on an **ai* morpheme, which is present in the *aipe* 'how many/much, when' and *aibe* 'what' forms.

The following sentences illustrate a few forms from the paradigm above:

- (9.89) a. '*a-dõ-ba* '*ãu = dõ* '*bĩ* '*a-i = dõ-ba-kadõ*
 which-CNT-BE cassava = CNT your make-ST = CNT-BE-PST.NMZ.CNT
 'which manioc bread did you make?'
- b. '*a-ko* '*bahu-ba* '*bĩ#joko* ?
 which-FEM INTENS-COP.INTR your#younger.sister
 'which one is your younger sister?'
- c. '*a = we-de* '*hiaðo = we-de* '*ji* '*ĩ-hĩ?*
 which = CL.BLADE-OBL river = CL.BLADE-OBL I take-PRMS
 'which paddle may I take?'

⁹ This form is informed by Morse et. al (2000). I have no tokens for this form in my corpus.

- d. '*a-dõ* *bahi = dĩ* *bĩ*
 which-CNT exactly = 2.INTR you
 'where exactly are you?'

Sentences (9.89a) and (9.89d) illustrate how the inanimate count generic can refer to a count noun bearing no classifier, or can refer to a place. The latter type can overlap in functional terms with the QW '*ãrĩ* 'where', as illustrated in the sentences below:

- (9.90) a. '*ãri* *dĩ-jo* *silvia* ?
 where go-NMZ.FEM silvia
 'where are you going, silvia?'
- b. '*ãrĩ = ta-ba* *ji* ?
 where = E.FC-COP.INTR I
 'where am I?' (after fainting)
- c. '*ãrĩ-ba* *õpõ = jĩ-a* *pĩka = jĩ-a*
 where-COP.INR thunder = CL.PALM-IN.P two = CL.PALM-IN.PL
 õpõ = jĩ-a '*hi#jẽkũyo* *hi-e* ?
 thunder = CL.PALM-IN.P my#grandfather GN.PSS-MSS
 'where are my grandfather's two shotguns?'

The differences between '*a-dõ* (which-.CNT) 'which place' and '*ãrĩ* 'where' is based on the fact that the former expresses a location in a limited set of possibilities, while the latter is not constrained to a particular set.

Another way to ask questions about location is by use of *aruka* 'where is' or 'where about'. This word is somewhat different than the other forms because it does not require a verb and it is used more frequently in situations related to surprise or sudden inquires, similar to Portuguese *cadê* 'where is'. The word *aruka* 'where is' is very popular in daily conversations and is formed by *aru* 'and, so' and *=ka* 'doubt'

- (9.91) a. *aruka* *bĩ = pakĩ*
 where.is your = father
 'where is your father?'

- b. *aruka borika-ki* *bāhē* *boa-wa-bĩ*
 where.is aracu.fish-MSA our.inc kill-PST.PAS-PAS.MSA
 'where is the Aracu fish we caught?'

The QW *jābē* 'who' is illustrated below:

- (9.92) a. *jābē-ba* *iko* ?
 who-INTRR.COP THIS.FEM
 'who is she?'
- b. *jābē-de* *bĩ* *wo-ji = dĩ* ?
 who-OBL you search-NMZ.MSA = 2.INTR
 'who are you looking for?'
- c. *jābē* *ji-de* 'oreha-di *bākā-dō-i* ?
 who I-OBL call-INTR jungle-CNT-LOC
 'who is calling me from the jungle?'

The QW *jābē* is in functional overlap with the indefinite pronoun *'je* (cf. section 8.6) as can be seen from sentences (9.58). *jābē* 'who' can also be used in negative sentences to mark the concept of 'nobody', as illustrated in example (9.84).

The QW *'aipi#* codes 'how many, how much' and must be complemented by a clitic or noun whose quantity is in question. The table below shows the set of forms of *'aipi*:

(9.93) *Table 13: 'aipi# how many, how much*

<i>aipi = wĩ</i> how.many = CL.AN.COL	ANIMATE PLURAL
<i>aipi = dō</i> how.many = CNT	INANIMATE COUNT GENERIC
<i>aipi#NP</i> (noun or classifier)	INANIMATE COUNT
<i>aipi = e</i> how.many = MSS	INANIMATE MASS OR PLURAL

The following sentences illustrate the usage of these forms:

- (9.94) a. *aipi = wĩ* *bahu* *dõbĩ-wa* *eda-di?*
 how.many = CL.AN.COL INTENS woman-AN.PL arrive-INTR
 'how many women arrived?'
- b. *aipi = e* *kõhã* *da-wa-ki-dĩ?*
 how.much = MSS bacaba come-caus-nmz.prf.msc-2.intr
 'how much Bacaba fruits did you bring?'
- c. *aipi-dõ* *bahu* *kii* *pie-a-de* *õ* *ũbã-i-di*
 how.many INTENS manioc basket-IN.P-OBL she carry.on.back-ST-INTR
 'how many baskets of manioc is she carrying?'
- d. *aipi* *õpõ = ñĩ* *kĩwa#te-ki-dĩ*
 how.many thunder = CL.PALM-IN.P have#do-NMZ.PRF.MSC-2.INTR
 'how many shotguns do you have?'

Somewhat related to '*aipi*' 'how many, how much' is '*aipie*' 'when', which appears to have the same root for 'how many, how much' plus the clitic =*e* 'mass'. The category of INANIMATE MASS is often employed to form adverbs from nouns, adjectives and verbs. In this case, many of them form temporal adverbs, as in *pĩke* 'twice' (*pĩka*=*e* two=MSS) and *hoe* 'long time' (*hoa-e* be.long=MSS). The QW '*aipie*' 'when' is always complemented by the oblique phrasal-affix *-de* (what contrasts it with the 'how many, how much' QW) and usually followed by the intensifier *bahu*.

- (9.95) a. *'aipie-de* *kĩrãmi* *'ẽ-de-ba* ?
 when-OBL house burn-NMZ.PRF.NMZ.IN-COP.INTR
 'when did the house burn?'
- b. *aipie-de* *õ* *kopa-dĩ* *da-kohi-di*
 when-OBL she return-CNV come-FUT.FEM-INTR
 'when is she coming back?'
- c. *aipie* *bahu-de* *awia* *jãbĩ = ka = kĩ* *haro-ki-di?*
 when INTENS-OBL sun/moon night = ORG = MSC be.seen-FUT-INTR
 'when the moon will be visible?'

The QW '*aipie*' meaning 'what' or 'how' is illustrated in (9.96) and (9.97), respectively:

- (9.96) a. *'aipe a-jo-ba kari = hĩ-e-de 'bĩ#bãko*
 what make-NMZ.FEM-COP.INTR now = DIM-MSS-OBL your#daughter
 'what is your daughter doing right now?'
- b. *'aipe ji-da = ta 'hã-jo-dĩ ?*
 what you-PRECISELY = EMPH.FOC look-NMZ.FEM = 2.INTRR
 'what are you looking at me?'
- c. *bãhẽ jẽkũ 'aipe a-i-di ?*
 our.inc grandfather what say-ST-INTR
 'what is our grandfather saying?'
- (9.97) a. *'aipe -'ba#te-di ?*
 how BE#do-INTR
 'how is he doing (a sick dog)?'
- b. *'aipe-ba-di oko ãdõ hitãbi-ke-de*
 how-BE-INTR water THAT.CNT lake-ORGN.MSS-OBL
 'how is the water from that lake?'

When *'aipe* carries the meaning 'what', it is in functional overlap with the indefinite pronoun *'je* (cf. section 8.6), however *'je* has a more extensive usage. While *'aipe* 'what' is only combined with a few verbs (such as *đa* 'make', *'hã* 'see' and *a* 'say'), the indefinite pronoun can be used with virtually any verb, as in the examples below:

- (9.98) a. *'je-de hi = pako hatio-ko-ba ?*
 indef-OBL my = mother cook-NMZ.PRF.FEM
 'what has your mother cooked?'
- b. *je-de paulo boa-ki-ba?*
 indef-OBL Paulo kill-NMZ.PRF.MSC-COP.INTR
 'what has Paulo killed?'

It is important to mention that the word *'aipe* 'what' never takes case marking, however the indefinite pronoun does. This fact, as well as the semantic ambiguity of *'aipe* meaning both 'how' and 'what', suggests that this QW is not really a verb argument, but might refer to other semantic properties of verbs. Furthermore, the QW *'aipe* has usages in non-interrogative sentences. I am still trying to make sense of the function and semantics of this word in those other contexts, because of its vastly

polysemous character. Nevertheless, the sentences below present some examples to which I can offer a tentative explanation:

- (9.99) a. *jí ea-wí kũidã-ki aipe hi = bãbĩki-ba-hi-bi*
 I find-N.3AN one-MSCL how my = older.brother-BE-IRR-3MSC
 'I met a man who looks like my older brother'
- b. *hĩka 7-de hẽdĩa-di 'hã-de aipe di = kũ dĩ-ki*
 let's he-OBL ask-CNV see-OBL how ANPH = CL.HOLLOW go-NMZ.FUT
 'let's ask him whether he could go in the canoe'
- c. *aipe bĩ ãrĩ-be-ki-dĩ o 'hãpia-be-ki-dĩ ?*
 how you think-NEG-NMZ.MSC-2.INTR or be.heard-NEG-NMZ.PRF.MSC-2INTR
 'either you are crazy or is not hearing well'

The use of *'aipe* in all of these sentences is irrealis, and *'aipe* is always in the first position in the clause, whether in the main or the embedded clause (as in (9.99b)). In (9.99a), the speaker is literally saying 'I met a man that could be my brother'. In (9.99b) the irrealis meaning can be seen in the supposition that he 'he could go in the canoe', which led the speaker go ask the question. Also, example (9.99c) is clearly a supposition.

Other QWs where *'aipe* is present also reflect its semantic ambiguity. For instance, *'aipe te-dĩ* 'why' and *'aipe te-* 'what happened' are semantically very similar, though they are structurally distinct: the former has a converb ending, while the latter requires a nominalizing suffix, which agrees with the subject of the topic of the sentence.

- (9.100)a. *aipe#te-dĩ hieđo-wa o-i-dĩ?*
 how#do-CNV child-AN.P cry-ST-INTR
 'why the children are crying?'
- b. *aipe#te-dĩ tʃuri te-ki-dĩ*
 how#do-CNV wound do-NMZ.PRF.MSC-2.INTR
 'why do you have a wound?'
- c. *aipe#te-dĩ bĩhã ea-dĩ bãhi-be#te-dã-ba ?*
 how#do-CNV you.all arrive-CNV know-NEG#do-NMZ.PRF.AN.P-COP.INTR
 'why you were not able to arrive?'

- (9.101)a. *aipe#te-i = dō* *'bĩ#jako = dī* *hũa-dĩ* *wai-di*
 how#do-ST = CNT your#eye = CL.RND red-CNV pass-INTR
 'why your eyes went red?' (lit. what happened to your eyes to go red?)
- b. *aipe#te-ji* *bĩ jãbẽ = bũ* *bihi-be-ki-dĩ*
 how#do-NMZ.MSC you throat = CL.THICK.LINE sound-NEG-NMZ.PRF.MSC-2.INTR
 'why are you without a voice?'
 (lit. what happened to you so your throat does not sound?)
- c. *bãhẽ hawi-ki* *põe-ki* *kiwa-be = wĩ* *bĩhã*
 our.exc potential.affine-MSC person-MSC have-NEG = CL.AN.COL you.all

aipe#te-de-ba *bĩhã*
 how#do-NMZ.PRF.IN-COP.INTR you.all
 'you don't have a person to be your affines, what happened to you?'

The converb suffix is also present for the same reason as in the QW '*aipe#a-dĩ* 'by what means', which is illustrated below:

- (9.101) a. *aipe#a-dĩ = ta* *haðekebã-a-di ?*
 how#make-CNV = E.FC tear-PST.ASM-PST-INTR ?

aboðo *tota-a-di* ?
 wood stick-PST-INTR
 'how it got tore? a wood stuck it?'
- b. *aipe#a-dĩ = ta* *hio* *bẽbẽ-ki-dĩ*
 how#make-CNV = E.FC garden work-NMZ.PRF.MSC-2.INTR
karo = we *ki-be = ki*
 machete = CL.BLADE exist-NEG = MSC
 'how could you work in the garden without a machete?'

The form '*aipe ãrõhã*- meaning 'what is it like', is used in asking about the interlocutors' evaluation of something. Such an evaluation commonly stems from the appearance of something, but can also apply to other sensations (hearing, smelling, etc.), as well as more abstract things, such as ideas, emotions, etc. It is formed from '*aipe* 'what, how' and '*ãrõhã*- a stative verb meaning 'to resemble, to look like'. This is exemplified in example (9.102):

- (9.102) *kĩrã = bo-ba-awĩ* *bẽ* *põe-ki = pe* *ãrõhã-awĩ*
 rock = CL.OVAL-BE-II.1/2/3IN well person-MSC = AS RESEMBLE

'there is a rock that looks just like a person'

The following sentences illustrate the usage of the QW '*aipe arôhã*- 'what is it like':

- (9.103)a. *aipe#arôhã-e i=jâbĩ kĩrâbĩ-de bĩ a-kaki-dĩ*
 what.is.like-MSS this=CL.HOUSE house-OBL you make-PST.NMZ.MSC-2.INTR
 'how does it look like the house you made?'
- b. *aipe#ârôhã=dô-ba jo ?*
 what.is.like-CNT-COP.INTR THIS.CNT
 'what is this color?' (lit. how does this look like?)
- c. *aipe#arôhã-e bĩhi-di i=e hapu-i=jĩ*
 what.is.like-MSS sound-INTR this=CL.MSS blow-ST=CL.PALM
 'how does this flute sound?'
- d. *aipe arôhã-e ða-dĩ di=jâbĩ-de*
 what.is.like-MSS make-CNV ANPH=CL.HOUSE-OBL

dãkôwã-kebã-di=ka
 build-PST.ASM-INTR=DOUBT
 'how (the ancestors) built the traditional long houses?'

First, while the literature on clitics proposes a distinction on the same lines as my distinction between clitics and phrasal-affixes (cf. Zwicky 1994 and Anderson 2005), I am not aware of this distinction being found within a single language. In addition, the Kubeo bound-stem morpheme is unique: it behaves morphosyntactically as a phrasal-affix, but phonologically it has mixed properties of clitics and affixes (cf. section 6.3).

Morpheme type categories encapsulate generalizations about the correlation of phonological and structural properties in distinct morphemes in Kubeo, as illustrated in table 3, example (6.12) from chapter 6. Each morpheme type is understood as a cluster of phonological and structural properties that are underlyingly specified for each morpheme. The analysis of these categories is one of the most significant findings of this dissertation, not only because of the complexity of the system, but also because the categories are the link between phonology and morphosyntax.

The phonology proved to be best analyzed as an autonomous module of Kubeo grammar, with its own rules and hierarchical organizations (cf. section 6.7, chapter 6). While phonology is sensitive to the structural properties of words, it also imposes certain requirements and constraints on different types of words. The way this is realized was presented as a set of prosodic domains and derivational rules in section 6.7 from chapter 6.

The most important points concerning Kubeo phonology are:

- i. A small segmental inventory contrasting with a complex prosodic system. Kubeo has one of the smallest consonant inventories in the world (cf. Maddieson 2011): there are 11 consonants, two of them are cases of recent phonemicization (/r/ and /ð/).
- ii. The internal organization of SYLLABLES, especially the existence of VOWEL CLUSTERS (cf. section 2.1.1.2, chapter 2); the correlation of /i/ and /j/ (as presented in section 2.1.1.1, chapter 2, and its implications for ON-GLIDING [2.1.2.6, chapter 2], AMBISYLLABILITY [section 5.3, chapter 5] and EXCEPTIONAL CODA formed across morpheme boundaries [cf. 2.1.2.7, chapter 2]), and SYLLABIFICATION rules across morpheme boundaries (cf. section 5.3, chapter 5 and sections 2.1.2.3, 2.1.2.4 and 2.1.2.5, chapter 2).
- iii. Interesting ALLOPHONIC ALTERNATIONS and phonemicization processes involving /d/ and /r/, in one hand, and /j/ and /ð/, on the other hand (cf. sections 2.2.2.4 and 2.2.2.5, chapter 2);

- iv. NASALITY as an underlying property of whole syllables, as a property of phonological words in NASAL HARMONY, FLOATING NASALITY, and the distinction between phonological and phonetic nasalization (cf. chapter 3). Nasality in Kubeo is typologically unique. This is so not only because of its nasal harmony system targeting any voiced segment and being blocked by any voiceless segment, but because the source of nasality are nasal syllables, which are underlyingly properties of morphemes. This makes Kubeo also unique with respect to other Eastern Tukanoan languages, where whole morphemes but not individual syllables are marked as all nasal or all oral.
- v. The correlation of stress and tones and their co-dependency in metrical structure (cf. chapter 4). The exact way tones and stress correlate in Kubeo is typologically unique. While there have been several reports of languages where the phonology of stress and tones correlate (cf. Hyman 2006; Odden 1995), Kubeo has tones and stress as distinct phonological systems. Their complex integration in the surface forms of words is due to the fact that the phonology of tone and stress are based in the same metrical structure. Depending on how one analyzes metrical structure, the correlation of tones and stress can receive different interpretations. Tones can be seen as dependent on stress if one sees metrical structure as essentially a property of stress rules. In this dissertation I opted for using more neutral metrical theory terminology, such as accent and foot, and treating stress and tones as parasitic systems on metrical structure.
- vi. Tones as an underlying property of lexical roots and the existence of toneless roots, as well as the problematic choice of how to represent tones in Kubeo (see section 4.2, chapter 4).

The chapters on morphosyntax were devoted to the analysis of grammatical categories and word formation processes, although certain syntactic topics were also discussed, especially agreement.

The analysis of word classes in Kubeo highlighted the existence of four major classes: nouns, verbs, adjectives, and adverbs (cf. chapter 7). This analysis is important for general theories of how the lexicon, syntax and morphology correlate, since in Kubeo there is evidence for 3 grammatical levels that distinctly organize word classes in Kubeo. While on the syntactic level, all four major word classes are open categories, in the lexicon, adjectives form a closed category of only 6 roots (one of the smallest in the world with only 6 roots [cf. Dixon 2004], see section 8.4, chapter 8), and there is a set

of roots not assigned *a priori* to any particular word class. The lexicon and syntax contrast with the morphological classification of words, which collapses the four categories into only two: nouns and verbs (cf. chapter 7).

The most notable aspects of nouns in Kubeo are related to the categories of the system of nominal classification and the classifiers (cf. section 8.1.1 and 8.1.3 respectively). Kubeo has a system of two noun classes, Animate versus Inanimate. Each class is also subclassified: animate nouns can be classified in terms of gender (masculine and feminine), number (singular and plural) or shape, where animate nouns are combined with a classifier. Inanimate nouns are classified as mass or count, whereas count nouns are classified according to number (singular and plural) and shape.

The correlation of a noun class system, a gender (sex) classification system, and a noun classifier system is certainly typologically rare cross-linguistically (cf. Grinevald 2000). The Kubeo system is also unique among the Tukanoan family given its widespread use of shape classifiers and gender to categorize animate referents inherently, whereas in other Tukanoan languages gender is inherently used just for humans, and shape just for inanimate nouns (cf. Gomez-Imbert 1996).

The categories of the system of nominal classification are very interesting for their high semantic transparency and their pervasiveness on different levels of Kubeo grammar. They are present in nominal inherent inflection (cf. section 8.1.1, chapter 8), as features of agreement in the NP (cf. section 8.1.2, chapter 8) and features of subject-verb agreement in the verb (cf. section 8.2.2.1).

Classifiers form a set of seventeen morphemes (cf. section 8.1.3, chapter 8). They are analyzed as clitics and as morphemes with an ambiguous grammatical status between regular nouns and functional categories. Such ambiguity can be observed from several perspectives, the most notable one being their function in the creation of words and their role as agreement features.

Categories of nominal inflection are also present on verbs as features of subject-verb agreement (cf. section 8.2.2.2). The ways these categories are coded in different paradigms are based on a remarkable system of animacy, person, and gender hierarchy (cf. section 8.2.2.1). In addition these categories are generally fused with other categories of verb inflection, such as aspect, tense and evidentiality.

The hallmark feature of verbs in Kubeo, however, is found in the intricate ways that aspect, tense and evidentiality correlate with one another (cf. section 8.2.3). The most important aspectual categories in Kubeo are PERFECTIVE and STATIVE. These categories are coded not by specific aspectual morphemes, but are derived from the

default lexical aspect of verb roots (which are divided in two subclasses: DYNAMIC and STATIVE) or from the derived lexical aspect of verb stems, since affixes such as NEGATIVE or CAUSATIVE can cause a dynamic verb root to be derived into a stative verb stem, or a stative verb root be derived into a dynamic verb stem, respectively (cf. section 8.2.1.1). A dynamic verb stem conveys by default perfective aspect, and a stative verb stem conveys stative aspect.

Tense and aspect are co-dependent. Only dynamic verb stems can code a situation in the recent or remote past. Stative stems can code a situation in the present or non-temporally, such as in generic sentences. Curiously, the same inflectional markers code different aspectual/tense categories, whether they are combined with a stative or dynamic stem as illustrated in the table below (extracted from e.g. (8.54), see section 8.2.2).

(10.2) *Table 1: General differences between Class I and II verb inflection*

	STATIVE STEM	DYNAMIC STEM
CLASS I	- present time reference	- recent past time reference
INFLECTION	- stative aspect	- perfective or perfect aspect
CLASS II	- atemporal time reference	- remote past time reference
INFLECTION	- generic predicate	- perfective aspect

The uniqueness of the Kubeo tense and aspect system relies not only in the way a verb lexical aspect can determine the aspect of the predicate (or viewpoint), but also how tense, on the one hand, can entail a given predicate aspect, or how a given predicate aspect can cause semantic shifts in tense categories.

In addition, there are other aspects in Kubeo that fall outside perfective and stative aspects, such as iterative, progressive and habitual (cf. section 8.2.2). These categories do not have the same intricate relationship of aspect and tense as perfective and stative aspect do.

Evidentiality categories can be constrained by tense and aspect. There are four evidentials in Kubeo: first-hand, assumed, inferred and reportative. Any predicate which codes general states or generic sentences, which are not related to a specific observation by the speaker in a given space and time, are not under the scope of evidentiality categories. The inferred evidential is only used for situations that happened in the recent

past and have a perfective aspect. Third, the assumed evidential has distinct forms for stative and dynamic verbs.

Finally, chapter 9 analyzed closed word classes in Kubeo, with especial emphasis on words that function as determiners or pronominally. The most notable points from this chapter are:

- i. Different types of possessive constructions and ambiguities between head or dependent-marking strategies to code possession (cf. section 9.2);
- ii. Variable features in coding agreement between a determiner and the head noun (cf. section 9.3)
- iii. The use of anaphora as an index of definiteness and referentiality, not only for tracking a noun to a noun previously referred to (cf. section 9.4);
- iv. The varied functions of the indefinite pronoun, such as marking indefinite NPs, as a negative quantifier, incorporated in the light verb *te* 'to do', etc. (cf. section 9.6)
- v. The use of question words in declarative predicates with negation or irrealis modality (cf. section 9.6 and 9.8);
- vi. Agreement of certain question words and irrealis operators based on the determiner *ape* 'other' with the sentence topic (cf. sections 9.5 and 9.8).

The plan is that next work to be done in the analysis of Kubeo will be to write a comprehensive grammar. For that grammar, chapters from 2 to 7 will not be significantly altered, though I plan to add a chapter discussing several issues concerning Kubeo orthographies. Chapter 1 will be kept with its basic structure, though some sections will be further detailed, such as sections in 1.1 on Kubeo social organization, history and culture; section 1.2.3 which is a typological summary; and section 1.3 on the documentation of Kubeo. In addition I will add a section about Kubeo dialects.

Major word classes will each be given a separate chapter. Some issues about nouns need more detail, such as definiteness, referentiality, and the count and mass distinction with its implication to other aspects of Kubeo grammar. Semantic issues on ontological relativity, i.e. how categories of noun classification in Kubeo can entail a given worldview, will also be addressed. Case and grammatical relations also will be treated in greater detail.

Verbs will receive much greater attention than has been possible in the present dissertation. I will explore in more detail the inflectional categories of verbs and their complex interrelations and add the analysis of mood, modality, future tense, valency,

voice, and copula verbs. Also there is a lot to be said about periphrastic verb constructions and non-finite verb forms that are distinct from nominalizations.

The chapter on adjectives will be expanded so that I can discuss how individual level and stage level predication are expressed differently, and what causes a stative verb to be used in a nominalized versus in finite form when predicating.

Adverbs will receive more attention too. I will give more details about the a closed class of adverbs, the way adverbs can modify verbs and how words from other classes can function as adverbs.

A separate chapter for negation will be created. Post-positions were not mentioned in this dissertation and will be added to the grammar as well.

Syntax will cover word order, topic and focus, complex clauses and the relation of prosody and syntax.

I also plan on adding a final chapter devoted solely to the analysis of texts.

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